



- Ⓔ MANUAL DE INSTRUCCIONES TRADUCCION DEL ORIGINAL
- ⒼB ENGLISH TRANSLATION OF THE ORIGINAL USER MANUAL
- ⒻR MANUEL D'UTILISATION – TRADUCTION DE LA VERSION ORIGINALE

DRILL-4

DRILL-9

INDEX

E-1	1
1. GENERAL INFORMATION	3
2. GENERAL DESCRIPTION OF THE MACHINES	3
2.1 PICTOGRAMS	3
3. PLUGGING THE MACHINE	3
3.1 SECURITY SYSTEM	4
3.2 SPECIAL PLUGS	4
3.3 EXTENSION CABLES.....	4
4. LINK TO WATER TAP	5
5. DRILLING IN THE CEILING	5
6. FIXATION OF THE MACHINE	5
7. HOW TO USE THE DRILL	6
7.1 PRELIMINARY CHECKUPS	6
7.2 SIGNPOSTING OF THE DRILLING AREA	7
7.3 TYPES OF CROWNS.....	7
7.4 MOUNTING THE CROWNS.....	7
7.5 SELECTION OF THE ROTATION SPEED	7
7.6 DRILLING	8
7.7 DRILLING IN ARMATURES	9
8. STARTIN-UP THE MACHINE	9
8.1 IP PROTECTION DEGREE:	9
8.2 INCLINED DRILLING	9
8.3 CROWNS EXTENSION	9
8.4 BIG DIAMATERS DRILLS	9
8.5 SEGMENTS LOSS.....	10
8.6 SUDDEN DETENTION OF THE CROWN	10
9. SAFETY RECOMMENDATIONS	10
10. MAINTENANCE	12
11. WARRANY	12
12. SPARE PARTS	12
13. ENVIRONMENT PROTECTION	12
WARRANTY CERTIFICATE	¡ERROR! MARCADOR NO DEFINIDO.

1. GENERAL INFORMATION

WARNING: Please read and understand perfectly the present instruction before using the machine.

SIMA S.A. thanks you for purchasing the PERFORATOR

This manual provides you with the necessary instructions to start, use, maintain and in your case, repair of the present machine. All aspects as far as the safety and health of the users is concerned have been stated. Respecting all instructions and recommendations guarantees safety and low maintenance. As such, reading this manual carefully is compulsory for any person responsible for the use, maintenance or repair of this machine.

It is recommended to have always this manual in an easily accessible place where the machine is being used.

2. GENERAL DESCRIPTION OF THE MACHINES

- The drill, model has been designed to make all types of drillings, horizontal and vertical and on walls or concrete ceilings, reinforced concrete precast plaques, asphalt, granite, marble and other construction materials. The drilling tool is a diamond crown run by an electrical motor and cooled by water either directly taken from the tap or using an impulsion pump. The crown is moved forward by pushing the head towards the material to drill. All models are made of materials of first quality.

Any other use of this machine is considered inadequate and can be dangerous. Thus, this is utterly prohibited.

2.1 PICTOGRAMS

Pictograms included in the machine entail the following:



READ INSTRUCTIONS_MANUAL



USE HELMET AND EYE AND EAR DEFENDERS



USE SAFETY GLOVES



USE SAFETY FOOTWEAR

3. PLUGGING THE MACHINE

- **Do not use the machine without the PRCD mounted over the cable.**
- **Before starting working, check the efficiency of the PRCD with the blue key.**
- **Before plugging the machine, make sure the system is equipped with an earth plug.**

WARNING: these safety recommendations are very important!

If you have any doubts on the installation, let an electrician check the system.

- **Before inserting the peg in the plug, make sure this has a third pin for the earth plug.**

3.1 SECURITY SYSTEM

The voltage of single-phase motors connected with their switch is 230V and 400V for three-phase.

