USER'S MANUAL

PE 22 A

BENCH DRILLING MACHINE



Original manual

CE

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1. INTRODUCTION

For safety reasons, please carefully read these instructions, prior to using this machine.
Serious injuries to persons or damages to the machine may be caused by the non-observance of these instructions.

This manual is intended to be used by operators, setters and service engineers.

This manual is an important part of your equipment. It provides rules and guidance to help you safely operating this machine. You must read this manual and make sure of the correct procedures and functions before operating the machine. For your own safety, you must read these precautions carefully and follow the instructions described below.
These instructions must be followed anytime when operating and servicing the machine. Serious injury and/or failure of the machine may occur if operators fail in observing safety guidance and instructions and operate the machine in a wrong and different way from the one described in this manual.

Please keep the manual with the machine or in a safe place to make it available anytime. Make sure any person involved in operating this machine can consult this manual. In case this manual is damaged or lost, please contact us or your dealer to be provided with a new manual.
Always use genuine SIDAMO parts and components. Replacing SIDAMO parts and components by improper parts may damage the machine and cause serious injuries to operators.

This manual describes the safety instructions to be applied by the operator. Both the employer and operators are responsible, according to the article L.4122-1 of Labour Laws, to take care of their health and safety and of the health and safety of any other person involved by any action or omission related to instructions given to them.
The employer is in charge of performing the assessment of all particular risks related to the activity of his/her company. He/she must train workers to operating the machine and to the prevention of risks and provide with appropriate information and instructions all workers in charge of operating or servicing working equipments.

2. WARNING SIGNS

2.1. WARNING SIGNS RELATED TO THE SAFETY OF THE MACHINE

Meaning of the safety signs attached to the machine (They must remain clean. Replace them immediately in case they are peeled off or illegible) :


Always wear protective goggles


Carefully read the User's Manual


Wear protective gloves
We do not recommend wearing gloves when machining. But we recommend wearing gloves when cleaning, the machine being stopped, and for any operation presenting any risk of cut, burn, pinching ...


Always wear ear protection


Always wear protective shoes


Do not wear loose clothes, loose sleeves, jewels, bracelets, watches, rings, ...
Wear a hair covering to protect long hair



Rotation direction of the spindle

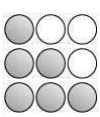
2.2. WARNING SIGNS USED IN THIS MANUAL

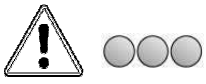

Straight hazard for human persons and the machine


Minimal number of persons required to perform some operations

✓ Note


The machine and its vicinity may be damaged


Technical ability level : operator, user
Technical ability level : setter, service
Technical ability level : maintenance agent


Only low voltage qualified and authorized workers should be allowed to perform interventions on the electrical circuit.

3. SAFETY

3.1. GENERAL SAFETY INSTRUCTIONS



Always follow the basic safety instructions to reduce risks of fire, electric shock, mechanical crash and injury for any person using power tools.

This manual considers only reasonably predictable behaviours.

Our machines are designed keeping first in mind the safety of operators.
We accept no responsibility for any damage cause by the lack of experience, any improper use of the machine and/or the machine being damaged and/or instructions provided by this manual not being followed.
Accidents always happen following an improper use or because the User's Manual was not read and understood.
We remind you that in case changes are performed on the machine, we will be freed from our obligations.
Before starting operating the machine, always check that guards are in place and in working condition.
Make sure moving parts run correctly, that no element is damaged and that the machine runs correctly when it is commissioned.
Only authorized and qualified workers should be allowed to repair or replace faulty parts.

Keep the vicinity of the machine tidy. Put everything in order.
Make sure the operator can see the entire working area from the working station.
Untidy working areas and benches are hazardous and can cause serious injuries.
Never use the machine outdoor ; never expose it to rain and damp, or to an atmosphere containing flammable fluids.
Provide good lighting conditions to the machine.
No worker under the age of eighteen is allowed to operate the machine.
Keep children, animals and unauthorized persons away from the working area. They are not allowed to touch either tools or electric cables.
Never leave a running machine unattended. Always switch the machine off. Never leave the machine until it comes to a full stop.


Never force a tool. It will do the job better and be safer if it used at the rate it was designed for.
Do not force small tools to perform a machining that should be done by a larger tool.
Use the right tool and do not use tools for a job they were not designed for.


Never damage electric cables.
Never pull the power cable to unplug the machine.
Keep the main power cable away from heat sources, greasy parts and/or sharp edges.
Never use the power cable in wet conditions and protect it from any damage.
Regularly check the condition of the power cable. In case it is damaged, have it repaired by an authorized repairer. Only an authorized company should replace faulty switches.
Never try to run the machine in case the main switch is out of work.


Do not overestimate your strength.
Do not overreach. Never lose balance.
Always be aware. Use common sense and do not run the machine when you are tired.
Always use both hands to run the machine.

Use only recommended accessories. Using accessories different from the ones recommended in this manual may be hazardous.

The user is responsible for the machine and must make sure that :

- Only qualified, authorized and trained workers can use the drilling machine.
- Safety instructions are followed.
- Users have read and understood the safety instructions.
- Users have read and understood the User's Manual.
- Responsibilities for servicing and possibly repairing have been correctly assigned and followed.
- Failures and faults have immediately been communicated to an authorized repairer or to your dealer.
- The drilling machine is used for applications described in this manual.
- Do not use the machine for any application other than that it was designed for. Any other use is hazardous.
- Never remove or bypass mechanical and/or electrical protections.
- Never try to modify or retrofit the machine.

SIDAMO accepts no responsibility for any damage caused to persons, animals or objects, and resulting from the non-observance of the safety instructions described in this manual.

3.2. PARTICULAR SAFETY INSTRUCTION



Particular safety instructions related to bench drilling machines.

Prior to using this machine, check it has been correctly assembled.
Do not connect to power if the drilling machine has not been installed on a flat and stable place, showing no obstacles and where lighting conditions are correct.
Do not use the machine if the protective guard of the belts is not fitted.
Adjust the protective shield to prevent any access to the non-working part of the tool.
Do not use any damaged or warped drill.
Make sure you have selected the right drill and the right rotating speed, in relation with the material to drill.
Check whether the tension of belts is correct.
Use only adapted drilling rotating speeds. Always select a speed when the machine has stopped.
Make sure the drill is firmly clamped into the chuck.
Do not touch the drill when it is rotating.
Always wear protective goggles.
In any case, always be concentrated on the work.
We do not recommend wearing gloves when machining.
Wear gloves when cleaning.
Always stop the machine and wear protective gloves when performing hazardous tasks, presenting risks of burn, cut, pinching, entanglement, winding, crushing, especially when loading and unloading the tool, when handling the table, the vice, the clamps, the workpiece.
Do not rush as it is very often a waste of time : the tool heats, it becomes blunted and it requires grinding. The work is not well done. There are more risks of accidents.
Always wear an ear protection.
Never hold the workpiece by hand. Always clamp the workpiece using adapted work-holding devices, such as vices and clamps.
Thin metal sheets are the most hazardous work pieces :

- They can cut, as they are very thin.
- The drill tends to plunge once it goes through the metal sheet.
- Offset holes increase hazards as the workpiece, when rotating, moves along a circle. Fingers, wrists, forearms and event the chest are particularly exposed.

Use fixtures and clamps :

- Support fixture for flexible work pieces and work pieces with steps.
- Guiding bush to drill small holes in a thin sleeve.

To not drill the table, adjust the table or the drilling depth.
The working table must remain clean and not populated.
Wear a breathing apparatus to reduce the risk of breathing harmful dusts.
Prevent coolant from overflowing all around the machine, as it is a very slippery product.
Prior to changing the workpiece or performing any positioning or any removal of material wastes, always stop the machine by using the Emergency Stop Slam button with lock.
To use this Emergency Stop Slam button with lock, simply close the cover of the control box, but do not lock it.
Prior to performing any important operation (maintenance, servicing, ...) always unplug the machine from the main power.
Do not install additional equipments to perform tasks they were not designed for.
Using improper tools is hazardous.
Make sure the guard of the fan is clean. Do not cover it. Otherwise the machine could not be correctly operated.
The drill must remain perfectly clean.
Do not clean the drill when it is rotating.
The drill can become very hot during the machining. Before replacing the drill, wait until it is cold.
When cleaning, first stop the machine and wear protective goggles and gloves to remove chips. Collect them into tanks.
Do not use an air gun. Prefer using a vacuum cleaner, a brush, a painting brush with long handle or a hook.
Never wash the machine using water under pressure as water can get into electric parts.
Never use solvent or aggressive detergents.
When moving the machine, stop it and make sure all moving parts are safely fixed.
Store the machine in a cool place, out of the reach of children.


