# Automatic Marshall Compactors
# BM255 and BM257

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User Guide
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OPERATING MANUAL

# AUTOMATIC MARSHALL COMPACTOR

MANUAL CODE: **BM255, BM257 & BM258**

DO NOT TRY TO OPERATE THE MACHINE BEFORE READING AND LEARNING THIS MANUAL IN ALL ITS PARTS

## CONTENTS

Files enclosed to this manual:

| | |
|---|---|
| **File** | **CONTROL PANEL** |

The operating manual and the enclosed files are an important part of the product and they can only be referred to the machine they're supplied with.

# Chapter 1 GENERAL INFORMATION

## 1.1 GENERAL FEATURES

- This manual id addressed to the carrier, the installer, the user, the maintenance operator, the scrapping operator.
- Please read it carefully because it informs you about the operating of the machine in safety conditions.
- This manual has to be considered a part of the product and concerns only the machine it is delivered with.
- Keep the manual in order during the whole life of the appliance to consult it for any needs.
- In case of sale, the manual and its enclosures should be given together with the machine.
- The manufacturer assumes no liability for any damages caused by a misuse of the machine.
- The manufacturer has the right to modify this technical literature as well as the machines this refers to without any previous notice.
- Messages meaning:

| | |
|---|---|
| **ATTENTION** | It shows the procedures that can damage seriously the machine if they are not followed carefully |

| | |
|---|---|
| **DANGER** | It shows the procedures that can be dangerous to the operator if they are not followed carefully |

## 1.2 IDENTIFICATION

**MANUFACTURER IDENTIFICATION :** See the cover page

**MACHINE IDENTIFICATION :** See the plate on the machine where you can find complete identification data as well as electrical features.

## 1.3 APPLICATIONS

The automatic Marshall compactor has been studied for the compaction of Marshall specimens.

The equipment is made for the aim, which it has been conceived for.
Any other uses are not allowed.

| | |
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| **ATTENTION** | The instructions given in this operating manual are only made for the right use of the appliance. To carry out the test in the right way, the user must refer to the specific standards in force for the test itself. |

## 1.4 STRUCTURE AND OPERATING OF THE MACHINE

Two main parts form the appliance:

- **THE COMPACTOR (ENCLOSURE A**) is mainly formed by a steel base placed over a wooden pedestal. A mould housing the specimen is located upon the base. A hammer driven by a trip mechanism provides specimen compaction. The hammer is lifted to a height of 457,2 mm and allowed to fall free at 60 blows per minute.
- **THE CONTROL PANEL (ENCLOSURE B).** It allows controlling and managing the compactor functions. Consult the enclosed file for further details.

Do not hesitate to get in touch with the manufacturer or with the dealer for any further information.

# Chapter 2 SAFETY INFORMATION

## 2.1 GENERAL SAFETY STANDARDS

- **The use, lifting, installation, maintenance and scrapping of the machine are allowed only to qualified staff.** A qualified staff is composed by people who are authorised by the safety responsible to do any activities due to their experience and acknowledgement of the operating of the machine and of the standards, rules and actions.
  The user must be carefully taught about the operating of the machine to avoid any misuse of it and about the safety devices, which the machine could be eventually equipped with. The safety devices will have to be kept always assembled and to be daily checked.
  The manufacturer offers training and assumes no liability for any damages due to a misuse of the machine by an unskilled staff.
- The manufacturer recommends following carefully the instructions and procedures of the operating manual and the safety standards concerning the safety devices and the general rules of the work environment.
- Verify the accordance of the machine to the standards in force in the State where the machine has to be installed.
- The operating manual must be carefully read by the safety responsible, by the operators and maintenance engineers. It must always be kept near the machine in order to be able to read it any times it will be necessary.
- Any tampering or modifications of the machine (electric, mechanical etc.) that are not allowed by a written agreement of the manufacturer must be considered as not permitted and the manufacturer will not accept to be charged for any damages.
- The removal or the tampering of the safety devices will be an infringement to the EEC Safety Standards. The manufacturer assumes no liability for any damages.
- The machine has to be installed in places safe from fire and explosions.
- We do recommend using only original spare parts and accessories; on the contrary the manufacturer assumes no liability.
- Be careful that any dangerous situations won't happen during the working; stop immediately the machine in the event that it will not work properly and ask the manufacturer or the Authorised Service Staff of the dealer at once.

