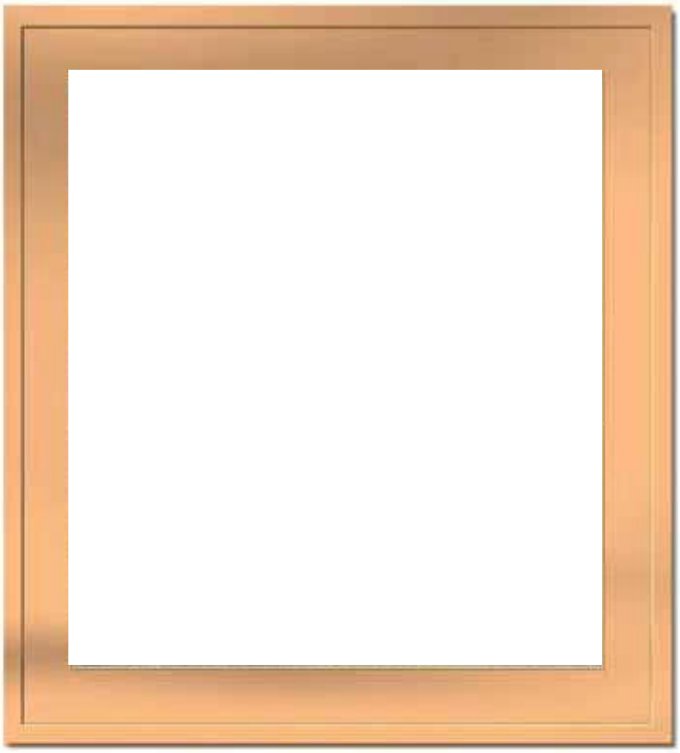
INSTRUCTION GUIDE
CLASSIC - MODUS

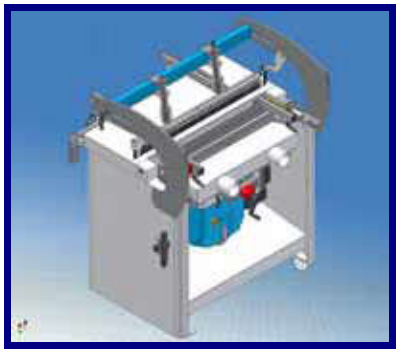
PREMISE TO THE OPERATIONS MANUAL

IDENTIFICATION PLATE -CE-



This instructions manual is aimed at machine operators and above all, at the technical staff, whose responsibility is the correct use of the machine as per safety purposes. We therefore recommend that you read it carefully, particularly the paragraphs on warnings and use modes and that you always keep it in its cover, if possible together with the machine in order to always have it at hand for further consultation.

1.0 INTRODUCTION



Series ***CLASSIC - MODUS*** drillers are manual machines with 1 inferior drill head. These machines have been designed to drill small lots of pieces in workshops or as machines to complement larger companies for occasional drilling. Their main characteristic is that they are easy and fast to adjust.

1.1 REFERENCE NORMS

Drillers have been designed and built in compliance with the European Dispositions:

- ✓ *98/37/EEC (89/392/EEC – 91/368/EEC – 93/44/EEC – 93/68/EEC) (MACHINE DISPOSITIONS) adopted with Presidential Decree 24 July 1996 NO.459.*
- ✓ *89/336/EEC – 92/31/EEC – 93/68/EEC – 93/97/EEC (E.M.C COMPATIBILITY.) adopted with Law by decree 12 November 1996, NO. 615.*
- ✓ *73/23/EEC – 93/68/EEC (LOW TENSION DISPOSITION) adopted with Law No.791 of 77, Law by Decree No. 626 of 96*

1.2 GENERAL WARNINGS

1 The correct use of this machine involves the precise knowledge of this instruction manual and of all the risks linked to incorrect use; this machine is therefore to be used only by qualified staff.

2 The safety of the use of this machine is only guaranteed for the functions and the materials listed in this instructions manual. ' will not assume any responsibility in the case that the machine is used for purposes that are not listed and which do not comply with the directions of use.

3 takes no responsibility as far as safety, liability and functioning of the machine are concerned in the case that the warnings and the suggestions indicated in this manual are not respected, in particular with regard to assembly, use, ordinary and extraordinary maintenance, repairs.

4 The electrical system of the user must conform to the Regulations CEI 64.8 (CENELEC HD 384 IEC 408). takes no responsibility in the case that the machine is not correctly connected to the earth electrical supply and accordingly the required safety devices are not set on the machine itself. Please refer to the section relative to the **characteristics of the electrical system**.

5 **For extraordinary maintenance** and repairs only original spare parts are to be used.

6 For any repair please contact our assistance service. The user must take responsibility for the perfect functioning of the machine in the case that the machine has not been repaired or maintained by ' authorized staff.

1.3 GENERAL SAFETY NORMS






1 The machine user must be trained in the correct use of the machine, the relative protection devices and the optional accessories.