Accidents usually happen because :

- There are no accessories used to properly hold the workpiece.
- Disorder : accessories, if present, are not set in order, and the operator do not use them, as he cannot find them.
- Hazardous or inappropriate operating mode.
- Insufficient training, learning and/or experience of operators to use the machine.
- Lack of protective guards during the operating of the machine.
- Loose cloths, no protective goggles when performing some tasks.

3.3. PROTECTION OF THE OPERATOR

To ensure operator's safety, make sure that non-working parts are protected by a guard.

This machine was designed to be operated by only one operator.
The operator should wear adapted Personal Protective Equipments, such as :

- Protective goggles.
- Ear protections.
- Safety shoes.
- Protective gloves.



The operator should wear tight clothes and should wear a hair covering to protect long hair, if necessary.
For example, the operator should never wear :

- Loose clothes or sleeves.
- Bracelets, watch, ring, jewels.
- Any other object subjected to be caught or entangled by moving parts of the machine.



4. DESCRIPTION AND OPERATING

4.1. PURPOSE OF THE MACHINE

The bench drilling machine PE22A is designed and manufactured only to perform drilling, on a fixed station, using a vertical stroke, on steel, ferrous and non-ferrous, plastic and wooden work pieces.

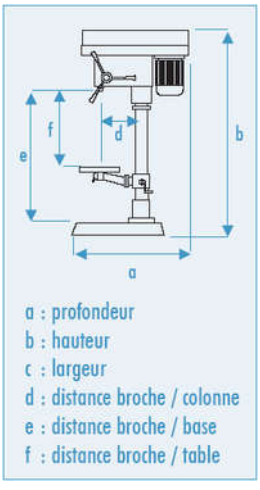
When operating and maintenance are correct, the drilling machine can provide many years of safe and consistent work.
To do so, please thoroughly examine the different functions of the machine.

4.2. SPECIFICATIONS

- Digital display of the drilling depth
- Protective shield of the servo chuck
- Drilling position laser device
- LED lighting
- Belt guard fitted with a safety grip micro switch
- « ON/OFF» switch fitted with an under voltage coil
- Emergency Stop Slam button with lock
- Transmission using dented belts pulleys
- Spindle fitted with ball bearings
- Ferro steel column
- Square table tilting up to 45°, fitted with a coolant collector
- Rack-drive table
- Comes standard with a self-clamping chuck, a chuck shank, a taper drift, a screw vice and a set of clamps

Max. drilling capacity (mm)	Morse taper	Column Ø (mm)	Spindle stroke (mm)	Number of gears	Spindle speed range (rpm)	Dimensions (L x H x D) (mm)	Motor power (kW)	Power	Weight (kg)
22	MT2	72	85	16	180 – 2770	430 x 980 x 660	0,55	1-phase 230V	49

d (mm)	e (mm)	f (mm)	Table dimensions (mm)
160	630	440	286 x 286



4.3. MACHINE OVERVIEW

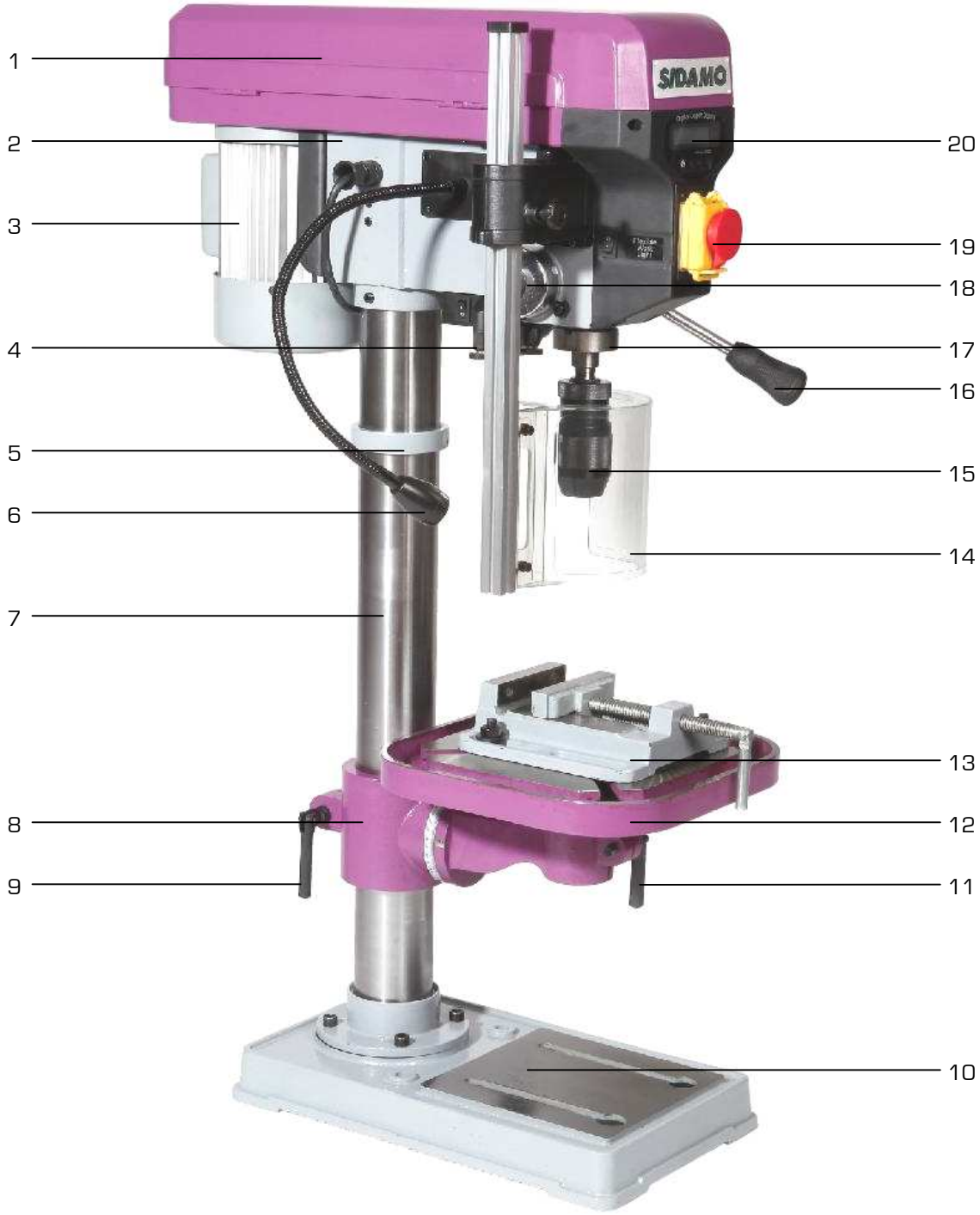


Figure 1

1. Belt guard
2. Head of the drilling machine
3. Electric motor
4. Laser device
5. Rack ring
6. Light
7. Column
8. Support sleeve of the scale table
9. Lock lever of the support sleeve of the scale table
10. Base
11. Lock lever of table
12. Table
13. Vice
14. Servo polycarbonate shield
15. Chuck
16. Capstan wheel
17. Spindle
18. Return spring of spindle
19. Control box
20. Digital display

5. INSTALLATION

5.1. PACKING

The packing may include a desiccant bag. Discard it and keep out of reach of children.

The drilling machine comes packed in a cardboard packing.
To move the drilling machine, use a pallet truck or a forklift truck. Several persons are required to install the machine.
Take out each component of the drilling machine. Check their condition and then assemble the drilling machine.

Please keep the manual with the machine or in a safe place to make it available anytime.
In case the product is not in perfect condition or if some parts are damaged or missing, please contact your dealer.

5.2. TRANSPORT AND HANDLING

Only qualified and authorized persons can perform below operations.

The mass centre of this machine is very high. Be careful as the machine can tip over.
Control the good tightening of screws that fix the head on the column.

Considering the weight of the machine (49 kg), several persons, using an adapted lifting device, are required to install the machine.
To lift the machine, use a slinging system (ex : polyester cable, with lifting rings and a convenient capacity). Position the lifting device as shown on next figure.
Make sure all moving parts are securely fixed and be very careful when lifting the drilling machine. Keep any foreign person away.



5.3. INSTALLING THE MACHINE

Only qualified and authorized persons can perform below operations.

Vicinity of the equipment :

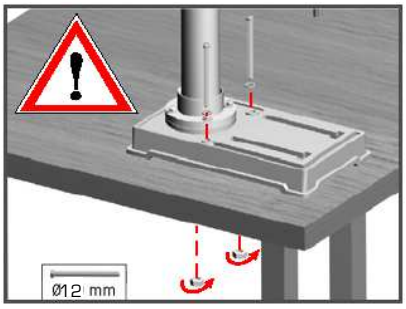
- Main power should comply with the specifications of the machine.
- Ambient temperature : between +5°C and +35°C.
- Relative Humidity : not over 90%.
- Sufficient ventilation of the workshop.
- Good lighting conditions in the working area : min. 300 lux.