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|---|
| The manufacturer assumes no liability for any damages to people, things and animals caused by the non-compliance of the above instructions. |

## 2.2 SAFETY GUARDS

MEANING: Safety devices are all the safety measures which consist of the use of specific technical equipment (guards, cages etc.) to protect the operator from any danger that couldn't be avoided when the appliance is planned.

| | |
|---|---|
| **DANGER** | The removal of the safety devices or any tampering of the machine could cause risks to the operator or to any other people.<br>The manufacturer assumes no liability for any damages to people, things or animals due to the tampering of the safety devices. |

**FIX AND MOVABLE SAFETY DEVICES**

The testing machine is supplied in two versions:

- The STANDARD version where no safety devices are foreseen.
- The EUROPEAN CE version where a safety micro is foreseen. This enables the access to the moving parts during the test execution.

**ACTIVE SAFETY DEVICE**

For active safety devices are meant all those devices avoiding or reducing the risks for the operators. These devices require an active and aware intervention to be operated.

On the control panel there's a Main Switch also acting as safety switch

**PASSIVE SAFETY DEVICES**

For passive safety devices are meant all those devices avoiding or reducing the risks for the operators. These devices don't require any intervention to be operated.

On the Compactor, supplied with safety guards, you can find a protection micro switch that stops the machine functioning whenever the carter is not closed correctly or it is opened during the test running.

## 2.3 DANGEROUS PARTS AND RESIDUAL RISK

The dangerous place is the space inside and around the machine where the operator could be wounded or damaged.
During some procedures the operator could face some risks of danger.
The risks can be eliminated following carefully the procedures written in this manual and using suitable safety devices.

| | |
|---|---|
| **ATTENTION** | In case the machine installation is not done by the Manufacturer, employ only skilled operators particularly trained for the lifting of heavy machinery. |

**GENERAL INFO**

- **Before starting the standard use of the equipment, ensure that all the components are in good working conditions check there are no defective or damaged parts. If necessary repair or replace any damaged part.**
- Do not wear large clothes, ties, kettles, watches or others, which could entangle in the frame as well as in any moving part of the machine.
- Pay attention to the risk for electric shocks both direct and indirect, due to a failure to the electric system.
- Do not subject the appliance to impacts or shocks.
- Do not expose the appliance to fire, extreme temperatures or weld splatter.
- Avoid corrosive substances to come in touch with the appliance.
- Do not wash the machine using water spray.

**DURING THE USE**

- In order to grant the maximum security level for the operator, do not touch any moving part of the appliance during the test execution and wear the convenient protection devices.
- If the appliance is not equipped with safety guards, do not stand nearby during the test execution. This will avoid any incidental contact with the falling hammer.

- If the appliance is provided with safety guards, pay attention to the risk of finger squeeze when closing the same.

**DURING THE LIFTING**

- During the lifting take care that the machine is conveniently held and secured and that it cannot slide.
- Do not stand in a direct line with the application of force. Do not allow people entrance under loads that are no conveniently supported by mechanical means.

| RISK OR DANGER | PROTECTION DEVICE |
|---|---|
| FINGER OR ARM SQUEEZE<br>ABRASIONS OR CUTS | REINFORCED GLOVES<br>REINFORCED GLOVES |

The manufacturer assumes no liability for any damages to people and things due to a lack of observance of the instructions and the use of the safety devices.

## 2.4 NOISE

The indicated levels of noise are not necessarily safety levels for the operator.
The exposure level of the operator is obviously related to the emission levels of the appliance, but other factors influence the exposure levels as the time of exposure, the environment, other appliances installed near to the appliance etc.
The exposure levels permit to value the damages that could be caused by the noise

| | |
|---|---|
| Acoustical pressure level equivalent **Laeq,** in the working place | **52** dB(A) |
| Acoustical power emitted by the appliance **LWA** | **57** dB(A) |
| Standard above data are referred | **EN ISO 3746** |

| | |
|---|---|
| **DANGER** | The continuous use of the machine together with other noisy appliances could cause a high level of exposure to the noise. If the daily exposure of the operator is equal or higher than 85 dB(A), Safety Devices as headphone are suggested to be worn.<br>If the daily exposure is equal or higher than 90 dB(A), the use of the Safety Device is **compulsory**.<br>For further information consult the standards of the country where the machine has been installed. |