2 The machine's drilling devices must be fixed and adjusted correctly.

3 The whole machine must undergo ordinary and extraordinary maintenance procedures at the required frequency.

4 Control, before starting work or turning on the machine, that the work surface is clear of previously drilled wood shavings.

5 The user must wear working attire suitable, with regards to safety, to the type of work concerned (protective gloves, shoes, goggles). It is important to avoid wearing bracelets, ties and any other kind of clothing that may get entangled.

6 Before starting any operation be sure that no other people or obstacles that could be a source of danger, are around the working site.

7 NEVER ENTER THE MACHINE AREA WHERE THE DRILL BITS ARE LOCATED BEFORE SWITCHING OFF THE MACHINE.

8 Do not leave flammable substances in the vicinity of the machine due to the possibility of sparks causing fire or explosion.

9 The user must pay the utmost attention when operating the machine by means of the pedal.

10 The user must always bear in mind the possible consequences before letting his hands get close to the most dangerous areas, being:
- Drill zone
- Zone behind the overturning drill head

11 Always keep the machine switched off when not in use.

1.4 DATI TECNICI

Dimensions of the work surface

Width	**Length**
870 mm	365 mm
Mandrel No.	**Weight in Kg.**
21	264

Drill run = 80 mm

The tensions indicated below are available for all these models; please contact our technical department for any special tension.

Three phase +/- 10%	**Mains Frequency +/- 2%**
220	50/60
240	50/60
380	50/60
415	50
440	60
575	60

Engine power and absorption

Hp	**KW**
2.5	**1.85**

Speed of mandrel rotation: 2800 G/m at 50Hz. 3300 at 60 Hz
Conditions of use: ambient temperature 5-40°. Humidity up to 90% for temperature equal to 20°.

PANEL DIMENSIONS

Depth	min. 10	max 70 mm
Length	min. 150	max 3200 mm
Width	min. 100	max 800 mm

WORKING AREA

Front 2000 mm
Side 2500 mm
Back 2000 mm

1.5 USE RESTRAINTS

This machine has been conceived to process the following materials:

1) Solid wood
2) Laminated and non-laminated chipboard panels
3) M.D.F
4) Materials of varying compositions provided they have a wood composition.
5) Only the drills conforming to the required characteristics should be used.

THE USE OF THE MACHINE FOR MATERIALS OTHER THAN THOSE CITED OR THE USE OF NON-SUITABLE DRILLS IS CONSIDERED IMPROPER USE. THESE MACHINES HAVE BEEN DEVISED AND BUILT SO AS TO BE USED IN COVERED INDUSTRIAL SITES, ANY OTHER INSTALLATION OF THE MACHINES IN SITES WHICH ARE NOT SUITABLE IS TO BE CONSIDERED IMPROPER.

1.6 PROVISION OF DOCUMENTATION

Please refer to the machine part number and model in case you wish to receive any documentation relative to your machine, including spare parts. See chapter SPARE PARTS.

1.7 STANDARD COMPOSITION

Drillers come in their original packaging, already assembled. The standard selling composition is as follows:

- Pneumatic piston for the horizontal-vertical overturning of the set.
- Front stoppers to allow same horizontal and vertical drilling distance.
- Side stoppers adjustable through magnifying glass measuring and vernier on each bar, excludable through overturning (Classic).
- Recordable side rabbets with a bar of metric reading made up of a magnifying glass and sliding gauge on each rabbet which can be excluded by reversing them (Modus).
- 2 blocking presser cylinders per piece.
- Height adjustment of drilling set with measuring on digital mechanical counter.
- Drilling depth adjustment from 0 to 80 mm with turret device (Classic).
- Drilling speed adjustment with control on main panel.
- 1 HP 2.5 (KW 1,85) engine
- Spindles with quick chuck attachment
- Accessories

1.8 LIST OF OPTIONS AVAILABLE WITH THE MACHINE

- 3000 mm aluminium bar with 4 heads for the implementation of transversal and longitudinal hole rows.

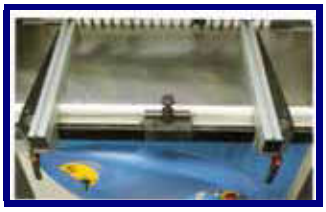
- Additional head

- Additional pressers

- Central reference block. For the assembling of the following accessories:
  - Stop on 45° surface

  - Stop for the coupling of 90° narrow pieces

- Calliper for measuring the right and the left symmetry of the pieces



- Hydraulic brake

1.9 FEATURES OF TOOLS

Machine equipped with quick chuck spindles adapted to cylindrical attachment of diameter 10mm: min. diameter=4mm max. =22mm (40mm for drilling out of the chasing tool) Length (attachment excluded) Min. 20mm Max. 60mm

2.0 TRANSPORT OF THE MACHINE

The machine must be lifted and transported only by a lifting truck or a forklift whose forks are to be inserted under the base. See TABLE 189. Use extreme caution when lifting of relocating the machine so as to avoid any possible danger due to sudden movements, which could provoke damage to people or objects. The weight of the machine is cited on the identification plate attached to the side of the machine itself or refer to TABLE 189.