Consider the location of the machine in the room. Movements and movings should be easy. Respect a distance of min. 800 mm between the back of the machine and the wall.

Several persons are required to install the machine.
Position the machine on a flat and horizontal surface, so that it is level and as stable as possible.
Use a strong enough support base for the machine.
Drill the fixing holes in the support. They must match base holes. Fix the machine.

Prior to tightening bolt, make sure the machine is level. To adjust level, use adapted metal sheets (reference shims) between the surface of the support and the feet.

To perform machining while respecting ergonomic criteria, the vice plane should be ideally positioned at about 90/95 cm from the floor.



Cleaning a new machine :

- All our machines are supplied with rustproof oil on ground surfaces. Before using the machine, first remove this oil, using a thinner. This is very important. Please use extreme care when performing this cleaning : jammings can occur if this oil is not totally removed.
- There should be no chips and no oil residues on the surface of the clamping table.
- Once the machine has been cleaned, apply a thin film of oil onto all non-painted surfaces, using medium-viscosity oil.
- Clean the inner part of both spindle and chuck, using a dry cloth and firmly insert the Morse taper into the spindle. Then, insert firmly the chuck into the shank of the Morse taper.

5.4. ASSEMBLING

Only qualified and authorized persons can perform below operations.

Several persons are required to assemble the machine.

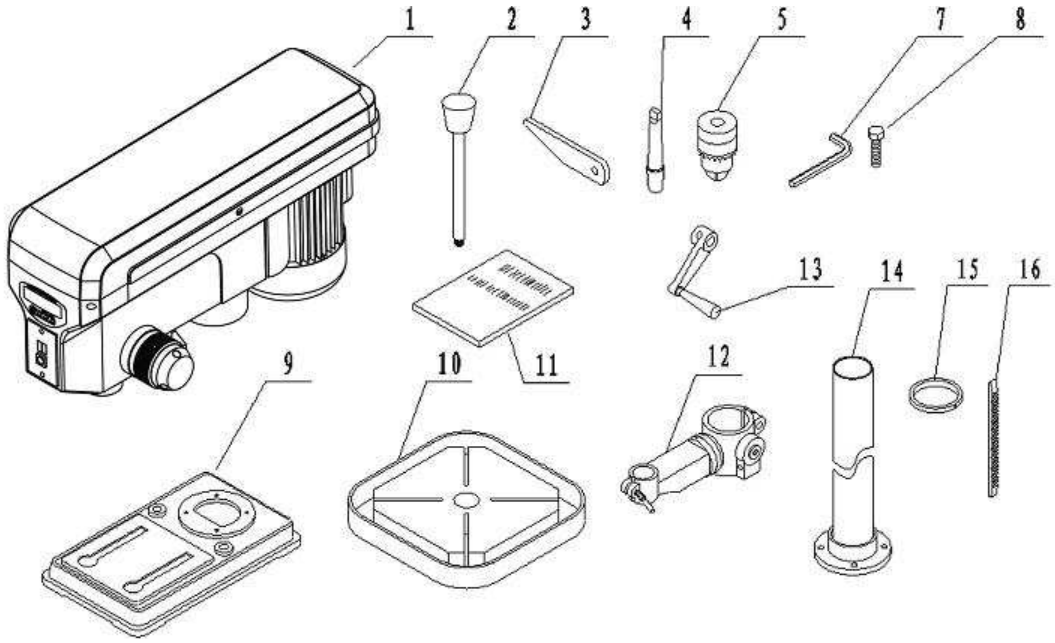
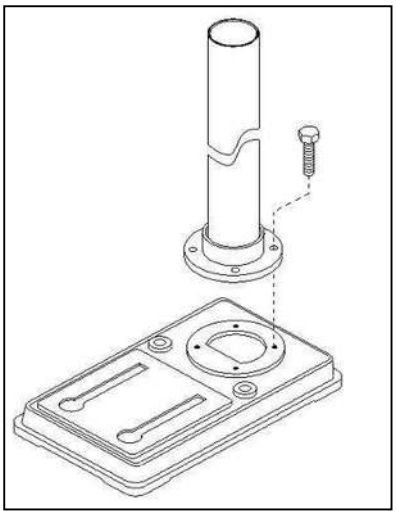
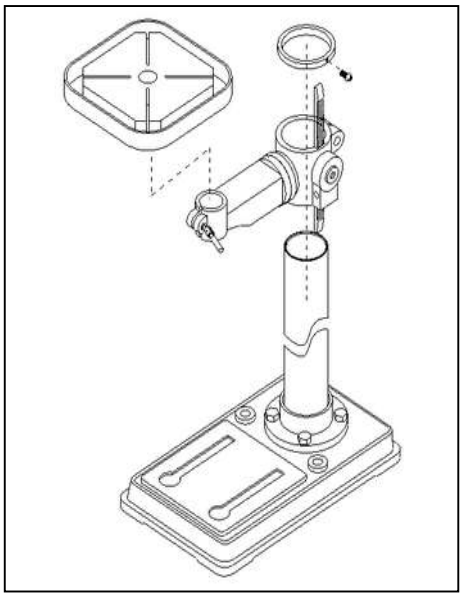


Figure 2

1. Install the base (9 fig.2) on a solid and flat surface.
2. Assemble the column (14 fig.2) to the base and fix it using bolts (8 fig.2).

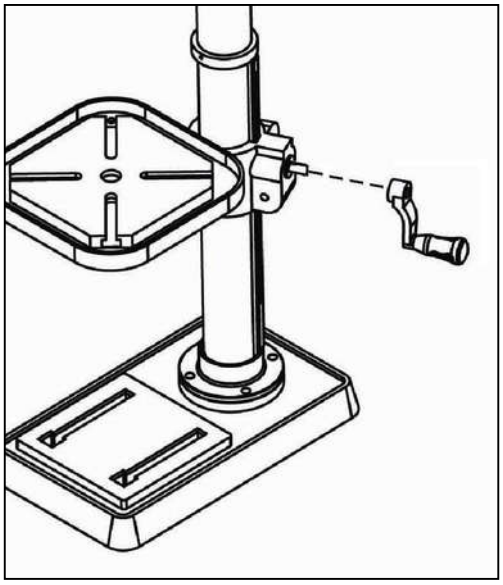


3. Insert the rack, in the right direction (6 fig.2), into the support sleeve of the table (12 fig.2).
4. Hold the rack (teeth towards the inner right side of the support sleeve of the table) and slide the assembly into the column (14 fig.2).
5. Slide the rack ring (15 fig.2) on the column, the chamfer being oriented downwards, to make sure the top side of the rack is locked (value of the clearance with the rack : 1 mm).
6. Tighten the screw of the ring.
7. Fit the table (10 fig.2) on its support (12 fig.2).

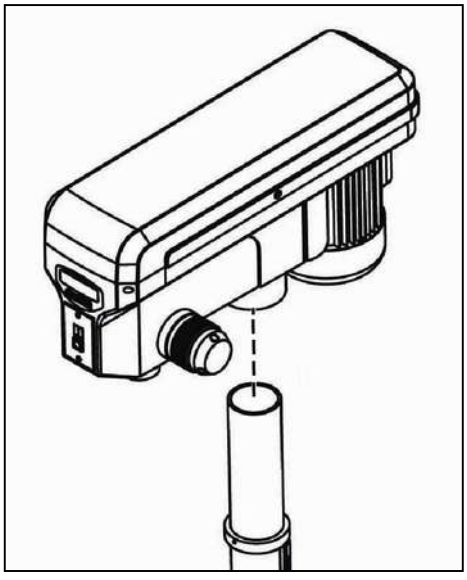


8. Fit the handle (13 fig.2) on the shaft of the support sleeve of the table and tighten the screw.
9. Check whether you can move the table up and down.

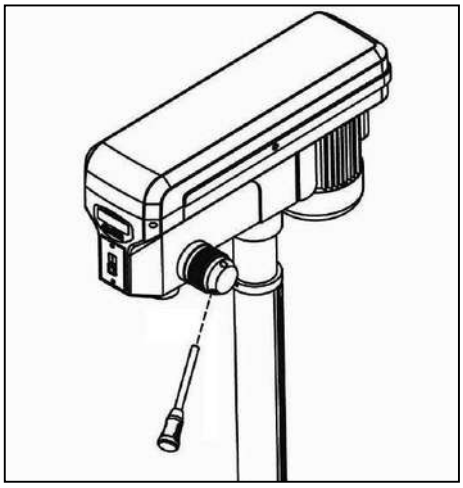
   The ideal height between the table and the floor is about 90/95 cm.