# Chapter 3 INSTALLATION

| DANGER | Consult **2.3 DANGEROUS PARTS AND RESIDUAL RISKS before** proceeding |
|---|---|

## 3.1 LIFTING

The operating instructions must be respected during:

- The lifting and the storing
- The first installation
- The further installations

The machine is usually packed in a wooden case to be moved by a forklift.
During the lifting of the case, it is recommended to take the utmost care and to follow the lifting directions labelled on the case. If possible, use forklift or crane and fasten the case with belts and ropes, avoid the use of chains.

| ATTENTION | The lifting of the case must be effected with great care and following the lifting directions on the case. Pay attention to avoid impacts and turnovers. |
|---|---|

| ATTENTION | Protect the machine from the atmospheric agents. Water and humidity could oxidise it, damaging it seriously. |
|---|---|

## 3.2 UNPACKING

After removing the package, check that any parts of the machine are not damaged. In case of doubt, **DO NOT USE THE MACHINE** and ask the manufacturer.

| DANGER | The materials used for the package (plastic, polystyrene, screws, nails, wood etc.) have to be kept far from children. They must be thrown away in a proper collection centre. |
|---|---|

| ATTENTION | Pay attention to avoid impacts and turnovers. |
|---|---|

| ATTENTION | Before throwing away the package, pay attention that any accessories, manuals, documents, spare parts are not inside. |
|---|---|

## 3.3 INSTALLATION

The machine has to be placed in an environment suitable for the aim it has been conceived for (laboratory use). The installation must be done by skilled operator.

| | |
|---|---|
| **ALLOWED TEMPERATURE** | from + 5°C to + 40°C |
| **ALLOWED HUMIDITY** | from 30% to 95% |
| **O.S.L. MAX. HEIGHT** | 1000 m |

## GENERAL WARNINGS.

- The machine must be installed so that it is free from each side. This will grant its easy maintenance.
- No unauthorized people or dangerous objects must be allowed to get in the area near the appliance.
- The control panel should be secured to the wall to a convenient height to allow an optimal control of the various functions by the operator as well as a rapid intervention in case of emergency.
- The appliance should be installed on a smooth and hard floor, best if made of concrete; secure the appliance using the special hooks foreseen on the wooden pedestal. Use the provided fixing bolts and check carefully that the trip mechanism is perfectly levelled.

| 3.4 | ELECTRIC CONNECTIONS |
|---|---|

| DANGER | Skilled operators must arrange the electric connections. |
|---|---|

| DANGER | Before connecting, see the attached electric diagram and the plate on the machine for the information about the voltage, the frequency, etc. |
|---|---|

| DANGER | Connect the ground by the terminal PE (yellow-green) before making any other connections. |
|---|---|

| DANGER | Connect the ground by the terminal PE (yellow-green) before making any other connections. |
|---|---|

## ELECTRIC TOLERANCES:

- Real voltage ± 10 % of the nominal one
- Frequency : ± 1 % of the nominal one in a continuous way; ± 2 % of the nominal one for a short period
- The harmonic distortion of the sum from the second to the fifth harmonics not more than 10 % of the total voltage as a real value between the conductors. A further distortion of 2% is accepted for the sum from the sixth to the thirtieth harmonics of the real total value between the conductors.
- With reference to the tension unbalance of the three-phase voltage, the inverted sequence component and the zero sequence component must not be more than 2% of the direct sequence component of the voltage
- The voltage pulses must not last more than 1,5 ms with an up/down time between 500 ms and 500 μs and a peak value not higher than 200 % of the real value of the nominal tension.
- The electric feeding must not be interrupted or zeroed for more than 3 ms. Between two interruptions it must not take more than 1 s.
- The interruptions must not overcome 20 % of the tension peak for more than one cycle. Between two interruptions it must not take more than 1 s.