2.1 PLACING OF THE MACHINE

The machine must be located on a fixed site that can bear the weight of the machine itself and any difference in height must comply with building regulations. If the machine has to be placed on a raised plan (upper floors), the main slab must be adequate with regards to the weight of the machine. Place the machine in the most opportune position according to the working needs, by placing it in the most suitable position for the connection to the electrical supply and in the proximity of a connection for the aspiration of the wood shavings. Place the machine in a sufficiently lit spot (min 300 lux) so as to guarantee that each part of the machine can be seen.

LEVELLING

Before passing to the levelling, remove the layer of protective oil from all the non-painted surfaces using petroleum or kerosene only. Do not use solvents or gasoline or fuel oil, which could damage the paint by making it opaque or produce oxidation of the other parts. If the machine should become unstable (vibrations) adjust the support bolt that ensures the stability of the machine on the ground or else make use of the holes present in the “feet” on the base of the machine in order to anchor it to the ground so as to ensure stability in any condition.

2.2 SIZE AND CAUTION AREAS

The dimensions and safety spaces are mentioned in Tables (187-188). It is important to pay the utmost attention to these safety spaces by avoiding occupying them with objects that could impede the working cycle.

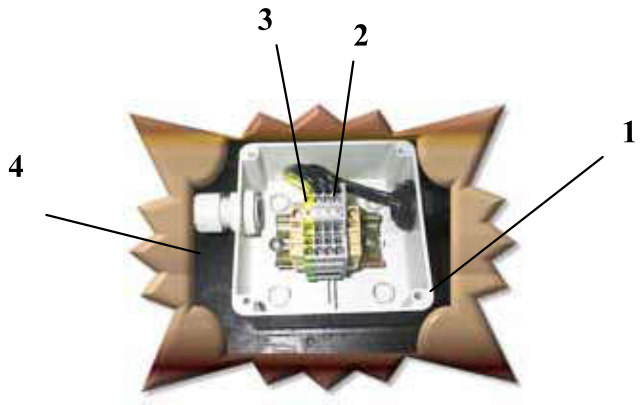
2.3 ELECTRICAL CONNECTION WITH BOX

It is recommended not to connect the machine to the electrical network before it has been correctly plugged into the proper location. The electrical installation was made in accordance with the terms CEN/CENELEC applicable.

- Equipped with fuses or protection switches against short-circuits on every main cable: except for earth plugs
- Equipped with equipotential electrical earth system
- Equipped with a thermal protection for the engine
- A power-cut device in accordance with the European Rule EN 60947-3

MACHINE CONNECTION

In order to connect the electrical supply to the machine, open the cover of the small box (1), unscrew the four screws, then carry out the connection inserting the cables from the network in the four line terminals labelled L1-L2-L3 (2) and the earth terminal labelled PE (3) (wire minimum section 2.5 mm.) taking care to pass the supply cable in the suitable cable presser (4) in such as way as to avoid compromising the resistance of the electrical system.
Before starting work, check that the motor rotates in the correct direction, in the event that the mandrels rotate in the opposite direction, invert the position of two cables in the line



N.B. It is recommended that qualified technical staff carry out the connection of the machine's electrical supply.

ELECTRICAL CONNECTION WITH PLUG

To connect the electrical power to the machine, plug the power cable (minimum internal tube diameter of cable 2.5mm) to the female plug (1) of the equipment of the machine, and then plug it into the wall plug (2) attached to the side carter.

Before starting to use it, check that the spinning direction is correct, if the spindles rotate in the reverse direction, inverse the position of the two cables in the line connection.

N.B.: Make sure that qualified technical personnel carry out the check up of the machine couplings.

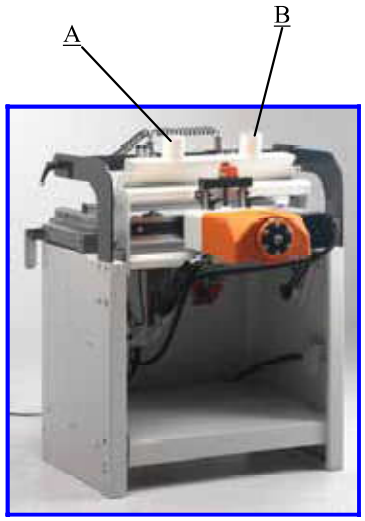
2.4 PNEUMATIC CONNECTION

The line pressure must be between the minimum 0.6 Mpa (6 Atm), and the maximum 0.8 Mpa (8Atm).
For the pneumatic connection, the inward filter adaptor unit is equipped with quick-joints that allow the rapid release of the pneumatic supply.
The connection with the line is performed with a rubber or nylon pipe which has a minimum internal diameter of 8 mm. Should the pipe be longer than 5/6 meters, then the minimum internal diameter must be 10 mm. Moreover it is recommended to mount onto the machine a valve to close the supply: the manual type complete with air discharge device is advised.