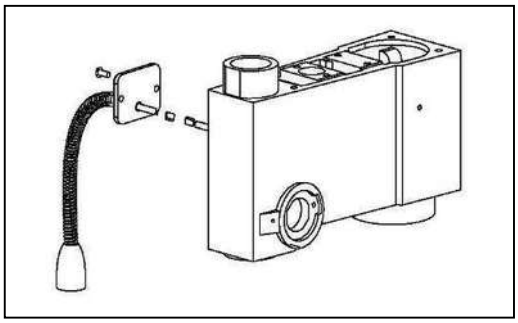
10. Fit the head (1 fig.2) on the column (at least two persons are required).
11. Check whether the assembly of the head is correct.
12. To balance correctly the assembly, align the head with the centreline of the base.
13. Tighten the screws to firmly hold the head in place.



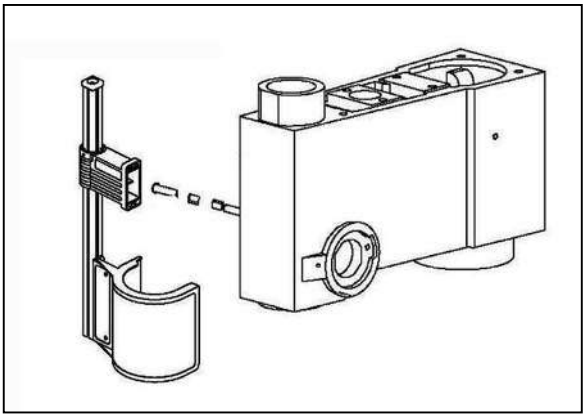
14. Screw the three handles (2 fig.2) on the capstan wheel, used to move the head down.



15. Connect the lamp to the terminals.
16. Fix it using convenient screws.



17. Connect the body of the protector to the terminals.
18. Fit the protective shield on the shield support, using two screws.
19. Fit the assembly in the body of the protector.
20. Position the shaft and tighten the screw.



21. Clean the inner side of the chuck (5 fig.2).
22. Fit the chuck on the shank of the chuck (4 fig.2).
23. Clean the inner side of the spindle and the shank of the chuck.
24. Fit the assembly shank of chuck + chuck into the spindle.



5.5. ELECTRICAL CONNECTION

Only low voltage trained and authorized technicians should be allowed to perform interventions on the electric circuit.

POWER

Make sure the voltage of the motor matches the voltage of the main power.
Perform the connection, using the power cable.
The power socket must match the plug of the machine.
The machine is connected to a power system. This system must be connected to earth, according to in-force safety regulations.
We remind the user that a magneto thermal breaker must be installed before the electrical circuit to protect all conductive devices against short-circuits and overloads.

This protection should always be selected according to the electrical specifications of the machine, as stated on the rate plate :

- Voltage : one-phase 230 V
- Frequency : 50 Hz
- Rating : 2,6 A
- Motor power : 0,55 kW

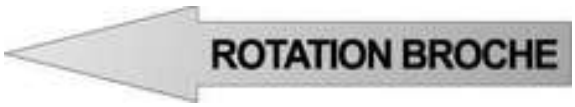
Power connections and extensions must be protected against splashes and should be fitted onto dry surfaces. Regularly inspect condition of the power cable, of the switch and of the cable ducting.

Operating the machine, using a damaged power cable, is strictly prohibited.

Always use a cable winder with both section and length adapted to the power of the machine. Unwind completely the cable.

Never pull the cable to unplug the grinder. Always use the plug.

Please check the spindle rotates clockwise, as shown on sign fixed on the front of the protective shield.
The guarantee does not cover damages resulting from a poor connection.



5.6. TEST AND INITIAL INSPECTION PRIOR TO USING THE EQUIPMENT FOR THE FIRST TIME

- Make sure all protections are in place and in working condition.
- Make sure moving parts correctly run and that no part is damaged.
- Check condition of the drill.
- Make sure the head and the table are firmly fixed to the column.
- Make sure the bench drilling machine is located on a flat and solid surface.
- Perform a dry test : the machine should run correctly.
- Make sure the spindle goes down, the protective shield can be adjusted and the table can go up and down.

6. OPERATING THE BENCH DRILLING MACHINE

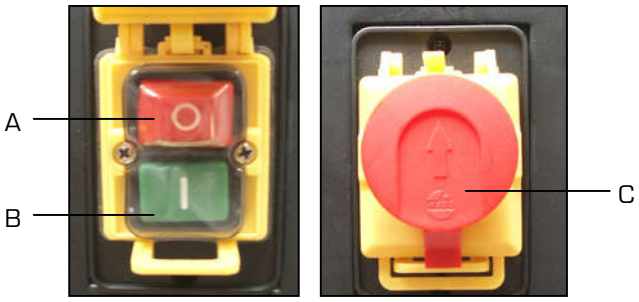
Prior to starting the drilling machine, make sure you are familiar with control devices.

Prior to any servicing or maintenance, always unplug the machine.

6.1. CONTROL PANEL

Control box :

A. Red Stop button « O »
B. Green Run button « I »
C. Emergency Stop slam button with lock

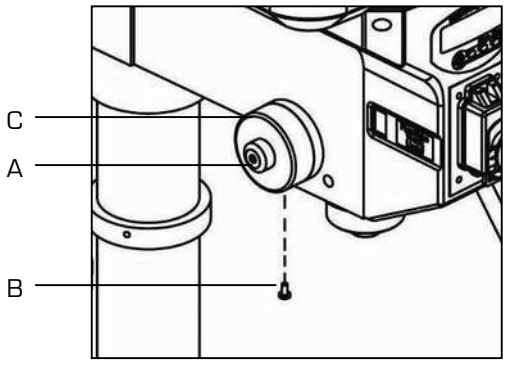


6.2. RETURN SPRING OF THE SPINDLE

First switch off the machine prior to performing this operation.

The drilling machine is supplied with the spindle counterbalanced by a spiral spring.
When the spindle cannot go up to its higher position, adjusting the return spring of the spindle is possible :

1. Stop the machine.
2. Untighten the screw (A).
3. Untighten the screw (B).
4. Carefully rotate the casing (C) in the right direction to tension, more or less, the spring (to tighten : rotate anticlockwise). Be careful as the spring can suddenly get out of the casing.
5. Tighten the screws.
6. Test whether the spindle can go up.



Do not move the spindle back too fast as it could be hazardous and could then threaten the lifespan of the spring.

6.3. DRILLING DEPTH

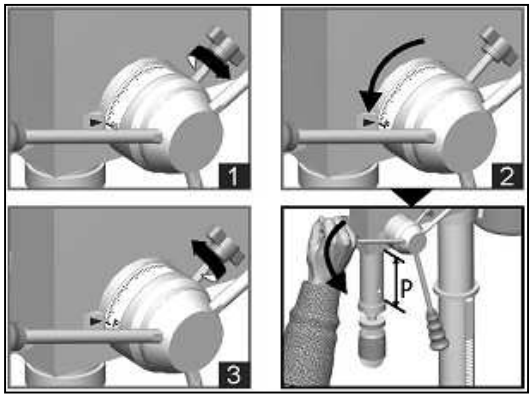
First switch off the machine prior to performing this operation.

Using the drilling depth stop

To stop drilling at the depth required :

1. Make sure the spindle is on its up position and the depth stop is untightened.
2. Rotate the graduations until matching the drilling depth required.
3. Tighten the depth stop.
4. Move the spindle down, using the capstan wheel, in order to check the drilling height.

P = drilling depth



6.4. PROTECTIVE SHIELD

Before starting using the drilling machine, fit the servo polycarbonate protective shield and adjust it correctly :

1. Check the good tightening of the electrical connections of the protective shield (A) and of the electrical connections coming out of the head of the drilling machine (B).
2. Connect the support of the protective shield (A) to electrical terminals (B) located on the head of the drilling machine.
3. Set the tightening knob (C), located on the support of the protective shield (A) by turning it upwards (see fig.3).
4. Fit the protective shield (D) on the shaft of the shield support (E) using two screws.
5. Fit the assembly into the support of the protective shield (A).
6. Position the shaft (E) and tighten the knob (C).
7. To operate the drilling machine, adjust precisely the protective shield of the chuck, the shaft being in its closed position (a safety micro switch ensures the closing) and tighten the knob (C).

- To move the protective shield up and down :
  1. Untighten the knob (C).
  2. Set the protective shield (D) to the height required, using the shaft (E).
  3. Tighten the knob (C).

- To fix the protective shield :
  1. Tighten the knob (C).



Figure 3

6.5. TABLE

Stop the machine before moving the table and the workpiece.

Never hold the workpiece with your hands. Always clamp it using a vice or clamps.

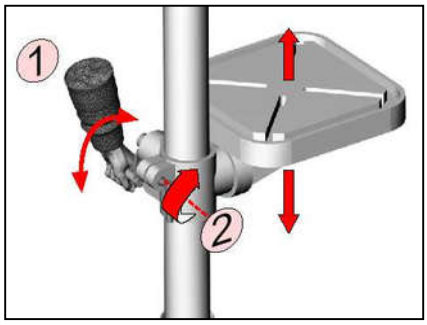
Remove all objects from the table and remove the tool from the chuck, prior to any operation.