# Chapter 4 MACHINE FEATURES

## 4.1 DIMENSIONS AND MASS OF THE APPLIANCE

| | BM257/258 | BM255 |
|---|---|---|
| **LENGTH** | 540 mm | 600 mm |
| **WIDTH** | 400 mm | 600 mm |
| **HEIGHT** | 1600 mm | 1800 mm |
| | | |
| **MASS** | 95 kg | 380 kg |

# Chapter 5 OPERATOR'S INTERFACE

## 5.1 CONTROLS AND MESSAGES

| | |
|---|---|
| A1 | SAFETY GUARDS |
| A2 | FIXING BRACKETS |
| A3 | LEVER FOR MOULD BLOCKING |
| A4 | MOULDS |
| A5 | COMPACTION HAMMER |
| A6 | GRIP HANDLE |
| A7 | BRACKET TO FIX THE ROD |
| A8 | COUPLING LEVER |

| | |
|---|---|
| A1 | SAFETY GUARDS |

Only for EEC appliances. It prevents the operator from coming in touch with the moving parts of the appliance.

| | |
|---|---|
| A2 | FIXING BRACKETS |

They allow fixing the appliance to the floor.

| | |
|---|---|
| A3 | LEVER FOR MOULD BLOCKING |

It allows blocking the mould, after its positioning, on the compactor steel base.

| | |
|---|---|
| A4 | MOULD |

It contains the bituminous specimen to be tested.

| | |
|---|---|
| A5 | COMPACTION HAMMER |

It allows the compaction of the specimen.

| | |
|---|---|
| A6 | GRIP HANDLE |

It allows an easy lifting of the hammer driving shaft.

| | |
|---|---|
| A7 | BRACKET TO FIX THE ROD |

It holds the hammer driving shaft.

| | |
|---|---|
| A8 | COUPLING LEVER |

It allows coupling the moving rod in the upper position when the mould must be positioned on the base of the compactor.

| Chapter 6 | USE |
|---|---|

| DANGER | Consult the chapter **"DANGEROUS PARTS AND RESIDUAL RISKS "** before proceeding. |
|---|---|

## 6.1 WARNINGS

Before starting the normal use of the equipment it is recommended to verify that it is in good working conditions with no defective or damaged parts. If necessary proceed with the required maintenance operations**.**

Before starting a test the user must check the main features of the materials composing the specimen and try to foresee the way it will react to the compaction test in order to use the proper cautions.

## 6.2 SWITCHING ON THE APPLIANCE

| ATTENTION | Before switching on the appliance ensure it is connected to the power net |
|---|---|

To switch on the appliance, follow these instructions:
- Put the main switch of the Control Panel on position "I" (for further details consult the file of the control panel enclosed to this manual).
The control panel is configured by the Manufacturer in the stroke-counter mode; in case you realize that the configuration is incorrect and not suitable to the machine features, contact the After Sale Service immediately.

## 6.3 TOOLING UP

Here under we describe the proper procedure to allow tooling up the appliance correctly even to an operator without a wide experience.

| ATTENTION | The Manufacturer assumes no liability for any damage caused by an incorrect use of the appliance. |
|---|---|

- Open the safety guards;
- Lift the shaft and the hammer;
- Turn the blocking lever so that the mould fixing bracket is lifted;
- Position the mould already filled with the specimen on the centring pin situated on the steel base.
- Turn the blocking lever so that the mould is secured to the base.
- Move downwards the hammer shaft so that the hammer touches the specimen surface;
- Close the safety guards and secure it using the special lever.

## 6.4 PROGRAMMING THE CONTROL PANEL

For the correct set up of the control panel, consult the file enclosed to this manual.

## 6.5 PROCEDURE FOR THE OPENING OF THE SAFETY GUARDS

The compactor can only work when the safety guard is closed and locked by the special lever.
In case the safety guard is opened during the test running, the Compactor will automatically stop. In this case the stroke number would be lost.
If the operator needs to stop the Compactor at any time and to open the safety guards, he can choose one of these two procedures:

- Pushing the key  the appliance will automatically stop, the stroke counter is reset.
- Pushing the key  the appliance will stop. In this case the preset number of strokes is saved together with the number of strokes made up to then. The key "PAUSE" allows the opening of the safety guards without data loss, so that the test can be continued after the closing of the safety guards.