By way of indication we report the air consummation at the maximum volume of work:
10 pieces / minute = 900 litres/hour

2.4a INTAKE CONNECTION

On the machines equipped with intake unit A and B, by connecting the two holes of diameter 80 to electrical intake equipment that can guarantee the hubs a speed of at least 25M/sec., you should then obtain the following results:



Air capacity 451x2 m³/h
Total capacity m³/h 902
Air speed on the in-taking side 14.8 m/sec.
Required prevalence 75 mm H2O

FILTER-REDUCER GROUP (F-R)

The good use of the F-R group is the best guarantee for a regular job and for the lifetime of the machine.
Filter: it's function is to purify the air from dust and humidity that can damage the valves and joints of the pneumatic cylinders.
Pressure reducer: the pressure reducer is used to adjust the working pressure of the machine to the optimal value.

The minimum working pressure must not be lower to 6 ATM
The optimal working pressure is 8 ATM

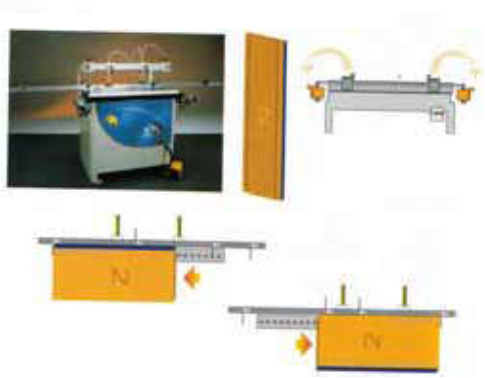
For maintenance of the group F-R, refer to paragraph 5.1 Extraordinary Maintenance

2.5 ASSEMBLAGE OF STOPPING-BAR HOLDERS

Because of packaging and shipping reasons, the accessory stop shaft comes disassembled; customers will assemble it as follows:
Perpendicular assembling of the stop shaft to the mandrels as in the following picture.
With the drilling set placed vertically, loosen the nuts of the 2 bolts that come with the standard machine.

- Insert the head of the screws in the iron slot.
- Insert the screws in the square, slide the bar until it reaches the square's stop.
- Screw on the two nuts and tighten them firmly.

Assembling of parallel stopping bar to the head mandrils as in the following picture



- Insert the two screws in the holes of the front stops.
- Insert the bar as in the previous paragraph.
- Push the bar until the mechanical stop doesn't reach the workbench.
- Reposition the two nuts and tighten them firmly.

3.0 CONTROL DEVICES

As the machine is manually controlled and used, the controls are very simple in order to ensure maximum reliability:

1) ON-OFF  switch , in compliance  with rules

2) Double electric pedal pedal  or Pneumatic 

3) Head overturn selector – Head speed adjuster 

4) Overturning leave button 

5) Revolver controlling drilling depth (Classic)

6) Pressers position handles

7) Side-square blocking handles

8) Head height adjustment blocking handles
Head movement blocking handles

9) 45° Stop knob
Head overturn blocking handle

10) Front stop positioning handle

11) Line indicator, machine under power, running and stop button and selector of drilling group feed

3.1 FUNCTIONAL CYCLE WITH BOX

The control device that enables the drilling cycle is an electric pedal, protected against the accidental or involuntary pressure. To perform the drilling cycle, proceed as follows:

A- Press the start button
B- Place the panel on the working plan
C- Block it using the reference stops
D- Insert your foot totally inside the electrical pedal and press it
E- The pressers will then drop downwards in order to hold the panel still on the working plan
F- The drilling group goes forward
G- The back switch-bar is released
H- The engine starts
I- Hold the pedal in until the drilling group reaches the mechanical stop set with the control device
J- Drilling of the piece
K- Remove your feet from the electric pedal
L- The drilling group is now in stand-by mode
M- The pressers lift up in order to release the panel
N- The back switch-bar is pressed
O- The engine stops
P- End of drilling cycle

3.1 FUNCTIONAL CYCLE WITH PLUG

The control device that enables the drilling cycle is a pneumatic pedal, protected against the accidental or involuntary pressure. To perform the drilling cycle, proceed as follows:

1- Place the panel on the working plan
2- Block it using the reference stops
3- Insert your foot totally inside the electrical pedal and press it
4- The pressers will then drop downwards in order to hold the panel still on the working plan
5- The engine starts
6- The drilling group goes forward
7- Hold the pedal in until the drilling group reaches the mechanical stop set with the control device
8- Drilling of the piece
9- Remove your feet from the pedal
10- The drilling group is now in stand-by mode
11- The pressers lift up in order to release the panel
12- The engine stops
13- End of drilling cycle

NOTES ON STARTING DEVICE

A pedal that has the double function of “Start” and “Stop” constitutes the starting device. The pedal guarantees the emergency stop. The latter is a maintained-action device, thus, should the drilling cycle be interrupted, all the control devices stops working, and the drilling head goes back to rest position, that is in a safe position with still bits. The engine-starting device will not work unless the pedal is pressed. The fuses protect against short circuits, by interrupting the power supply, in case this reaches a set threshold. Such protection blocks the engine rotation, and this action does not imply risks for the operator. Further safety is given by the fact that a sudden lack of power, which determines the stop of the engine, stops the machine itself. Only by pressing the start button shall the machine resume its function. In the electric system equipped with disconnecting device, the machine stops pressing the

stop button, or the red footboard, or rotating the disconnecting device knob on the 0 position, which besides stopping the machine, it isolates it at well.