Mind the risk of pinching and crushing.

Fix the vice of the workpiece to the table, using a set of clamps.

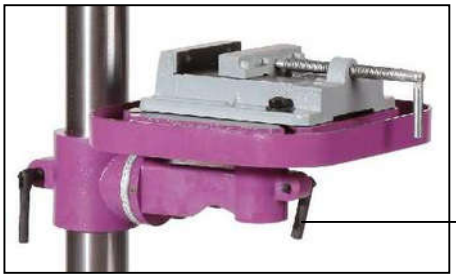
A. To move the table up and down :

1. Untighten the locking handle of the support sleeve of the table (2).
2. Rotate the handle to move the table (1) up or down.
3. Tighten the locking handle of the support sleeve of the table (2).



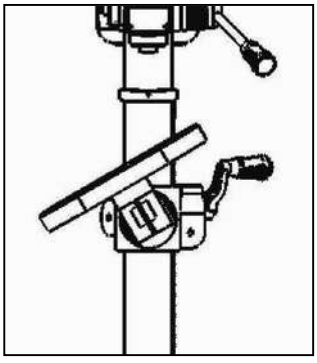
B. To tilt the table :

1. Untighten the locking handle of the table (3).
2. Tilt the table.
3. Tighten the locking handle of the table (3).



C. To give an angle to the table :

1. Untighten the pivot bolt located under the table.
2. Set the table to the angle required, using the marking.
3. Tighten the pivot bolt.



To ensure a maximal safety when working, always firmly clamp the workpiece using a convenient clamping tool fixed to the T slots of the table or into the vice.

6.6. ASSEMBLING AND DISMANTLING THE TOOL

Stop the machine before any tool change.

Remove all objects from the table prior to any operation.

Mind the risk of punching, pinching, prick, and crushing.

Wear protective gloves.

Use following tools :

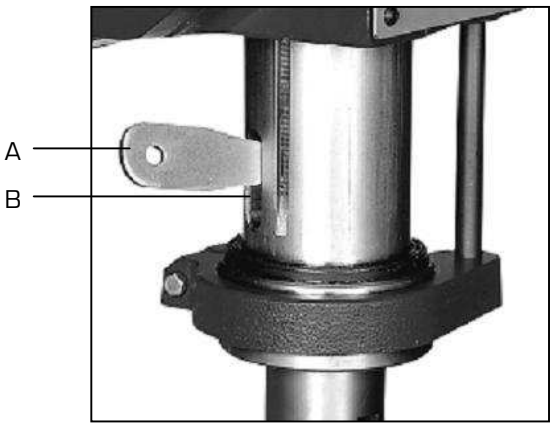
- CM2 - B18 shank of chuck with a self-clamping chuck 1 to 16 mm - B18.
- taper shank CM2.

I. Assembling the tool :

1. Stop the machine.
2. Degrease the spindle and the shank of the chuck or the taper part of the tool.
   A. 1. Fit the shank of the chuck into the chuck.
      2. Fit the assembly into the spindle.
      3. Fit the cylindrical-shank tool Ø1 mm to Ø16 mm into the chuck.
   B. 1. Directly fit the taper-shank tool into the spindle (if necessary, adapt the size of the morse taper, using a convenient adaptor).

II. Dismantling the tool :

1. Stop the machine.
2. Move the table up so it is 250 mm under the accessory.
3. Move the spindle down, using the capstan wheel, on about 100 mm.
4. Stop the spindle, so that it cannot move up, using the drilling depth stop.
5. Rotate the spindle by hand until you can see the shank of the chuck.
6. Fit a taper drift (A) into the port of the spindle (B).
7. Gently tap on the end on the taper drift, using a mallet, to take the shank of the chuck or the taper part of the tool out.



6.7. SELECTING ROTATING SPEEDS OF THE SPINDLE

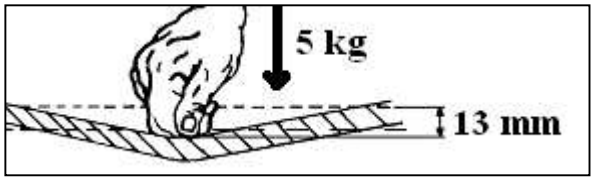
Stop the machine before selecting a gear.

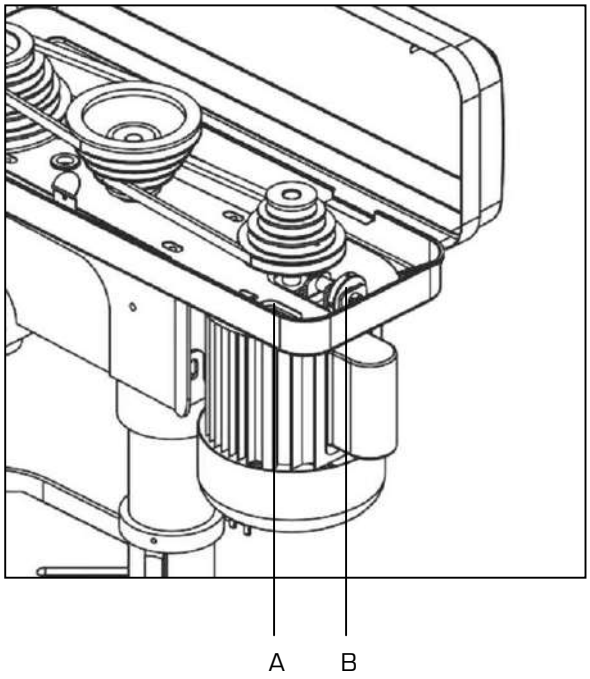
Mind the risk of entanglement or winding.

✓ A safety grip micro switch prevents the machine from starting in case the belt cover is opened.

To select a rotating speed for the spindle :

1. Stop the machine.
2. Remove the screw of the belt cover to open it.
3. Unlock the motor by untightening the three tensioning nuts of the motor (A).
4. Rotate the tension knob of belts (B) to release the belts and change the position of belts, according to following table (see next page), to get the speed required.
5. Tension the belts and lock the motor in this position, using the three tensioning screws of the motor.
6. To make sure the tension of the belt is correct, the deflection must be about 13 mm when a 5 kg pressure is applied.
7. Close the belt cover.





Perform the change of spindle speed, when the spindle is on its higher position.

To the rotating speed, change the position of the belts on the driving pulleys.

Please refer to the speed table fixed into the belt cover.

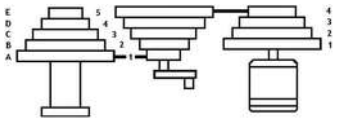
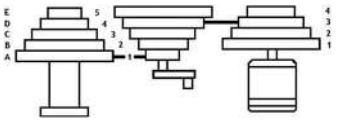
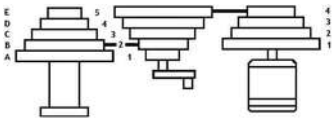
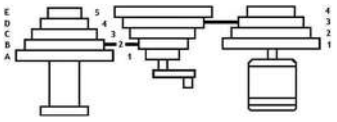
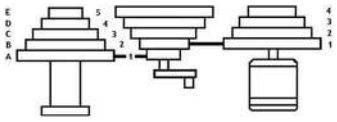
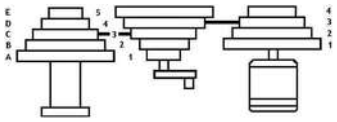
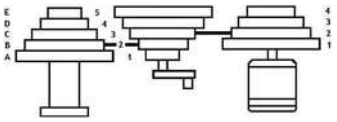
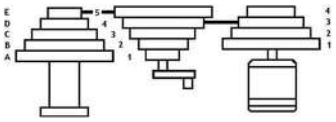
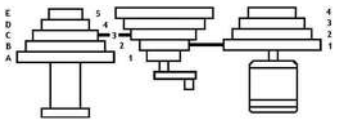
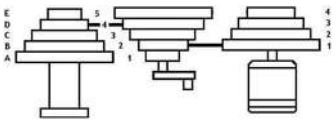
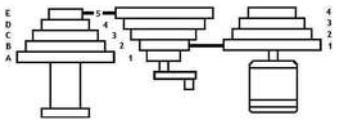
SPEEDS IN RPM ACCORDING TO THE TRANSMISSION RATIO			
1	2	3	4
180 rpm	270 rpm	310 rpm	420 rpm
			
BELTS : A-1 . 5-4	BELTS : A-1 . 4-3	BELTS : B-2 . 5-4	BELTS : A-1 . 3-2
5	6	7	8
430 rpm	470 rpm	580 rpm	630 rpm
			
BELTS : C-3 . 5-4	BELTS : B-2 . 4-3	BELTS : D-4 . 5-4	BELTS : A-1 . 2-1
9	10	11	12
650 rpm	720 rpm	1230 rpm	1320 rpm
			
