

# USE AND MAINTENANCE MANUAL

PLASTER SPRAYER

**M5 - Eco**



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## INTRODUCTION

Dear Client!

Thank you for your choice. With the purchase of this Maltech plaster sprayer you have chosen one of the most modern machines in the sector, guaranteeing you high performance and impeccable quality.

The **MALTECH M5 - Eco** series plaster sprayer is suitable for all types of use both internally and externally. With this machine it will be possible to carry out plastering work internally and externally, rustic finish, insulating plastering, and ready and self-levelling mortar for floors.

The present manual contains all the use and maintenance instructions relating to the machine. Careful observation of the following regulations guarantees impeccable functioning and durability of the plant.



**We also recommend reading the present manual carefully for reasons linked to safety and the prevention of accidents.**

For problems possibly not treated by the present manual call our representative who can give you all the necessary information.

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## GUARANTEE AND MODIFICATIONS

### Guarantee

**MALTECH** offers a guarantee of a year from delivery of the apparatus for the single production machine, as established by law.

For the validity of the guarantee the client must supply proof of the date of purchase (e.g. the receipt).

The guarantee includes the dispatch of the component recognised as defective and its replacement if the fault is due to recognised defects of the materials or manufacture.

The **MALTECH** machines are covered by insurance for damage to things or people. The purchaser accepts the impossibility of claiming any compensation for damage for the following:

- Production accidents
- Loss or profit from sale.

The costs of dispatch and transport and possible taxation due to importation will be, where there has not otherwise been an agreement in writing with the manufacturer, at the expense of the purchaser.

The guarantee loses its validity in the following cases:

- Insufficient care by the user (failure to clean);
- Incorrect or inappropriate use of the machine;
- In the case of failing to observe the use and maintenance instructions and the safety regulations indicated in the present manual;
- In the case of modifications made by the client or third parties;
- In the case of the installation of non-original spare parts;
- In the case of exceeding the capacity limits indicated in the technical data;
- In the case of connection to unstable electric power (with fluctuations of current).

**MALTECH** recognises its responsibility for damage caused during normal use of the machine or caused by its possible breakdown, except when these events are later verified as due to the failure to observe the instructions contained in the present manual.

Possible damage occurring during transport up to delivery of the machine is also covered by the guarantee.

### Modifications

In relation to the effort for constant improvement of single products, **MALTECH** has the right at any moment to make possible modifications to machines previously produced.

## REGULATIONS RELATING TO THE USE AND MAINTENANCE MANUAL



If the use and maintenance manual of the **MALTECH** machine is not understood by the operator because of language barriers, it will be the responsibility of the owner to offer an adequate translation of the present use and maintenance manual to the operator or, alternatively, choose a different operator.

The present use and maintenance manual is an integral part of the **MALTECH** machine and must be conserved in a recognisable place of easy and rapid access for the operator.



For the remaining risks existing, always in relation to the use in conformity of the machine, refer to the safety regulations contained here.

The above-mentioned preventive measures must be fully observed.

### Use and maintenance manual symbols

The following symbols refer to particularly important passages in the text.



This symbol refers to particularly important passages in the text concerning the use and maintenance instructions.



This symbol refers to dangers and relevant references to safety. The above instructions must be followed carefully!

In the case of failure to observe them it is possible that the operating personnel or workers in the vicinity will be in danger of their health or accidents.



This symbol refers to recommendations by the manufacturer.

## Symbols on the machine

The following symbols (references or also pictograms) are applied to the machine and indicate dangerous areas and situations. These references (pictograms) must be kept clean and immediately replaced in case of defacement or damage.



Read the manual carefully before beginning work.



Attention: electrified parts!  
Extract the plug from the socket before possible direct contacts.



Parts that carry pressure!  
Make sure to empty the pressure from the machine before possible cleaning or maintenance work.



Attention: rotating parts!  
Avoid performing cleaning or maintenance work with the machinery in movement and without adequate protection.



If using a lifting device for transport, it is necessary to use the reference points envisaged and, if necessary, marked.

Positions of the pictograms at the machine.



## GENERAL SAFETY REGULATIONS

The following general safety regulations and the information contained in the present manual need to be followed completely to guarantee safe functioning and to avoid damage near the machine.

Failure to observe them can lead to damaging the plant or danger to people.

The above-mentioned aspects are to be considered as additional to the references present in the manual.

**It is above all a matter of your safety!**

### General

Before eventually starting work with the **MALTECH** machine it is necessary to read and fully understand the content of the general safety regulations and the use and maintenance manual.