## 6.6 EMERGENCY STOP

In case of emergency it is possible to stop the test execution at once by positioning the Main Switch on "0"

| | |
|---|---|
| **ATTENTION** | It is worth reminding that the test interruption causes its annulations. |

## 6.7 STARTING AFTER AN EMERGENCY STOP

| | |
|---|---|
| **DANGER** | Before switching on the appliance once again, find and solve the problems, which caused the need for an emergency stop. |

To switch the appliance again, just move the main switch, placed on the Control Panel, to position "I", this will reset appliance normal functions.

## 6.8 STOP CONTROLLED BY SAFETY SYSTEMS

If the appliance is provided with safety guards, the test can be interrupted by the safety systems studied to operate in case of malfunctioning. The compactor is equipped with the following safety systems:

STOP CONTROLLED BY THE MICRO SWITCH WHEN OPENING THE SAFETY GUARDS
The safety guard is provided with a protection micro switch to avoid the operator to come in touch with any of the moving parts of the Compactor. If the safety guard is opened while the test is running, the micro switch turns the motor off.
To reset the appliance standard functions it is necessary to close the safety guard.

## 6.9 SWITCHING OFF THE APPLIANCE

To switch off the appliance, just move the Main Switch to position "0".

## 6.10 TRIAL STARTING

Before beginning the standard use of this machine, check its perfect working conditions by carrying out at least one complete empty cycle.
In case of problems during this test cycle, see Chapter " DIAGNOSIS ".
If neither the instructions given in this manual are not able to solve the problem, please contact our After Sale Service.

## 6.11 EXAMPLE OF OPERATING

| | |
|---|---|
| **DANGER** | Before starting the procedure described hereunder, carefully read and learn the instructions given in this manual. |

This machine can be used in different ways depending on the kind of test you wish to perform.
Here follows a "standard procedure" allowing even to an operator without a wide experience to carry out a test. The time will increase the operator's skill in the machine use according to one's need.

1. Switch on the control panel (for further details about the functioning of the control panel, consult the file enclosed to this manual)
2. Tool up correctly the appliance as described in the chapter "TOOLING UP" of this manual.
3. Set up the control panel as described in the chapter "PROGRAMMING" of the file enclosed to this manual.
4. Start the test by pushing the "Start " key, which is on the Control Panel; Consult the file enclosed to this manual.

# Chapter 7 MAINTENANCE

| | |
|---|---|
| **DANGER** | Consult **2.3 DANGEROUS PARTS AND RESIDUAL RISKS before** proceeding. |

| | |
|---|---|
| **DANGER** | All the maintenance operations must be carried out with the machine turned off and unplugged from the knife switch. |

| | |
|---|---|
| **DANGER** | Skilled operators instructed about the purposes the machine is made for must carry any kind of maintenance operations concerning the components of the machine and of the electric components, even those that may seem very simple. |

| | |
|---|---|
| **DANGER** | Only original spare parts are allowed. The Manufacturer assumes no liability in the event that non – original parts are used. |

## 7.1 ROUTINE MAINTENANCE

In order to maintain good working of the machine for a long time, clean periodically all the parts and oil the parts that are not painted. Avoid the use of solvents, which could damage the varnished parts and the synthetic ones.
Make regularly all the periodical inspections listed in the chapter “PERIODICAL INSPECTIONS” in order to avoid any damage or malfunctioning of the appliance.

## 7.2 SPECIAL MAINTENANCE

In case of special maintenance operations (repairs, replacement of parts and any other operation not described in this manual) ask directly to the manufacturer.

## 7.3 PERIODICAL INSPECTIONS

It is recommended to execute punctually and correctly all the periodical inspections here described. This will help in preventing failures and dysfunctions.