- The international standards for the drill equipment with diamond recommend to have the energy unit should be connected to the power through a specific security system, equipped with an adequate residual interrupter.
- The security system is supposed to have:
 - **Portable differentials box**, with one or more plugs, with a stream cutting residual and a special plug for drill units with diamond.
 - **The differential switch**, incorporated in the cable, in those countries where the law permits it only for single-phase motors.
 - **WARNING: It is not sufficient to have the differential interrupter integrated in the feeding.**

Before starting to work, check the security system switch. To do so, proceed as follows:

- Plug the differentials box or differential switch (**position 1**) **ON**.
- Press the check-up button (**T**), the switch should jump to **OFF** position.

NOTE: If during the work, the stream circuit is burnt, disconnect the machine and stop drilling. Check the fault and solve it.

3.2 SPECIAL PLUGS

The unit is equipped with a normalised, special plug (ECC) that needs to be connected to a secured switchboard that has a normalised connection base.

Never remove the plug from the cable nor mount another plug.

3.3 EXTENSION CABLES

- If you need to use an extension cable, always use cables with earth plug.
- The plug and the peg of the extension cable should be mounted with an electrical cable with a H07RN-F rubber outer cover.
- The extension cable needs to have the adequate length and the corresponding section to the drill power to avoid high energy consumption.
- **(110/230V)** Voltage: if you use an extension between the electrical source and the transformer, the extension needs to have a 9A.
- If you use an extension between a transformer and an electrical tool, the extension needs to have a 16A tension.
- When using more than one cable to get the desired length, make sure each individual extension has the minimal Amperes value (A) en function of the length of the cables.

QUICK GUIDE TO CABLE SELECTION

EXTENSION CABLES MINIMAL SIZE						
	CABLE LENGTH IN (m)					
AMPERS (A)	7,5	15	25	30	45	60
5,1 - 7	2,5	2,5	2,5	2,5	2,5	2,5
7,1 - 10	2,5	2,5	2,5	2,5	2,5	4
10,1 - 16	4	4	4	6	6	6
16,1 - 22	4	4	6	6	6	-

4. LINK TO WATER TAP

For the cooling of the machine, always use the original machine water pipe that has a security tap and a valve. This conduit is meant to cool the crown as well as the motor.

- Always use a water tap with a pressure not higher than 4 bar.
- Often check the integrity of the water hose.

For a correct use of the machine, the diamond segments are to be cooled when drilling and the holes should be kept clean.

Make sure the water pressure and flowing is sufficient to cool the crown and clean the hole.

The diamonds segments could be damaged if there is not sufficient water even though they are used for a short time.

You can know if the water flow is sufficient by observing the following:

- If the water flowing out the hole is fluid, you are doing it right. .
- If the water flowing out the hole is dry or if there is excessive dust, you should increase the refrigeration volume.
- If you have to enlarge a hole, you have to obstruct the anterior hole for a correct circulation of the water.
- If you need to drill porous, fissured materials or materials that absorb big quantities of water, try to reduce the leak of water throughout these materials and increase the water flow.
- Carefully connect the water tube and avoid any leakage and hence loss of pressure.

5. DRILLING IN THE CEILING

When drilling in the ceiling, it is recommended to use a pneumatic or hydraulic motor. If an electrical motor is used instead, a water collector should then be used to avoid water getting into the machine. Make sure the extension cable is away from the water flow.

- We recommend using the water collector when drilling into walls and ceilings.
- To install the water collector, follow the manufacturer instruction manual.

6. FIXATION OF THE MACHINE

The correct anchorage of the drill is essential to ensure: security in the workplace, high-performance of the drilling, quality in making holes, longer life of the engines and crowns. There are several ways of fixing the column, observe and assess which is the most appropriate type of fixation.

Fixation system types:

Mechanical fixation with expansion rod: this is the most used systems for floors and walls, by means of a threaded asparagus. Proceed with the installation as follows:

- Once fixed in the central drilling point, we define the bore of the metallic rod and we select the adequate expansion rod according to the minimal indicated dimensions (M12).
- We make a bore with the drill, and we introduce the metallic rod (minimal M12).
- We place the rig and insert the asparagus through the slot on the basis fixing it through the washer and its nut.