3.2 HORIZONTAL DISPOSITION OF DRILLING SET

A- Check for objects or people in the overturning area.
B- Pull the presser-holder bar back, loosening the handles.
C- Pull the front stops back, loosening the handles.
D- Loosen the lever.
E- Keep the selector running (see plate on the machine) until it reaches the position and with the other hand keep pressing the release button until the position is reached.
F- When the position is reached, tighten the lever again.

3.3 VERTICAL DISPOSITION OF DRILLING SET

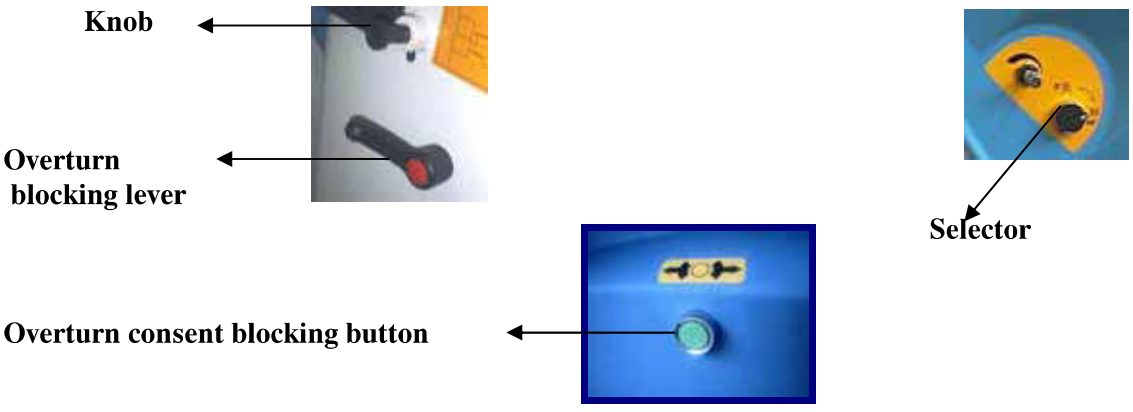
A-
B- Check for objects or people in the overturning area.
C- Loosen the lever.
D- Keep the selector running in the proper position (see plate on the machine) until it reaches the position, and with the other hand keep pressing the release button until the position is reached.
E- When the position is reached, strongly turn the lever to block the set in a vertical position.

3.4 DEGREE DISPOSITION OF DRILLING SET

This operation is to be carried out with the set in the horizontal position. See notes to chapter 3.2

A- Push the knob until the next click.
B- Loosen the handle.
C- Keep the selector running clockwise (see also plate on machine) and wait until the drilling set reaches the mechanic stop, and with the other hand keep pressing the release button until the position is reached.
D- Strongly tighten the lever to block the set on a 45° position.

CONTROLS



3.5 ASSEMBLING AND REPLACEMENT OF DRILLS

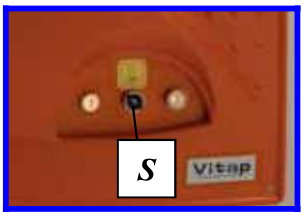
N.B. Make sure you assemble the right drills in the right mandrels, and the left drills in the left mandrels.
Bits are protected by the extractor hood that must be withdrawn by making it slide along the loops to allow hand access to the drilling area.

Strongly insert the drill-holder in the mandrel, pushing it down and turning it until you hear a click; this way the automatic blocking system grips.
To disassemble it, insert a thin-blade screw driver in the slit between the clutch and the mandrel, and force it out.

3.6 DRILLING DEPTH ADJUSTMENT

The device that enables the adjustment of the drilling depth is composed of a tarret drum. This system having 6 different drilling positions, once adjusted, does not need to be changed by the user who can, when required, change the drilling depth by simply turning the tarret, going from a stop to another in a quick and easy way, but always when the machine is switched off.

To check the drilling depth in the “electrical installation with box”, the machine is composed of an electrical selector to make the drilling group go forward:



1. Turn the selector (S) towards Right
2. Press the yellow pedal
3. The drilling group goes forward
4. Measure the drills’ overhang from the support surface of the panel
5. This measure indicates the actual drilling depth

To check the drilling depth on the “electrical installation with plug” version, operate as follows:

1. Press the mushroom-shaped stop button
2. Press on the pneumatic pedal
3. The drilling group goes forward
4. Measure the ledge of the points from the support surface of the panel
5. This measure indicates the actual drilling depth.