If, after reading, specific points are not clear or problems arise not treated in the use and maintenance manual, please call the manufacturer immediately who will provide all the relevant explanations.

**MALTECH** as manufacturer of the **MALTECH** machine does not accept responsibility in the case of modifications made to the plant to whom the machine has been sent.

Possible modifications to the plant must be performed by the manufacturer or by those approved in writing.

**MALTECH** declines any responsibility for damage or possible accidents due to incorrect use, insufficient maintenance or the use of non-original spare parts.

The present use and maintenance manual is an integral part of the **MALTECH** machine and must be conserved in a recognisable place of easy and rapid access for the operator.

For the remaining risks existing, always in relation to the use in conformity of the machine, refer to the safety regulations contained here.

The above-mentioned preventive measures must be fully observed.

#### Working clothes



Always wear suitable working clothes.

#### Accident prevention shoes/ Protective helmet



Wear accident prevention shoes and protective helmets during all uses of the machine.

#### Danger of being cut



The bag-breaker is to be considered a dangerous area. Technical preventive measures are not possible because of restrictions to the function. Protective gloves must be worn while using the machine to avoid possible cuts.

#### Protective goggles



Protective goggles must be worn during working to protect the eyes from possible spurts of material.

#### Pollution from dust



An increase in pollution from dust may take place while filling the machine. Use suitable masks with an anti-dust filter (according to the material assigned).

#### Protecting hearing



Although the **MALTECH** machine does not produce excessive noise pollution, we recommend using suitable hearing protection in the building yard.

#### Sprayer



The sprayer must not be directed at people or dangerous objects.

#### Pictograms

In the case of lack of clarity or loss of symbols or pictograms installed on the plant (indications of danger or relative to suitable behaviour), the operator must immediately replace them.

#### Lighting

The **MALTECH** machine is delivered without lighting. The operator must provide for suitable lighting of the work area.

#### Range of use

The **MALTECH** machine must be used exclusively for mixing and pumping ready mortar and plaster for treating interiors and exteriors indicated by the manufacturer and cannot be employed for other uses or activities.

#### Use outside the range of use can cause damage!

In any case it is necessary to pay attention to the preparation instructions of the material used or to the compatibility of the material with the movement of the machine.

#### Electrical power



Only specialised personnel can carry out work on the electrical plant. Turn the **MALTECH** machine off immediately in the case of a fault in the electrical plant. The machine can be connected only with dispensers of current in conformity with the law.

#### Fire



In the case of fire in the electricity box do not in any way use water to extinguish the fire. Carbon dioxide extinguishers must be available for this possibility.

## Transport

In case of transporting the components of the plant, it is necessary to make sure that they are sufficiently protected and that a suitable means of transport has been chosen with sufficient load capacity. The overall measurements of the machine can be calculated from the technical data.

Any other means of transporting the **MALTECH** machine not envisaged by the manual is absolutely forbidden.

The manufacturer is not responsible for possible damage due to transport carried out by third parties in dispatching the plant.

The plant can be divided into its single elements for transport. However, the electricity supply must be separated from the water supply.

## Montage

Before mounting, it is necessary to prepare the area according to the indications of the data in the present manual.

The machine has been conceived to be installed on a flat and stable base. Any other type of position must be considered an inappropriate use for which the manufacturer declines any responsibility.

To obtain sufficient stability, the **MALTECH** machine must not slope. Slopes in the ground must be flattened out on the basis of the measurements supplied so that they do not influence the stability of the machine negatively!

The **MALTECH** machine must be fixed so that it cannot slide away.

Incorrect or unsatisfactory montage can cause damage to the machine or to its singular parts and cause grave danger to people! To avoid this, the operator must keep rigorously to the instructions contained in the use manual for carrying out a correct montage.

The manufacturer declines any responsibility in the case in which unauthorised personnel carry out the montage!

The danger of crushing exists during mounting and dismantling due to lifting and lowering the components.



It is necessary to wear at least accident prevention shoes and protective gloves during montage. It is necessary to wear a protective helmet during the loading and unloading phase whenever a crane is going to be used.



If a crane is used, nobody must stay within the range of action of the crane's arm.

The tension and the frequency of the supply cables must be tested before connecting the **MALTECH** machine so that they conform to the technical data of the plant.

Only technicians, on the basis of the data contained in the present use manual, can carry out cabling the MALTECH machine. Creating temporary solutions on the electrical plant is rigorously forbidden!

The supply and control cables, other than the water tubing, must be installed without meeting possible obstacles and on the basis of the technical data provided in the use manual.



All the protections requested must be worn at the end of the montage and the first start-up of the plant!