| | |
|---|---|
| **OPERATION** | CHECK OF THE WEIGHT FALLING HEIGHT. |
| **PROCEDURE** | Check if the falling height is 457,2 mm, if it isn’t, unscrew the screws that are fixing the releasing device installed on the sliding rod of the rammer and set the proper height. |
| **FREQUENCY** | AFTER 50 WORKING HOURS |

| | |
|---|---|
| **OPERATION** | CHECK THE SPRING OF THE SLIDING DEVICE |
| **PROCEDURE** | Ensure that the push up spring of the sliding device (assembled on the hammer) has not reached its yielding point and that it pushes the device to the max. stroke. |
| **FREQUENCY** | AFTER 50 WORKING HOURS |

| | |
|---|---|
| **OPERATION** | CHECK THE PULL CHAIN ARM AND ITS SPRINGS. |
| **PROCEDURE** | Ensure that the pull-chain arm and its springs (located inside the compactor) are working correctly, keeping the chain well stretched. |
| **FREQUENCY** | AFTER 50 WORKING HOURS |

| | |
|---|---|
| **OPERATION** | CHECK THE LEADING PLATE AND THE SLIDING DEVICE OF THE RAMMER |
| **PROCEDURE** | Verify that the leading plate and the sliding device are not worn out. If necessary replace them. |
| **FREQUENCY** | AFTER 50 WORKING HOURS |

| | |
|---|---|
| **OPERATION** | CHECK THE LINK BLOCKS OF THE CHAIN |
| **PROCEDURE** | Ensure that the nylon link blocks keep the chain pushed towards the hammer. If necessary adjust them using the fixing screws. |
| **FREQUENCY** | AFTER 50 WORKING HOURS |

| | |
|---|---|
| **OPERATION** | CHECK THE PROPER WORKING OF THE SAFETY DEVICE CONNECTED TO THE LOWER SAFETY GUARD |
| **PROCEDURE** | Let the compactor work for some minutes simulating a test. Open the safety guard. When this is opened push the button to start again the working of the compactor.<br>If the appliance doesn't start any of its functions, the safety system is working properly. If the appliance starts some of its functions stop immediately using the machine and follow the disposal given in the chapter "DIAGNOSIS" of this user manual. |
| **PRECAUTIONS** | **During this inspection nobody, including the end user can be in the space where the rammer is moving.** |
| **FREQUENCY** | AFTER 50 WORKING HOURS |

## 7.4 PERIODICAL OPERATION

It is recommended to execute punctually and correctly all the periodical operation here described. This will help in preventing failures and dysfunctions.

| | |
|---|---|
| **OPERATION** | CLEAN THE DRIVING SHAFT AND THE TRIP MECHANISM |
| **PROCEDURE** | Clean the squared driving shaft and the rammer periodically. **ATTENTION** Do not grease the squared driving shaft. It must work dry. |
| **FREQUENCY** | WEEKLY |

| | |
|---|---|
| **OPERATION** | CLEAN AND GREASE THE SLIDING DEVICE ASSEMBLED ON THE RAMMER |
| **PROCEDURE** | Clean thoroughly and grease using silicon oil –highly fluid- the sliding device. |
| **FREQUENCY** | AFTER 50 WORKING HOURS |

| | |
|---|---|
| **OPERATION** | GREASE THE CHAIN |
| **PROCEDURE** | Disassemble the safety guard backwards; verify that the chain is greased and the support link of the leading plate is free to move. If necessary wash thoroughly the chain and grease it. |
| **FREQUENCY** | AFTER 50 WORKING HOURS |

## Chapter 8 DIAGNOSIS

### 8.1 DIAGNOSIS

Some easy to solve and simple problem, which can happen during the working of the appliance, are introduced in this chapter.

| | |
|---|---|
| **ATTENTION** | All maintenance, checking, control and repairing operations of each part of the machine or of the electric system, must be carried out by skilled operators instructed about the functions and working procedures of the appliance. |

| PROBLEM | POSSIBLE CAUSE | CURE |
|---|---|---|
| After having switched on the main switch the compactor doesn't work | No supply | Check the proper connection of the plug to the main supply. |
| | Damage to the motor | Contact our After Sale Service. |
| | Damage to the electric supply | Check that the cables and the connections of the electrical supply are not interrupted. |
| The compactor continues keeping all its functions working even after the lower safety guard has been opened. | Damage to the safety system connected to the safety guard. | Contact our After Sale Service for the proper replacement of the safety micro-switch |