BELTS : C-3 . 4-3	BELTS : B-2 . 3-2	BELTS : E-5 . 4-3	BELTS : D-4 . 3-2
13	14	15	16
1460 rpm	1880 rpm	1950 rpm	2770 rpm
			
BELTS : C-3 . 2-1	BELTS : E-5 . 3-2	BELTS : D-4 . 2-1	BELTS : E-5 . 2-1

TABLE OF RECOMMENDED SPEEDS, IN RELATION WITH MATERIALS AND DRILL DIAMETERS

Diameter	Steel 30 to 40 kg/mm²	Steel 50 to 70 kg/mm²	Steel 80 to 90 kg/mm²	Allied steel 140 to 180 kg/mm²	Cast iron	Brass	Aluminium
35	248	181	105	76	171	457	1 190
34	255	186	108	78	176	471	1 225
32	271	198	115	83	188	500	1 302
30	289	211	122	89	200	533	1 389
28	310	226	131	95	214	571	1 488
25	347	253	147	107	240	640	1 667
22	394	288	167	121	273	727	1 894
20	433	317	183	133	300	800	2 083
18	481	352	204	148	333	889	2 315
16	542	396	229	167	375	1 000	2 604
14	619	452	262	190	429	1 143	2 976
13	667	487	282	205	462	1 231	3 205
12	722	528	306	222	500	1 333	3 472
11	788	576	333	242	545	1 455	3 788
10	867	633	367	267	600	1 600	4 167
9	963	704	407	296	667	1 778	4 630
8	1 083	792	458	333	750	2 000	5 208
7	1 238	905	524	381	857	2 286	5 952
6	1 444	1 056	611	444	1 000	2 667	6 944
5	1 733	1 267	733	533	1 200	3 200	8 333
4	2 167	1 583	917	667	1 500	4 000	10 417
3	2 889	2 111	1 222	889	2 000	5 333	13 889

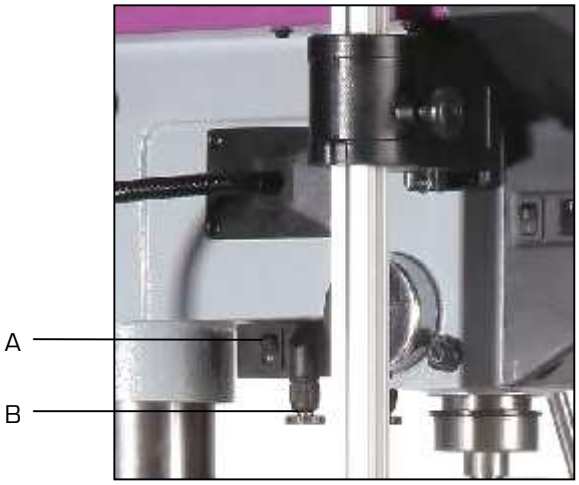
6.8. LASER DEVICE

Switch off the machine prior to opening the battery housing.

Do not open the battery housing when the machine is running.

The drilling machine PE22A is equipped with a Class 2 laser device, to position the drilling :

1. Insert two batteries (type AAA R03 1.5V) into the housing located opposite to the switch. Respect polarities.
2. Press the « I » position of the switch (A) to start the laser device.
3. Adjust the laser device, using both knobs (B) to correctly position the drilling, the table and the workpiece.
4. Do not move the table to not change the position of the drilling.



Use only AAA R03 1.5V type batteries.

Do not attempt to charge the batteries supplied with the machine.

Remove batteries from the housing in case they are not used for a long period of time.

Replace all batteries at the same time.

In case batteries are damaged or in case of improper use of batteries, some corrosive liquid can be expelled and some fumes can come out : avoid any contact with the hands, the skin and the eyes (this liquid can cause irritations or burns and is poisonous when ingested) and ventilate the working place (the fumes can cause irritations of airways). In case of accidental contact, wash using water and/or in case of unease, contact a doctor.

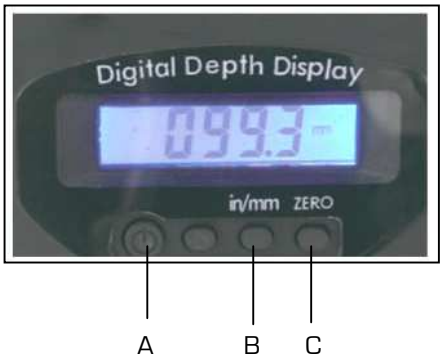
Do not dispose of batteries in a fire (risk of explosion) or in a dustbin.
According to the European Directive 2006/66/CE, used or defective batteries must be put apart and recycled, following a convenient process.

6.9. DIGITAL DISPLAY

The drilling machine PE22A is equipped with a digital display for the drilling depth, with a tolerance of +/- 5 mm :

There are three keys to operate the display :

A. Switching on the digital display.
B. Selection of the unit, for distances : « inch » and « mm » (millimetre).
C. Stetting the spindle stroke to zero.



6.10. DRILLING PROCEDURE

Always wear adapted personal protective equipments.

All operations relating to drilling must be performed when the spindle is on its up position. The drill must show no evidence of rotation.

Always keep your hands away from the drilling area when the machine is operated.
Always switch off the machine prior to performing any positioning of a workpiece or removal of chips.

Never hold work pieces with your hands. Carefully clamp them using convenient a tooling, such as a vice or clamps.

Operating cycle

Drilling instructions :

1. The drill should be perfectly sharpened and clamped. The workpiece should be firmly clamped on the table or in the vice.
2. Adjust the height of the working table.
3. Properly adjust the protective shield of the chuck, by positioning the pin (a safety micro switch is used to closing) and tighten the screw.
4. Make sure the rotating speed of the spindle is in relation with the type of work to do.
5. Adjust the depth-drilling stop.
6. Adjust the light, is necessary.
7. Switch on the laser device and adjust it, if necessary.
8. Press the green start button « I » to start the drilling machine (close the cover of the control box, but do not lock it).
9. Start drilling. Gently apply a moderate pressure on the capstan wheel.

Stopping :

1. Press the red stop button « O » to stop the drilling machine.
2. Switch off the laser device.
3. Switch off the light.
4. Open the protective shield of the chuck.

When the drilling is finished, release the capstan wheel and gently move the spindle back (dead centre, upwards).

6.11. STORING THE MACHINE WHEN IT IS NOT USED

If the drilling machine is not used for a long time, please follow below instructions :

1. Unplug the machine from the main socket.
2. Remove the batteries from the laser device.
3. Remove all objects from the table and remove the tool from the chuck.
4. Release the return spring.
5. Carefully clean and oil the machine.
6. Cover the machine, if necessary.

6.12. TROUBLESHOOTING

The drill gets blocked into the workpiece



Always switch off the drilling machine prior to performing this operation.



Always wear protective gloves.

1. Stop the drilling machine par pressing the Emergency Stop Slam button with lock.
2. Open the protective shield of the chuck.
3. Carefully unclamp the drill, by rotating the chuck anticlockwise, while moving the spindle upwards, using the capstan wheel.
4. Carefully remove the workpiece.
5. Check whether the drill is damaged.
6. Once the drill is unclamped, set the protective shield of the chuck.
7. Unlock the Emergency Stop Slam button.



Replace the drill in case it is damaged.



Apply a slighter pressure on the handles of the capstan wheels, when drilling.

The chip winds around the drill



Do not remove the chip by hand.

If the chip twists around the drill :

1. Move the drill upwards.
2. If the chip does not come out, immediately press the Emergency Stop Slam button with lock.
3. Remove the chip using a hook.

Starting a new cycle, following an emergency stop

1. Press the Emergency Stop Slam button with lock.
2. Press the green start button « I ».

Power failure

- Press the green start button « I ».



The machine is fitted with a safety device (under voltage coil) to prevent any unexpected starting of the motor, following a power failure.

TROUBLESHOOTING

PROBLEM	LIKELY CAUSE	SOLUTION
The machine is noisy	1. Improper tension of belts 2. Non-lubricated or dirty spindle 3. Poor attachment of the spindle belt	↗ Adjust the tension of belts ↗ Clean and lubricate the spindle ↗ Tighten the nut on top of the belt
Burn or very hot drill	1. Wrong speed 2. Chips cannot go away 3. Difficult to drill 4. No lubrication	↗ Change the speed ↗ Frequently take the drill out of the workpiece and clean the hole ↗ Sharpen the drill or replace it ↗ Lubricate the drill
Excessive vibrations	1. The drill is warped 2. Defective spindle bearing 3. Poor clamping of the drill in the chuck 4. Poor attachment of the chuck	↗ Use a straight drill ↗ Replace bearings ↗ Correctly clamp the drill ↗ Correctly attach the chuck
The drill gets stuck into the part	1. Too much pressure or the workpiece shrinks around the drill 2. Improper tension of belts	↗ Apply a slighter pressure and clamp more firmly the workpiece ↗ Adjust the tension of belts

7. MAINTENANCE

Switch off the machine prior to performing any maintenance operation.
Always wear gloves and protective goggles and always use a brush and a clean and dry cloth to perform cleaning (particularly when removing chips).