Should the drilling depths be adjusted in a different way, the operator must:

- with the machine off, use a 17 mm open-ended spanner, and a 5 mm Allen wrench.
- loosen the nut with the 17 mm open-ended spanner.
- with the Allen wretch inserted on the head of the adjustment screw, adjust each of the 6 stops on the revolver, reading the selected figure on a measuring shaft. The moving part of the system is protected by an ABS covering.

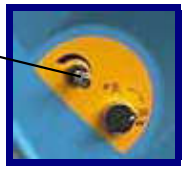
3.7 HEAD FEED SPEED ADJUSTMENT

When the knob on the front control panel is turned clockwise, the drilling speed will decrease, while it will increase turning it counter-clockwise.

3.8 HYDRAULIC-BREAK HEAD FEED SPEED ADJUSTMENT

A- Loosen the pneumatic flow control completely

B- Adjust the knob in a clockwise direction



C- Stop the power supply (by means of the stop button)
D- By means of the pedal carry out some drilling cycles and continue adjusting the knob until the desired speed is reached.

3.9 REFERENCE STOP ADJUSTMENT AND DISPOSITION

There are 3 reference systems on the machine

1- Side stop squares on the right and on the left.

2- Front stop on the right

and on the left

3- Shifting stops mounted on stop-holding bar

To adjust the type 1 system, proceed as follows:

A- Loosen the seam handles
B- Shift the squares to the right or to the left.
C- Check the position through the vernier on the metering shaft on the sliding guide.
D- Block the seam handles again

When positioning the side stop squares, remember that the zero on the metering shaft corresponds to the center of the central mandrel of the drilling head.

As for the adjustment of the type 2 stops, proceed as follows:

Usually this operation is performed when the drilling set is in a vertical position.

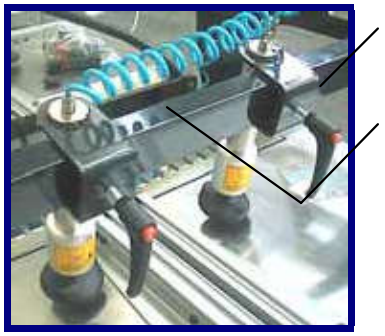
A- Loosen the seam handles
B- Shift the stop frontwards, backwards, to the right, to the left.
C- Check the gauge on the metering shaft on the stop.
D- Block the seam handles again

As for the adjustment of the type 3 stops, proceed as follows:

A- Loosen the seam handles
B- Place the stop making it shift along the shaft.
C- Check the position of the stop in the metering shaft. The gauge reference is the inside face of the stop.
D- Block the seam handles again

The stop-holding shaft is 3000 mm long, and the metering on the shaft has a central zero that refers to the head's mid-mandrel.

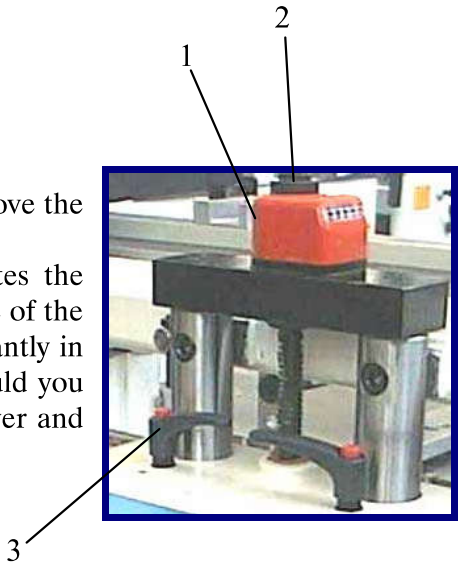
3.10 PRESSER ADJUSTMENT



A- Loosen the seam handles

B- Place the presser-holder bar in correspondence with the mounted bits so as to have stronger contrast to the push exerted by the drilling unit.
C- Place a panel on the work surface, to drill it.
D- Loosen the seam handle; regulate the presser by placing it transversally over the bits, 5 mm from the surface of the piece to be drilled.
E- Strongly tighten the seam handle.

3.11 DRILLING HEAD POSITION ADJUSTMENT



A- Loosen the seam handle 3
B- Rotate the crank inserted in the suitable joint 2, so as to move the drilling head.
C- The digital indicator 1 will show a gauge, which indicates the distance between the centre of the mandrel and the surface of the work surface. Please make sure the shifting screw is constantly in traction, and all positioning is carried out as follows: should you want to pass to a lower gauge, you must go one gauge lower and go back up.

4.0 VERTICAL DRILLING

1- After having mounted the bits on the mandrels, adjust the side reference squares
2- Place the pressure cylinders in correspondence to the bits
3- Adjust the front stops
4- Adjust the head's drilling speed and depth
5- Supply power
6- Draw the panel near the side and front stops; carry out the cycle as described in the chapter FUNCTIONAL CYCLE.
7- For longer pieces, where front head cannot be used, use the stopping-bar holder.