## Chapter 9 SCRAPPING

### 9.1 SETTING ASIDE

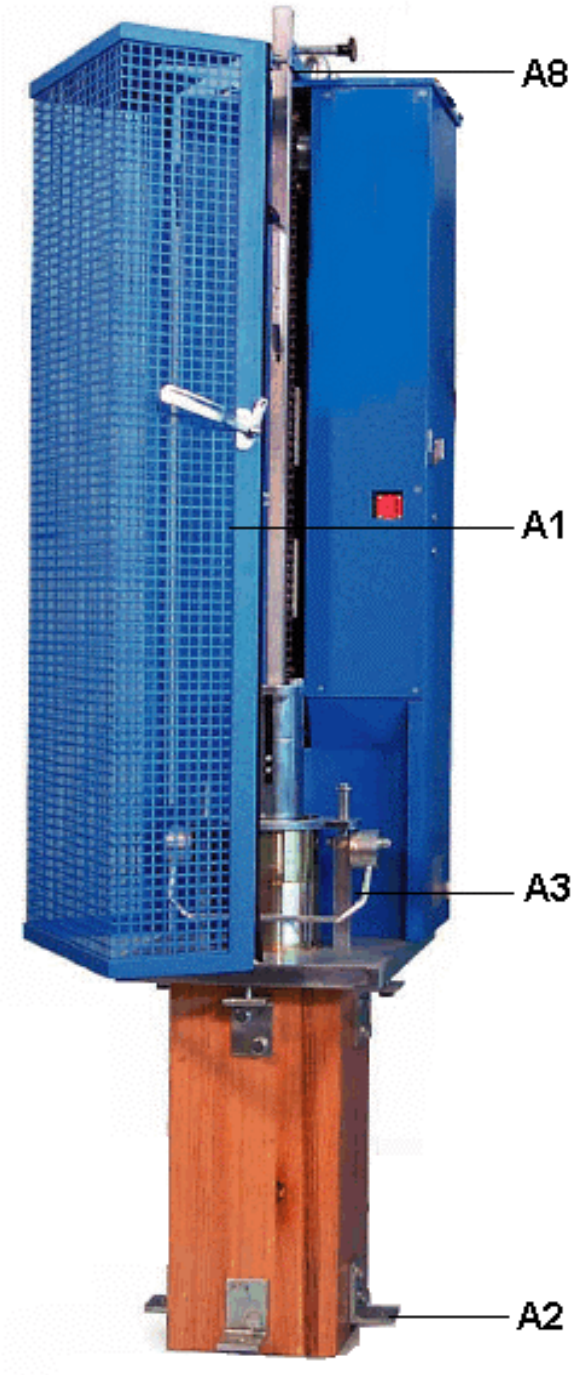
In case of setting aside for a long time it is necessary to disconnect the electric feeding.
Execute all the maintenance operations.
It's recommended to cover the machine against the dust.

### 9.2 SCRAPPING

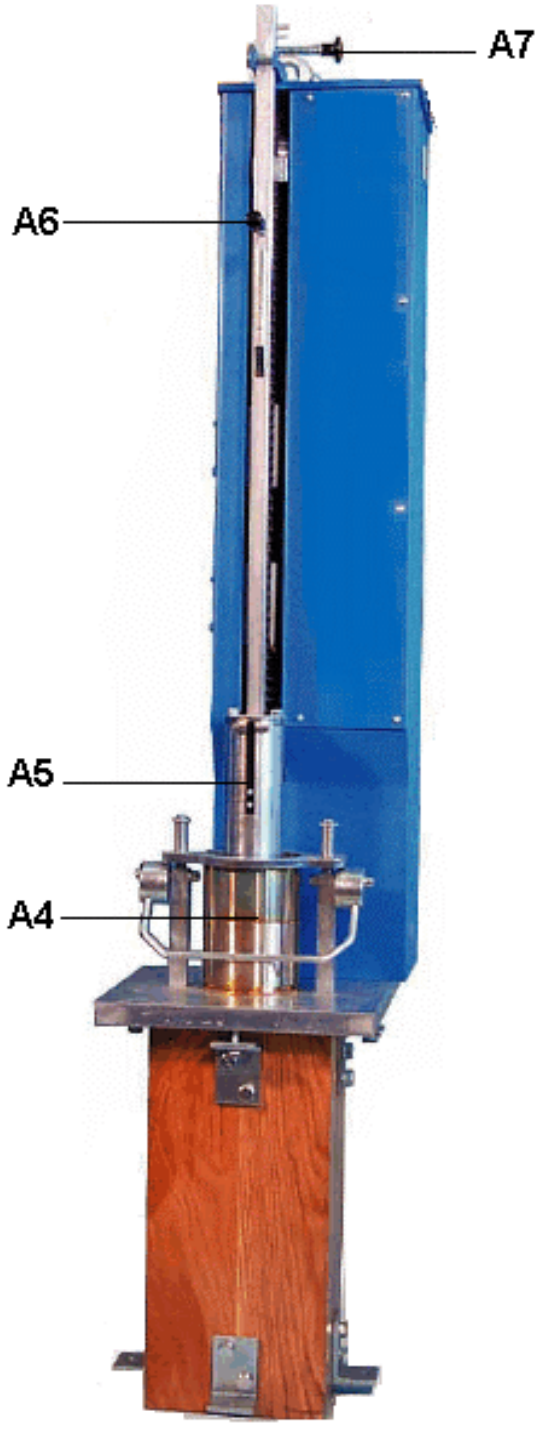
When the machine is not used anymore, it is recommended:

- Disconnect the feeding cable
- Cover/destroy all the parts which may be dangerous as cutting, projecting or sharpened ones.
- Disassemble the machine and scrap it as per the actual laws.

| ENCLOSURE A | COMPLETE APPLIANCE |
|---|---|

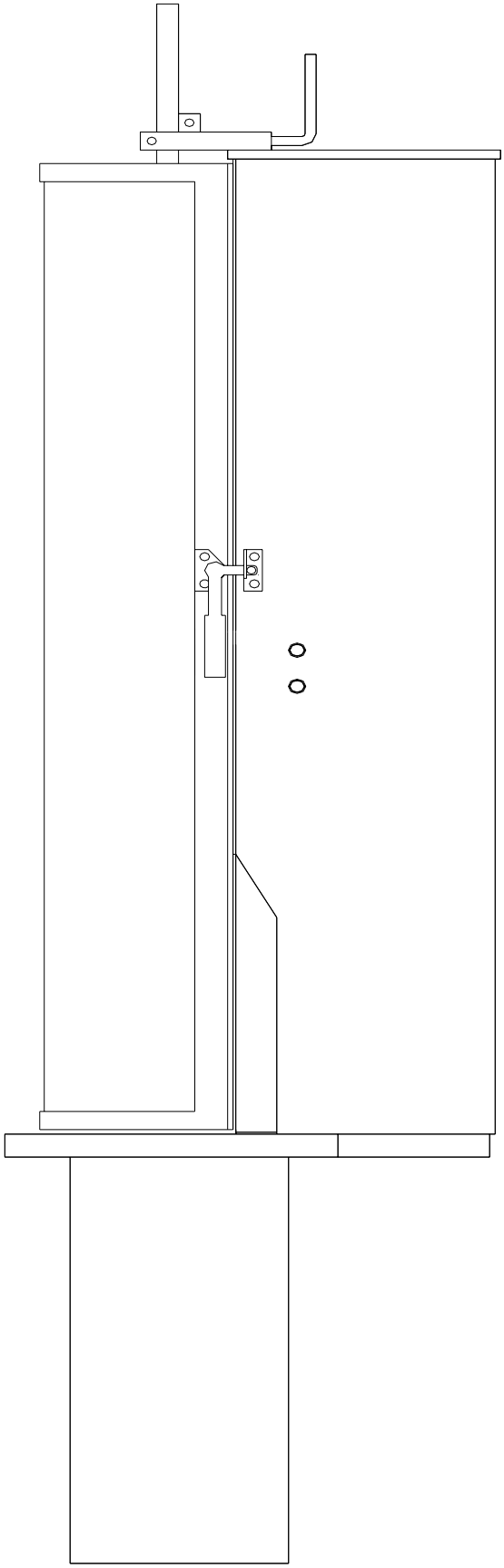



CE




STANDARD

| ENCLOSURE B | SAFETY GUARDS |
|---|---|



| ENCLOSURE C | CONTROL PANEL<br>**SEE FILE** |
|---|---|