WARNING: The fixation by rod is inadequate when the material to drill does not have enough mechanical strength to hold the rod, for example brickwork.

FIXATION WITH CONTRASTS (UNDERPINNINGS): This is the most used system for its rapidity. There are telescopic underpinnings specially manufactured for this end. Proceed with the installation as follows:

- Place the drill unit in the defined point.

- Rest the brace against the upper end of the column, extending it up to the ceiling and tighten it through the upper contrast of the column.

IMPORTANT: NEVER TRUST THE ANCHOR OF ITS EQUIPMENT ON ITS OWN WEIGHT, PLUS THE WEIGHT OF THE OPERATOR STANDING ON IT. THE RISK IS VERY HIGH TO CAUSE SERIOUS ACCIDENTS.

The risk is very high. There might be excessive vibrations that would adversely affect: the machine, the speed of drilling and the performance of the diamond crown.

With any unexpected blockade of the crown, the possibility to increase the risk to lose segments is big. Worse even is an accident of the OPERATOR (in the revolving transition that produces the drilling basis).

FIXATION WITH THE VACUUM PUMP:

Vacuum pump fixation is fast and cost effective. The surface must be smooth to avoid air leakage. The surface should also be compact to avoid the separation of the top layer. In case the surface is rough or irregular, it must be levelled until it is adequate.

WARNING: When carrying out works on walls and ceilings, the vacuum pump system is not enough and should be combined with contrasts or underpinings to prevent any fall of the equipment in case of anomalies in the vacuum production system.

The vacuum pump system is not recommended for drilling diameters superior to 250 mm.

Proceed with the installation as follows:

1. Remove the four screws of the rig.
2. Place the air tightness rubber band in the rig.
3. Install the pressure gauge in the slot of the rig.
4. Connect the hose to the vacuum pump.
5. Add some oil to the pump, switch it on, Wait to reach the pressure and the pointer is in the green area of pressure gauge of the pump.
6. Connect the hose of the pump with the pressure gauge.
7. 7. Once the system is connected and the pump is on and the air starts to be drawn in, the column is then fixed.

Always work with the pointer into the green area of the manometer, the minimum pressure is 0.8 bars. Working below this pressure can cause accidents.

FIXATION WITH A COMBINED SYSTEM: When the system of anchorage, either with rods or with vacuum pump, seems not to guarantee a safe fixation with drillings over 250mm, you should use a complementary fixation with contrasts or underpinings.

INTERRUPTING THE DRILLING: If the rig fixation is loosened and the drilling unit needs to be placed back, you should centre very well the crown. Otherwise, this would provoke a strong dragging of the latter. If it not possible to centre the crown, make a bore of 15 or 20mm diameter.

BLOCKS: In case of drilling in blocks that are not entirely part of a building, avoid that these move or be uprooted.

7. HOW TO USE THE DRILL

7.1 PRELIMINARY CHECKUPS

WARNING: Before drilling a reinforced concrete structure, make sure not to drill in vital zones and not damage the structure; Do it the way the project manager has recommended.

Do not damage the gas en water conduits in the working area.

When drilling walls where possible electrical cables are to be found, do not touch the metallic parts of the machine. Use non-conducting materials and gloves to avoid any electrical charges

7.2 SIGNPOSTING OF THE DRILLING AREA

Before drilling walls or floors, make sure the stick that comes off the hole does not cause any damage. Therefore, signpost the area of work with danger signals. If the stick is likely to cause any damage, install a structure or a support to collect it when the drill is finished.

When the material that is going to be perforated is not part of a large construction, make sure this is well anchored or securely attached.

7.3 TYPES OF CROWNS

Use the appropriate crown for the material to drill. Using a crown in poor condition with worn out segments or inappropriate for the material to drill can lead to large motor overload and premature wear of the drilling unit.

After using the crown repeatedly to drill very hard materials or hard concrete with steel reinforcements, it is advisable to sharpen the segments by dry boring three or four 2 cm deep holes in an abrasive material.