Never use solvent or aggressive detergents.
Never used compressed air to remove chips.
Never immerse the machine into water and never wash it using a water jet.

Very often, chips are sharp and hot. Do not touch them with bare hands.

Please read below the most frequent maintenance interventions : daily, weekly, monthly and 6-month interventions.

Non-observance of instructions leads to an early wear and reduces the performances of the machine.



7.1. ●○○ DAILY MAINTENANCE

- Perform a usual cleaning of the machine to remove chips and dust that have piled up.
- Clean the spindle taper.
- Control the wear of drills.
- Lubricate all sliding and ground parts (particularly the quill and the column).
- Lubricate the mechanism that moves the table up and down, using the grease nipple located on the support of the table.
- Check whether protective guards, safety and stop devices correctly operate.

7.2. ●●○ WEEKLY MAINTENANCE

- Perform a full cleaning of the machine to remove all chips, for instance.
- Sharpen the tools.
- Check whether protective guards and control components correctly operate, looking out for possible defects.

7.3. ●●● MONTHLY MAINTENANCE

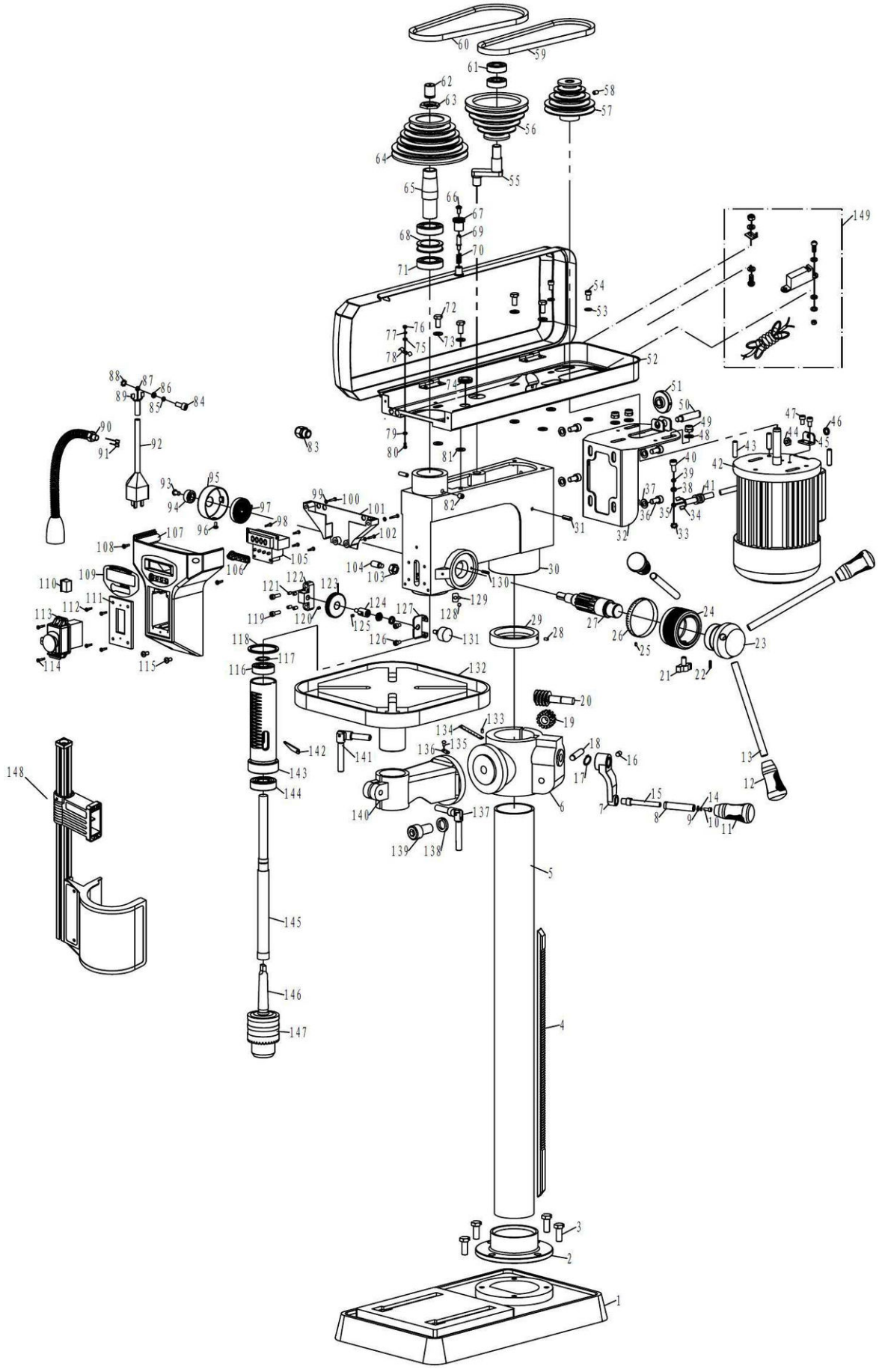
- Tighten all screws.
- Inspect the condition of protective guards and all devices. There should be no defect.
- Control the good tightening of the screw of the driving pulley.
- Control the good tightening of the fixing screws of the protective guards and of the motor.
- Inspect the power cable and replace it, if necessary.

7.4. ●●● 6-MONTH MAINTENANCE

- Continuity test of the equipotential protective circuit.