## First start-up of the machine

It is necessary to read the present manual in detail before starting-up and using the plant. The regulations contained within must be rigorously kept in mind.

An incorrect or unsatisfactory start-up can cause damage to the single components of the plant or be the cause of grave danger to people!



The manufacturer declines any responsibility if unauthorised personnel carry out the first start-up!



It is necessary to keep the correct direction of rotation of the pump of the motor! Inverse direction during use can damage the machine. The exact procedures for the relative adjustment can be found in the use manual.

If malfunctioning is discovered during the first start-up, this malfunctioning must be repaired before using the machine. The coordinator is responsible for the correct and sufficient training of all the operators of the machine.



Access of unauthorised personnel close to the machine during the first start-up must be forbidden.

## Start-up

The **MALTECH** machine can be used only in a perfect technical state.



All the safety devices must be examined before every new start to check their efficiency. The use of the machine with defective or extraneous safety devices is severely forbidden.

Only trained personnel can start the plant. The person in charge must check the application of the safety regulations at work.

At least one operator must be near the control unit during the starting of the machine.

During the mixing process it is necessary to check that the material has been emptied from or placed into suitable containers and that no damage has been caused by possible loss of material.

The machine must never be used outside its limit of efficiency or in ways other than those described in the present manual.

The pump can be used only up to a maximum pressure of 40 bars, otherwise the machine must be converted or hoses for suitable pressure must be used.

### **Unauthorised people cannot use the machine.**

Never open the electricity box during use in the building yard to carry out repairs or checks.

Only materials indicated by the manufacturer can be used with the **MALTECH** machine and/or it is necessary to pay attention to the indications of the relative manufacturers on the packaging of the materials to check their compatibility for use on the machinery. In the contrary case, materials can possibly damage the plant.

The **MALTECH** machine cannot be exposed to temperatures below 0°C to avoid the elements that carry water freezing, because they would dry up. Operating at temperatures less than 0°C and with frozen elements is forbidden. Inobservance can cause damage to the plant and danger to people.

The hoses must not have breaks or bottlenecks so that the material contained can flow freely.

If, in spite of all the procedures having been carried out correctly, anomalous pressure values exist, put the machine on standby and carry out a check as indicated in the present manual. Do not make modifications, check the condition of the rotor and the stator. If the cause of the problem is not discovered, turn the machine off and have it examined by an authorised technician.

Make sure that the jet is not directed at people or dangerous objects during the spraying phase.

After an emergency shutdown, the machine operator must make sure of the cause of the problem in detail. This problem must be solved before starting the machine up again to guarantee its correct functioning.

In the case of electrical problems, stops, strange noises or defects in general, the machine must be immediately turned off at the main switch.



Only competent personnel can be authorised to solve electrical problems. If the problem is not solved despite the information in the present manual, turn the machine off and protect it from possible accidental start-up. Then call the representative of your zone to receive more detailed information.

## Cleaning

Inadequate cleaning or failure to observe the cleaning regulations can cause damage to the single parts of the machine or danger to people!

Cleaning must take place only with the machine off and in the absence of electrical power (interruption of supply and protection from accidental start-ups). The safety devices must not be deactivated or rendered useless.



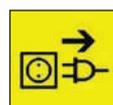
It is necessary to check on the manometer that the pressure has been completely emptied out before removing a hose. The pressurised tubing must be completely emptied, depending upon the type of hose, as indicated elsewhere in the present manual.

Only a qualified electrician can carry out cleaning the inside of the electrical box.

The use of detergents is forbidden to avoid damaging the plant.

## Maintenance

Only the relative qualified technical personnel can carry out maintenance work!



The machine must be turned off during maintenance work, disconnecting it from the supply, turning the main switch off, and removing the plug from the socket. The machine must be protected from possible accidental start-ups!



No maintenance work can be carried out with the plant functioning.



The safety devices installed on the plant must never be tampered with. In the case of accidental tampering this condition must be clearly indicated on the plant (e.g. defective functioning of the machine). Modifications to the safety system are not permitted!



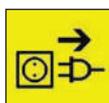
It is necessary to check on the manometer that the pressure has been completely emptied out before removing a hose. The pressurised tubing must be completely emptied, depending upon the type of hose, as indicated elsewhere in the present manual.

Only qualified electricians can repair damage to the electrical plant.

If damaged or missing parts are revealed during maintenance, these problems must be solved immediately to guarantee the correct and safe functioning of the machine.

#### Periodic maintenance / Repairs

Only the relative qualified technician personnel can carry out periodic maintenance work!



The machine must be turned off during maintenance work, disconnecting it from the power, turning the main switch off, and removing the plug from the socket. The machine must be protected from possible accidental start-ups!