WARNING: Do not hold ever with hands the abrasive materials to revive the crown.

7.4 MOUNTING THE CROWNS

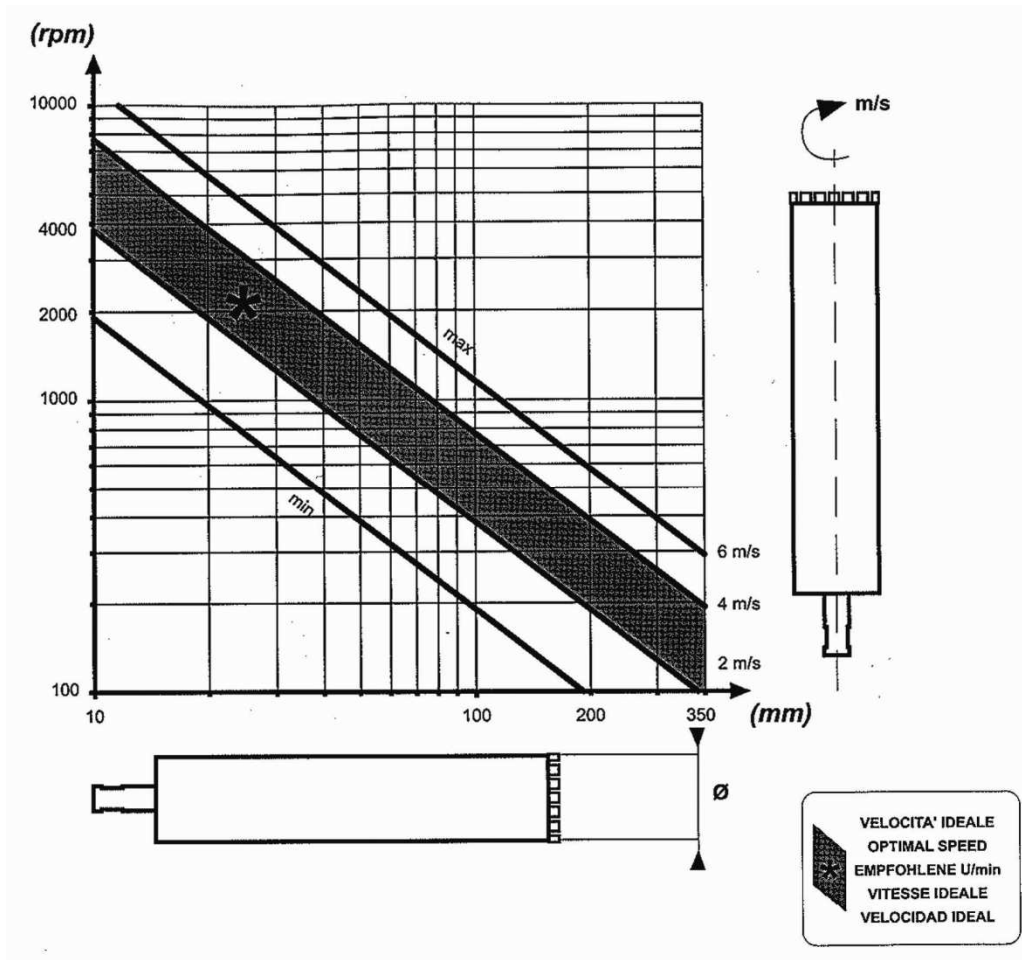
- Always Place a bronze washer between the axis carrying the crowns and the 1"1/4 UNC crown.
- Greasing the thread of the crown will avoid the oxidation and make it easier to extract the crown.
- If the connection of the crown is not the same as that of the axis, use a 1/2 G 1 1/4 UNC adapter that are available as accessories.
- Before starting to drill, make sure the crown is well adjusted in the axis.
- Before removing the crown, unplug the machine off the electricity.