8. EXPLODED VIEW

EXPLODED VIEW

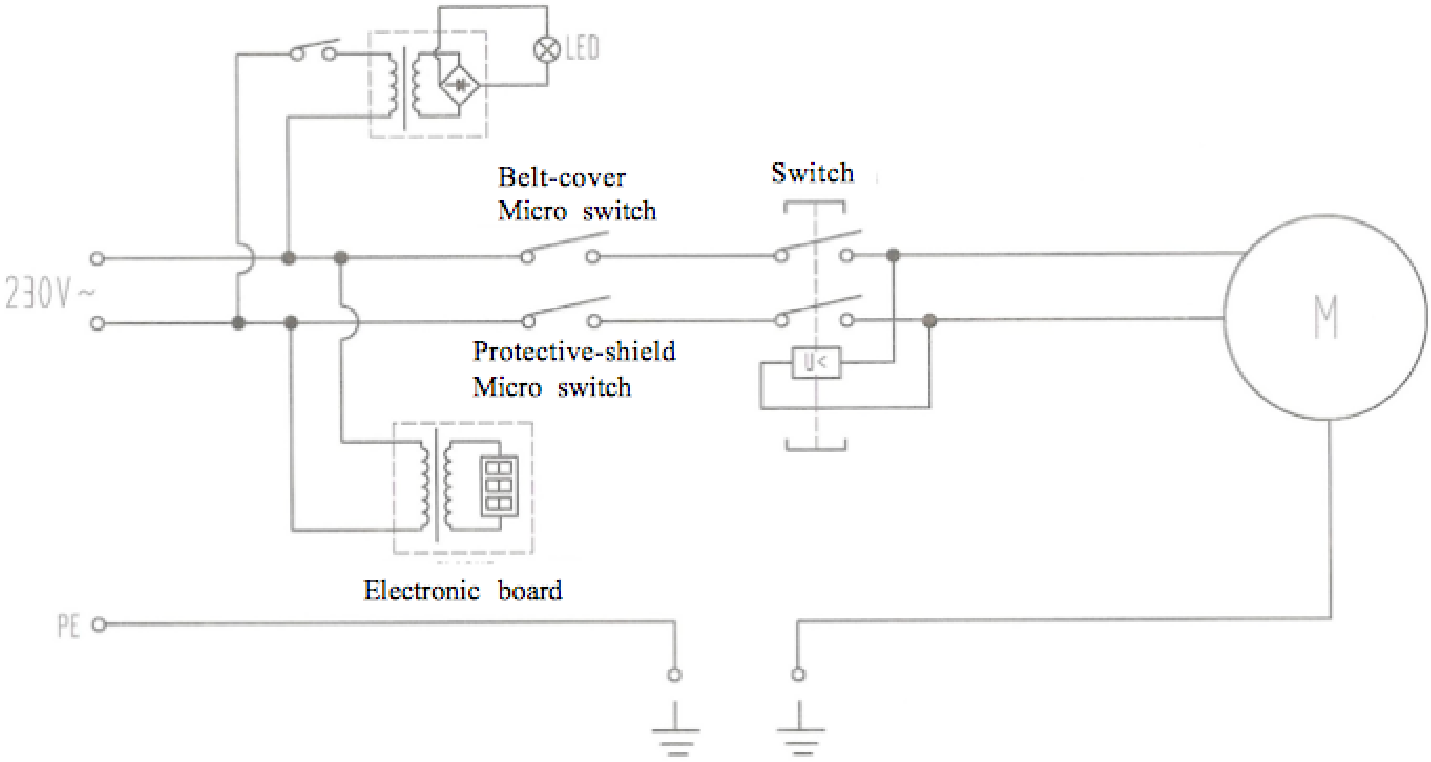


PART LIST

N°	Description	Qty	N°	Description	Qty
1	Base	1	78	Clamp	2
2	Column support	1	79	Washer M5	2
3	Bolt M10x25	4	80	Screw M5x20	2
4	Rack	1	81	Rubber washer 9x18x2.5	6
5	Column	1	82	Screw M10x12	3
6	Support sleeve of the table	1	83	Gland M16	1
7	Handle	1	84	Screw M4x10	1
8	Sleeve	1	85	Split washer M4	1
9	Washer M4	1	86	Washer M4	1
10	Screw M4x8	1	87	Earth connection	1
11	Handle	1	88	Teeth packing M4	1
12	Handle	3	89	Connection	2
13	Handle of capstan wheel	3	90	Lamp	1
14	Split washer M4	1		Fixing plate	1
15	Pin	1		Screw M4x8	4
16	Screw M8x10	1	91	Connection	2
17	Circlips Ø14	1	92	Power cable of the drilling machine	1
18	Gear shaft	1	93	Screw M6x12	1
19	Gear	1	94	Nut	1
20	Worm	1	95	Return spring casing	1
21	Butterfly screw » M8x18	1	96	Screw M4x8	1
22	Pin 6x20	1	97	Return spring	1
23	Capstan wheel	1	98	Screw ST2.9x9.5	4
24	Stop hub	1	99	Washer M4	2
25	Rivet 2,5x6	1	100	Screw ST2.9x13	2
26	Drilling-depth mark	1	101	Plate	1
27	Gear shaft	1	102	Screw ST2.9x13	2
28	Screw M6x10	1	103	Nut M10	1
29	Rack ring	1	104	Screw M10x20	1
30	Head	1	105	Electronic board	1
31	Pin 6x20	2	106	Button	1
32	Motor support	1	107	Panel	1
33	Teeth packing M4	1	108	Screw M4x16	2
34	Connection	2	109	Sticker	1
35	Earth connection	1	110	Switch	1
36	Bolt M8x16	4	111	Support of the control box	1
37	Washer M9	4	112	Screw ST2.9x9.5	4
38	Washer M4	1	113	Control box	1
39	Split washer M4	1	114	Screw ST2.9x9.5	2
40	Screw M4x10	1	115	Screw M4x12	2
41	Power cable of the motor	1	116	Bearing 6203	1
42	Motor	1	117	Circlips Ø17	1
43	Screw M8x30	3	118	Rubber ring	1
44	Lock nut M8	1	119	Bolt M4x16	2
45	Plaque	1	120	Screw M4x6	1
46	Split washer M8	1	121	Screw M4x6	4
47	Screw M6x10	2	122	Probe support	1
48	Washer M9	3	123	Knob	1
49	Lock nut M8	3	124	Pin	1
50	Pin	1	125	Screw M4x4	1
51	Tensioning knob	1	126	Bolt M4x10	2
52	Belt cover	1	127	Probe plate	1
53	Washer M6	2	128	Rivet 2,5x6	1
54	Bolt M6x6	2	129	Arrow	1
55	Central pulley support	1	130	Screw M6x18	1
56	Central pulley	1	131	Probe	1
57	Motor side pulley	1	132	Table	1
58	Fixing screw M8x10	1	133	Rivet 2,5x6	2
59	Motor side belt	1	134	Table angle mark	1
60	Spindle side belt	1	135	Rivet 2,5x6	2
61	Bearing 6202	2	136	Arrow	1
62	Grease nipple	1	137	Lock-handle of the table M10x35	1
63	Fixing screw	1	138	Split washer M16	1
64	Spindle side pulley	1	139	Bolt M16x30	1
65	Motor-side support of pulley	1	140	Table support	1
66	Screw M4x10	1	141	Lock-handle of the sleeve M12x45	1
67	Core	1	142	Taper drift	1
68	Ring	1	143	Spindle quill	1
69	Screw	1	144	Bearing 6204	1
70	Spring	1	145	Spindle	1
71	Bearing 6205	2	146	Shank of the chuck	1
72	Bolt M8x12	4	147	Chuck	1
73	Washer M8	4	148	Protective shield assembly	1
74	Rubber ring M22	1	149	Micro switch assembly	1
75	Washer M5	2			
76	Nut M5	2			
77	Split washer M5	2			

9. ELECTRICAL CIRCUIT

ELECTRICAL DIAGRAM



10. NOISE LEVEL

All data related to the noise level of this machine, when operating, depend on the type of material drilled, on the diameter and on the type of tool used. That is why measurement data are only relative.
The risk of hearing damage, for the operator, is related to the noise exposure time.
The operator must wear soundproof headphones or any convenient PPE when sound power is over 85 dB(A) at the working place.

- Sound pressure level : **LpA = 75,2 dB(A)**
- Sound power level : **LwA = 88,2 dB(A)**

Calculating the sound pressure was performed considering factors such as : reverberation of the test place, absorption of noise at the ground level and other noises that can interfere with the measures. The result is only estimation : nevertheless, one may say that, considering the values obtained, the uncertainty would be about 3 dB(A).

The values given are those of emissions and do not necessarily mean any safe working values. Although there is a correlation between levels of emission and levels of exposure, these values cannot be used with certainty to determine whether additional measures are necessary. Factors influencing actual levels of exposure are : the properties of the working area, other noise sources, etc., i.e. the number of machines and the type of processes used in the vicinity of the machine. Also the highest acceptable levels of exposure may vary in different countries. However this information should help the machine user evaluating the risk and the risk rate in a better manner.



11. VIBRATIONS LEVEL

All data related to vibrations produced by this machine, while machining, depend on the type of material drilled and on the type of tool used. That is why measurement data are only relative.

- Average value of hand/arm vibrations :
  Aw(8) < 2.5 m/s²

12. PROTECTION OF THE ENVIRONMENT

This machine is made from various materials that can be recycled. This sign indicates that used equipment should be discarded separately from other types of wastes.
Recycling these equipments will be best performed, in compliance with the WEEE Directive 2012/19/EU on waste electrical and electronic equipment.

Contact your dealer or your local government office for details of where and how they can take this item for environmentally safe recycling.
Thank you for helping us protecting our environment.



13. GUARANTEE

Only authorized After-Sales Services are allowed to carry a Guarantee. The Guarantee for this equipment is for 3 years, starting from the date of purchase by the user.
As the invoice acts as a proof of valid Guarantee, we recommend keeping it.
The purpose of the Guarantee is only to repair or replace, free of charge, faulty parts, following an expertise performed by the manufacturer.
The Guarantee will not cover any damage caused by the user or a repairer non-authorized by the company SIDAMO.
The Guarantee will not cover any consequential or subsequent damage, direct or indirect, material or immaterial, caused to persons or things and resulting from a failure or a shutdown of the equipment.

The Guarantee will not cover damages caused by :

- Abnormal use.
- Inappropriate operating.
- Electrical modification.
- A fault when transporting, handling or servicing.
- The use of non-genuine parts or accessories.
- Interventions performed by non-authorized persons.
- The absence of any protection or device designed to protect the operator.

The Guarantee of your machine is excluded in case on the non-observance of above instructions.
The Buyer is responsible for the Goods during the transport. Therefore the Buyer may exercise all judicial and administrative remedies against the carrier, in the correct form and within the legally required time.

14. DECLARATION OF CONFORMITY

DECLARATION OF CONFORMITY CE

The undersigned (Manufacturer/Importer) :

SIDAMO

Z.I. DES GAILLETROUS – 41260 LA CHAUSSEE-SAINT-VICTOR - FRANCE

declares that the new product described hereafter :

- Description : BENCH DRILLING MACHINE
- Brand : **SIDAMO**
- Type : PE 22 A
- Reference : 20502055
- Serial N° :

complies with the essential safety requirements that apply to it :

- **Machinery Directive 2006/42/EC**
- **Low Voltage Directive 2006/95/EC**
- **EMC Directive 2004/108/EC**
- **WEEE Directive 2012/19/EU**
- **RoHS-2 Directive 2011/65/EU**
- **REACH 1907/2006**
- **Noise Directive 2003/10/EC**
- **Vibration Directive 2002/44/EC**

La Chaussée-Saint-Victor
Date

PAUL SEIGNOLLE
Executive Officer

Person entitled to create the technical file :

- M. SEIGNOLLE – SIDAMO – Z.I. DES GAILLETROUS – 41260 LA CHAUSSÉE-SAINT-VICTOR - FRANCE