No maintenance work can be carried out with the plant functioning.



It is necessary to check on the manometer that the pressure has been completely emptied out before removing a hose. The pressurised tubing must be completely emptied, depending upon the type of hose, as indicated elsewhere in the present manual.

Repairs carried out in non-conforming ways can cause damage to the plant and danger to people! The manufacturer declines any responsibility for repairs carried out in non-conforming ways!



All the safety covers must be applied before re-starting the machine again!

Spare parts must always conform to the technical standards. This conformity is guaranteed using original Maltech spare parts. (The use of non-original spare parts forfeits the guarantee).

If it is necessary to modify the machine, the manufacturer must first approve these modifications in writing!



The control and safety units cannot undergo any modifications. The declaration of CE conformity loses its validity.

#### Deactivating/dismantling

Only qualified technical personnel can dismantle the plant on the basis of the data supplied in the present use manual!

Apply the safety regulations previously described in paragraphs „Transport“ and „Montage“.

#### Disposal

The regional regulations relative to the disposal of waste must be observed in the case of partial or total disposal of the machine.

## TECHNICAL DATA

### Identification plaque



The type, the model, the series number and the year of construction are shown on the identification plaque.

If the plaque is lost, the coordinator must replace it!



**Important**

This data might be requested in the case of orders for spare parts or requests from clients for assistance.

### Capacity data

Level of sound pressure	90	dB (A)
Production capacity	about 5–30	lt/min
Max. load distance	30	m
Compressor capacity	220	lt/min
Average water pressure	3	bars
Use tension	400	V
	50	Hz
Pump motor	5.5	kW
	400	V
	50	Hz
Cell motor	0.55	Kw
	400	V
	50	Hz

### Measurements and dimensions

Length	1100	mm
Width	730	mm
Height	1520	mm
Container jet	900	mm
Container capacity	about 130	lt
Total weight without compressor and hoses	170	kg
Mixing pump weight	75	kg
Compressor weight	23	kg

### Acoustic pollution and vibrations

Vibrations are measured below the Drop-Out Value ( $R_v 2.5 \text{ mm/s}^2$   $R_{v(\text{sum})} = < 2.5 \text{ mm/s}^2$

The acoustic pollution of the machine (according to the 2003/10/EG guidelines) is below 80 dB(A). Acoustic pollution near the nozzle is, however, above 80 dB(A). This is why we recommend that the operator wears hearing protection.

## RANGE OF NORMAL USE

The range of normal use of the machine will be described in this chapter. An analysis of the dangers relative to these uses has been carried out. Other uses, not described here, are not to be considered part of the range of normal use, and for which the manufacturer declines any responsibility.



The **MALTECH** M5-Eco has been designed exclusively for mixing and pumping ready mortar and plaster and must not be used for non-conforming uses or activities.

Only specific ready mortar and plaster that the manufacturers have indicated on the packaging as compatible with the use of the machinery can be used exclusively.

The coordinator must make sure that the machine is not used erroneously.

## Restrictions on the group of operators

Only adults who have been instructed in its functioning (training by the responsible person) and who have read and understood the present use and maintenance manual are allowed to use and maintain the **MALTECH** machine.

The responsible person must document the completed training!

- Only prepared personnel can operate the plant. The responsible person must check the application of the safety regulations on the work.



- At least one operator must be close to the control unit while operating the machine.
- Unauthorised people cannot use the machine.
- The electrical box must remain closed and the key kept elsewhere.

The operator must be aware of the national and/or regional operative procedures and the regulations for official authorisation of the plant before starting-up and using the **MALTECH** machine.

## TRANSPORTING

One of the amazing characteristics of the **MALTECH M5-Eco** plaster sprayer is the simple handling, obtained thanks to light, but at the same time robust, construction materials.

The **MALTECH** machine can be transported both complete and dismantled into its single segments.



Useful handles have been installed on the four sides of the machine for transporting the complete machine without having to dismantle the motors.

The mixing chamber, the support with the material container and the possible cell disc will be dispatched separately when transporting the machine in single segments.

In both cases some parts of the machine (sprayer, compressor, etc....) must be dismantled. Refer to the instructions in the „DISMANTLING” paragraph for this.



If a lifting device is used for transporting, the anchoring points to use are indicated by **(A)**.

Fixing the anchoring points to other parts is strictly forbidden!



Use only the relative lifting points to lift the machine! Take the weight and the dimensions of the machine into account.



If the machine is transported on a means of transport, this must be suitably blocked! Take the weight and the dimensions of the machine into account.