7.5 SELECTION OF THE ROTATION SPEED

The advised crown revolutions are in function of the crown diameter, hardness and consistency of the materials to drill and diameter of the concrete reinforcements to drill through. Reduce the speed of drilling when you have to go through concrete armature with steel bars. Once crossed, you can go back to normal speed.

To select a speed, do it with the engine completely stopped, do not use tweezers, pliers or other type of tools. To select the speed, do it with your fingers. At the time you select the speed, turn with the other hand the axis to facilitate the alignment of the gears. In some models, you can only give a half turn 180.)

Note the following table to select properly the drilling speed.



7.6 DRILLING

WARNING: Before plugging the machine, make sure the feeding voltage matches with the voltage of the machine. If the voltage does not match, this can cause irreparable damages to the engine.

1. Connect the machine to the hydric network.
2. With the engine completely stopped, select the right drilling speed.
3. Open the water valve.
4. Connect the engine and keep the crown away from the surface to drill.
5. Approach the crown slowly to the surface to drill, exerting a little pressure on the rig handle during the first centimetre of drilling for a proper start. Correct the alignment of the crown if necessary at start in order to avoid excessive frictions or deviation of the crown from the drilling line. A bad setting of the crown can cause the machine to lose power or to be blocked. The same will happen if the machine is not well anchored to the ground.
6. If you note the crown can no more continue drilling after having made several corrections, proceed with larger diameter drills (15 and 20mm) in the same axis without moving the rig.
7. When you have made a passing or non passing drilling, **do not close the water valve until the crown is completely drawn.**
8. Once the crown is extracted and no more drilling is being made, introduce some compressed air through the water pipe, in order not to leave any remains of water inside, since inferior temperatures to 0° could freeze the water and cause damages.
9. **Extracting the stick:** When drilling horizontally or vertically upwards, the stick remains within the crown. To remove it, unscrew the crown; place it vertically so that the stick goes out by its own weight. Strike the frame gently with a hammer of wood or plastic if necessary. Do not hit the crown violently against walls or metal objects; otherwise, the former can be deformed. If the stick stays inside the crown and would not get out, try then with a chisel.

WARNING: If the crown being used is new, it is very likely that it will not drill to 100% unless the diamond bits are uncovered after the first use.

- During the drilling, keep your hands away from the crown and do not use loose garments.
- Put on the proper clothing, not too loose. Remove all the ornaments and make sure your hair is not loose.

7.7 DRILLING IN ARMATURES

Reduce the speed of the crown and the depth progress when going through metal armatures of a wall. Once gone through, return to normal drilling conditions. The following are cases where you can identify whether the crown is going through metal armature:

1. The crown moves slowly.
2. The force carried on the rig handle is excessive.
3. The water emanating from the drilling is clear and shows iron particles.

8. STARTIN-UP THE MACHINE

- Connect the cooling to the water tap.
- Connect the power cable to electricity.
- Press the security differential switch, integrated in the power cord.
- Press the ON switch to start the engine.

WARNING: If while using the machine, the differential switch goes to the off position, this could be as a result of a bad isolation of the engine. In such case, stop all operations and bring the machine to the technical service for repair.

8.1 IP PROTECTION DEGREE:

WARNING: TR model Drills are built with an IP55 protection degree, allowing to work in an environment in which there are sprinkles or jets of water.

They are not expected to work in immersion.

8.2 INCLINED DRILLING

When you have to make an inclined drilling, you start the drilling very softly because the crown at the beginning cuts with one sector and the drilling can be not aligned.

8.3 CROWNS EXTENSION

If the drilling you wish to make deeper than the height of the crown, you will need to install an extension. For this type of drilling, you will have to do it in twice. Consider the following steps:

1. Make the first drilling without placing the extension, only with the crown.
2. Extract the drilling stick.
3. Install the extension over the crown along with their bronze washers.
4. Make the second drilling to reach the full desired depth.

8.4 BIG DIAMATERS DRILLS

In case you need to make big diameter drills, there is an accessory that serves to remove the rig from the motor allowing to mount bigger diameter crowns.