4.1 HORIZONTAL DRILLING

8- If the machine was previously equipped with multiple stop bar, this must be removed. See chapter ASSEMBLING AND DISASSEMBLING OF STOPPING- BAR HOLDER
9- Rotate the drilling unit following the directions in the chapter HORIZONTAL DISPOSITION OF DRILLING SET

10- Adjust the drilling height to the thickness of the piece. See chapter ADJUSTMENT OF DRILLING SET
11- With the drilling set in this position, the rack is the front resting point of the panel
12- Carry out a drilling cycle as described in the chapter FUNCTIONAL CYCLE.

4.2 COMBINED-PIECES' DRILLING

A- For example, if the panel is 20 mm thick, the horizontal drilling shall occur adjusting the head 10 mm high, so that the drilling corresponds to the centre of the panel's thickness.
B- Before removing the panel, let the front stops (now in vertical position) rest on the panel, and block them.
C- Remove the panel and let the head rotate until it reaches the vertical position.
D- The machine is ready to drill the vertical panel 10 mm from the edge, so that when you couple it with the previous one, drilled in horizontal position, the corners will be lined up.

5.0 ORDINARY MAINTAINANCE

To be performed daily after working on it.

- Clean the wood shavings from the workbench

5.1 EXTRA-ORDINARY MAINTAINCE

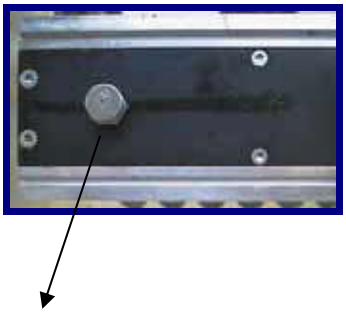
- Check the safety of the electric system:
- Wire insulation, functionality of devices, protection, protection conductor continuity.
- Check the blockings of the various mechanical parts.
- Check the wear of the drills.
- Check the adapter filter set:

- **Check the air pressure:**
  the line feeding must be between 0.6 MPa and 0.8 MPa. Pressure may be adjusted by the knob, checking the gauge on the manometer.

- **Check the condensation:**
  condensation and air impurities deposit in the clear cup No. 31, figure 2, when the maximum level is reached, the cup must be emptied through the suitable vent No. 32, turning it clockwise by 90 degrees.

- **Lubrication of the mandrel-carrier head:**

  Take off the threaded breather cap and add a small quantity of GEEDOL MP.5/F grease or a similar product using a greasing pump with a TELECALAMIT (UNI-2662) type split head. Inject the grease through the greaser 80 Fig.4 mounted on the mandrels carrier head; the sufficient quantity of grease is reached when it starts overflowing out of the hole of the breather cap, therefore replace the cap. This operation is to be carried out at the established intervals outlined in table.183.



Greaser

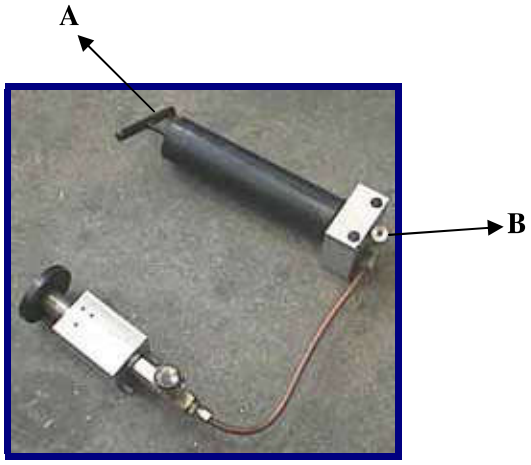
Breather cap

5.1A INSULATION OF THE MACHINE

When not in use, the machine must be isolated from power sources.
The electric system must be isolated through the disconnecting device knob, which must be on the 0 position, and padlocked. The pneumatic system must be isolated by releasing the quick joint device placed at the entrance to the adapter filter set.
Should the machine be out of order, or under repair, please indicate its state placing signs on the machine.

5.2 HYDRAULIC BRAKE FILLING

1- Set the operating head in the horizontal position
2- Screw the A tie-rod on the piston of the oil-retrieving tank through the access hole.
3- Remove the cap B
4- Screw on a tray with male thread 1/8" GAS in the hole of the cap B, and pour about 70 cc of oil AGIP EXIDIA 32, or similar oil.
5- Pull the tie-rod A until the oil is sucked in the brake retrieve tank. Still keeping the tie-rod pulled, remove the tray and completely screw the cap B back on.
6- Let the head go for 2 or 3 cycles with the pedal. Keep the pedal pressed so that the head stays in the limit position. Loosen the cap B and let the air out of the hydraulic cycle, then tightly screw the cap back on, remove the tie-rod A. Now the brake is ready again.



5.3 SPARE PARTS

IMPORTANT, to order the spare parts it is COMPULSORY to specify: No. of the relevant particular, the table from which the No. of the particular was read.

Components subject to use or damage

- Drill bits
- Mandrels

- Head gears
- Head Bearings
- Pneumatic cylinder gaskets
- Hydraulic break gasket (optional)
- Electric pedal
- Engine remote-control switch
- Line fuses
- Signal lights
- Drill bits carrier for quick-joint mandrels

5.4 NOISE

Some tests have been carried out on the noise levels in compliance with the ISO 3746 regulations, with the machine working at normal speed and pressure on a PVC-coated chipboard panel. These tests have shown the following values:

SOUND PRESSURE LEVEL IN THE ATMOSPHERE: dB(A): 78.3
MAXIMUM LEVEL: dB(A): 93.3
SOUND PRESSURE LEVEL AT THE DRIVER SEAT Db(A): 78.1

The following maintenance rules are suggested in order to maintain, over time, the characteristics of the machine noise emission:

1) Constantly verify the good functioning of the tools employed
2) Observe carefully the lubricant schedules of the various components of the machine (See lubrication schedule)
3) Check periodically the efficiency of the silencers placed on the pneumatic components of the machine and replace them when no longer efficient.
4) Replace the absorbing material placed under the pressers' buffers when worn.
5) Eliminate as soon as possible any air leak that may occur over time in the pneumatic system.
6) Adjust the forwarding speed of the drilling units in order to maintain good functioning of the drill bits.

5.5 ELECTROMAGNETIC COMPATIBILITY

The machine has been tested as to its emissions in the atmosphere and has undergone the immunity test during its normal and ordinary functioning in compliance with EEC 89/336 directive (electromagnetic compatibility). By applying the regulations EN 50081-2, EN 55011, EN 50082-2 with the ROHDE & SCHWARZ "ESS/30, TESEO "AN25A3PH", COMPLIANCE DESIGN "EFT/B-100" – "ESD2000I" INSTRUMENTS NO MALFUNCTION HAS BEEN NOTICED WITH THE MACHINE:

THE RESULTS OF THE TESTS' THEREFORE ARE IN COMPLIANCE WITH THE REGULATIONS IN FORCE

5.6 BREAKDOWNS AND SOLUTIONS

THE ENGINE DOESN'T START

CAUSES	SOLUTIONS
Blown fuses	Check and replace fuse
The power-point line is not working	Check correct functioning
Inappropriate network tension	Contact our help Dept
Faulty pedal	Check and contact our help Dept

PIECE IS NOT DRILLED, OR DRILLED WRONG

CAUSES	SOLUTIONS
Mandrels do not rotate	Check gears or engine
Machine not aligned	Contact our help Dept
Broken drill bits	Replace the drill bits
Engine rotates contrariwise	Invert two phases in line connection

Please note: qualified staff must carry out all the solutions suggested.

5.7 TESTING OF ELECTICAL EQUIPMENT

To meet the requirements of the CEI EN 60204-1 Norm, the machine's electric equipment has undergone tests:

- Continuity test of protection circuit (Article 20.2)
- Isolation resistance test (Article 20.3)
- Applied tension test (Article 20.4)

Applying the above-mentioned norm with the FULLTEST device of HT ITALIA, the machine does not show any functioning anomaly, and fully falls under the allowed levels.

THE RESULTS OF THE TESTS' THEREFORE ARE IN COMPLIANCE WITH THE REGULATIONS IN FORCE

5.8 ADDITIONAL HAZARDS

The elements that may present hazards for the operators are as follows:

- moving drill bits
- pressers
- overturning

1. As for the drilling area, the operator can hardly approach the area during the drilling operations, as there are several protection devices: the dust extractor hood, which is a valid protection for the drill bits as well. The pedal with foot-presence device, compelling operators to push their foot completely inside, to start the cycle, thus the bits cannot start unless deliberately, never accidentally, activated.
2. It is impossible to put hands under the pressers, as they are built so that they must be adjusted at a very short distance from the piece to be drilled (max. 5 mm). It is impossible to deliberately insert hands under them.
3. The overturning of the electric-pneumatic system is devised so that the operator must use both hands to activate it, as the overturning control is made of a selector and a start button that must be pressed simultaneously.

In designing and building the machine, has adopted all the measures meant to avoid, and where not possible, to decrease hazard risks, for the duration of the machine, and in particular:

- strived to eliminate or decrease hazards through careful designing and building.
- It has adopted the necessary safety means for hazards that cannot be eliminated, through suitable ban and caution signs, and/or protecting grids, where possible.
- Moreover, it has informed users on additional hazards through this handbook, with all the useful direction to train the operator to a safe use of the machine.

Nevertheless, due to the machine great versatility and the control parts' mobility, it is not possible to insure

overall hazard protection. Thus, the company buying the machine must make sure that this handbook is at the disposal of the operators, and that they become well aware of the importance of its contents, in particular, as far as safety is concerned. The Company must also point out the additional risks and how to reduce their impact, as described in this handbook.

5.9 DISPOSAL AND DEMOLITION

The machine is entirely constructed of ferrous material and components that do not contain toxic or pollutant materials. Furthermore, the absence of chemical substances (solvents, oil, etc..), ensures that the disposal and demolition of the machine can be carried out by a normal qualified centre authorized to perform such an operation.