8.5 SEGMENTS LOSS

If during the drill you notice you are losing segments or metallic parts of the crown, leave this hole and make another drill in the same axis with a bigger diameter in 15 and 20mm.

8.6 SUDDEN DETENTION OF THE CROWN

Be cautious when you are drilling, the machine can suddenly stop. The machine has been equipped with a mechanical clutch, but a quick action to disconnect the crown is also needed. When the crown is blocked, all parts of the machine can suffer an overload.

Be careful and always prepared to remove the crown if it gets stuck.

To extract the crown, proceed as follows:

1. Unplug the machine.
2. Turn the crown with a monkey spanner by means of the hexagonal nut that worms in the axis supporting the crown.
3. If you do not manage with a monkey spanner, try it gently with a chain spanner around the frame.

WARNING: Do not turn the machine using the "ON" and "OFF" buttons as this can get the crown stuck and damage the motor.

9. SAFETY RECOMMENDATIONS

The drills should be used by trained people or people familiarized with their operation.

- Before starting up the machine please read the instructions and make sure safety norms are respected. Learn how to stop the machine in a fast and safe way.
 - Do not use the machine around inflammable liquids gaseous atmosphere.
 - Place the machine on a plane surface. Connect the machine to the electricity only when you are sure of its stability.
 - Make sure the machine is in a perfect technical state and totally operational before using it.
 - Start the machine only when you have mounted the safety guards that come with the machine.
 - It is recommended to use safety glasses, safety boots, gloves etc. Please always use approved materials.
 - Always use Individual Protection Equipment (IPE) in accordance with the type of work you are effectuating.
 - Prohibit strangers to access the place of work of the machine.
 - Work clothes are not supposed to have loose articles that can cling into movable parts of the machine.
 - When you have to move the machine, unplug the electricity cables and block the moving parts of the machine.
 - Never use the machine for purposes other than those it has been designed for.
- **Machines with an electrical motor should always be connected to a normalised switch board that has a magneto-thermal and a differential in accordance with the motor characteristics:**
- **VERY IMPORTANT:** Always use earth plug before starting-up the machine.
 - Use normalised extension cables.
 - Make sure the feeding voltage is in accordance with the voltage indicated in the adhesive label on the machine.
 - Make sure the feeding extension cable is not in contact with high temperature points, oil, water, sharp edges. Avoid also trampling or crushing the cables by passing people or vehicles and do not put any objects on the machine.
 - Do not use high pressure water to clean circuits or electrical elements.
 - The damaged electrical cables should be urgently replaced.
 - Always keep protection elements in their due positions.
 - Unplug the machine from the electricity and never manipulate nor operate on the mechanical nor electrical elements of the machine while the engine is on.

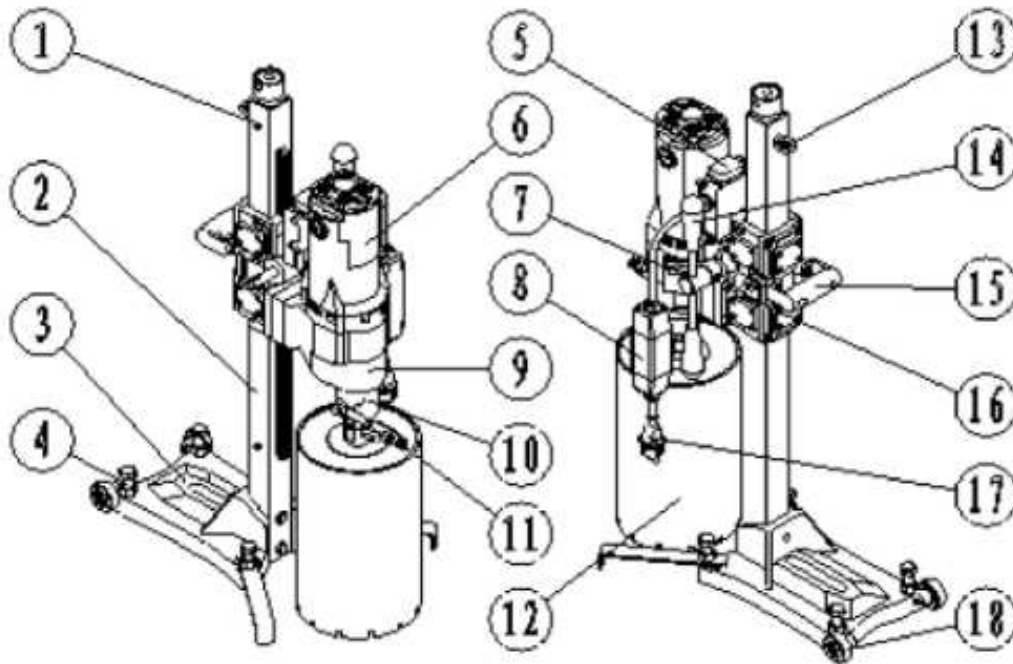
WARNING: All safety recommendations mentioned in the present manual as well as other standard safety norms as far as the labour hazards are concerned must be followed.

THIS MACHINE IS NOT TO BE USED UNDER RAIN. ALWAYS WORK IN GOOD LIGHT CONDITIONS

SIMA, S.A. is not held responsible for the consequences caused by the inadequate.



Drill 4	300 / 12"	460 / 600	50 / 60	230	3500 / 35	13kg 29lb	14kg 31lb	550 x 180 x 220 22 x 7 x 9
Drill 9	452 / 18"	300 / 600 / 900	50 / 60	230	3500 / 35	13kg 29lb	14kg 31lb	570 x 200 x 200 22 x 8 x 8



- 1.stop knob 2.column 3.base 4.leveling bolt 5.swich 6.motor
- 7.adjustable speed knob 8.RCD 9.gear box 10. water seal 11.water cock
- 12.core bit 13.eye bolt 14.feed handle 15.carrige block handle
- 16.stopper pin 17.cable plug 18.rubber wheel

10. MAINTENANCE

Take the drill unit to the closest service centre for review each 250 hours of work especially when it has been used in harsh conditions.

All repairs and maintenance operations of the motor should be made by the manufacturer or the distributor in the country.

Keep the extensions threads crowns and rigs always greased.

All internal gears are lubricated with oil. It is not necessary to control the level of oil add oil unless there has been an eventual repair.

At the end of each day, clean the machine.

11. WARRANTY

SIMA, S.A. the manufacturer of light machinery for construction possesses a net of technical services "SERVI-SIMA".

Repairs under warranty made by SERVI-SIMA are subject to some strict condition to guaranty a high quality and service.

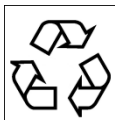
SIMA S. A. guarantees all its products against any manufacturing defect; to take into account the conditions stated in the attached document "WARRANTY CONDITIONS". The latter would cease in case of failure to comply with the established payment terms. SIMA S.A. reserves its right to bring modifications and changes to its products without prior notice.

12. SPARE PARTS

The spare parts for the bending and combined machines, manufactured by SIMA, S.A. are to be found in the spare parts plan, attached to this manual.

To order any spare part, please contact our alter-sales service clearly indicating the serial number of the machine, model, manufacturing number and year of manufacturing that show on the characteristics plate.

13. ENVIRONMENT PROTECTION



Raw materials have to be collected instead of throwing away residuals. Instruments, accessories, fluids and packages have to be sent into specific places for ecological reutilisation. Plastic components are marked for selective recycling.



R.A.E.E. Residuals arising of electrical and electronic instruments have to be stored into specific places for selective collection.



SOCIEDAD INDUSTRIAL DE MAQUINARIA ANDALUZA, S.A.

POL. IND. JUNCARIL, C/ALBUÑOL, PARC. 250

18220 ALBOLOTE (GRANADA)

TEL...: 34 - 958-49 04 10 - Fax: 34 - 958-46 66 45

MANUFACTURER OF LIGHT MACHINERY FOR CONSTRUCTION

SPAIN