## DISMANTLING

Description of the points needed for dismantling the machine into its single parts.

First turn off all the function keys and the switches on the electrical box. Then remove all the possible electrical power connections.

Check that the sprayer and the hoses have been properly cleaned.

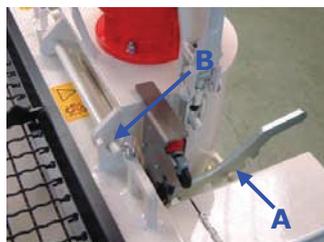


In the case of particularly resistant dirt and incrustations the machine must be cleaned according to the instructions in the „ENDING WORK and CLEANING“ paragraph and the incrustations removed.

The water, transport and aeration hoses of the machine must be detached from the sprayer, the mixing chamber and the compressor. The compressor must then be removed from the machine.



It is necessary to check on the manometer that the pressure has been completely emptied out before removing a hose. The pressurised tubing must be completely emptied, depending upon the type of hose, as indicated elsewhere in the present manual.



Turn the mixing chamber up, unblocking the fixing lever (A);

Rotate the mixing chamber upward and extract it from the relative guide (B) near the grill.

The brakes (C) of the wheels can be loosened once the present procedure is completed.



## FIRST START-UP



The present manual must be read and understood in detail before starting-up and using the machine.

The machine is supplied complete on a pallet with hoses uncoupled and separately packed or dismantled into the relative single parts.

These parts have to be mounted to start-up.

The mixing chamber, the pumping unit and the compressor, possible dispatched separately, must be assembled. Therefore, the machine must be lifted from the relative transport pallet.



Only use the relative lifting points to lift the machine! Take account of the weight and the dimensions of the machine.

Position the machine on a flat and stable base and make sure that it cannot move by using the brakes on the wheels.



### Installing the compressor

The compressor can be positioned on the specific support under the machine.

Connect the air hose of the machine to the rapid closure mechanism **(A)** of the compressor.



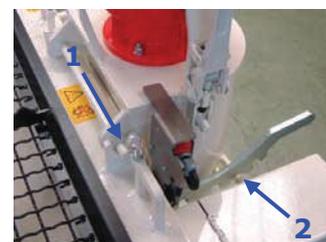
Connect the electrical cable to the specific socket on the machine **(B)**.



### Installing the mixing chamber

The mixing chamber can be installed after installing the compressor.

To do this insert the two horizontal pins **(1)** in both the guides until they block into position, then turn the mixing chamber downwards and block with the relative fixing lever **(2)**.



Connect the electrical cable of the pump motor to the opposite socket **(3)** on the machine.

## Installing the pumping unit

The pumping unit, dispatched separately from the rest, can be installed after installing the mixing chamber.

To do this turn the mixing chamber upwards and prevent its possible overturning by blocking the fixing lever (1) in position on the sleeve.



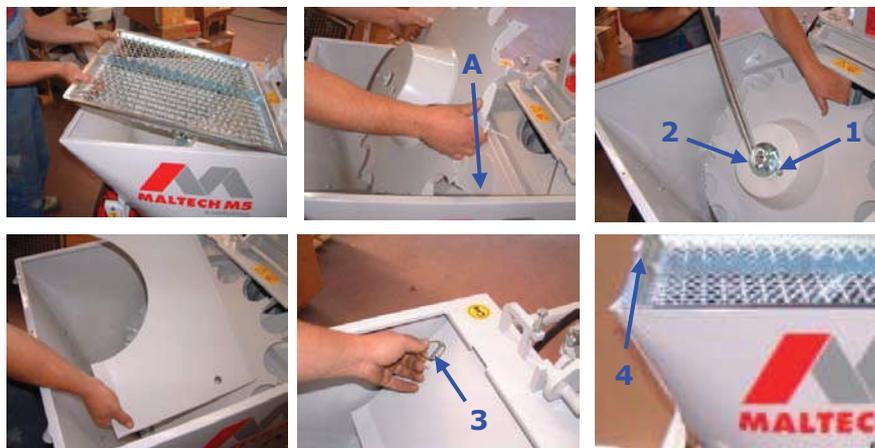
Mount the pumping unit and lock the two threaded nuts well with a spanner for nuts.



Various pumping units can be installed on the machine. In any case make sure that the pumping unit has been mounted centred on the mixing chamber.

## Installing the cell disc

The cell disc can be dispatched separately and must be installed before starting the machine. It is, therefore, necessary to dismantle the protective grill, then insert the cell disc on central cone (A) of the machine and check that central pin (1) is inserted on the cell disc. Unscrew the hexagonal flange nut manually (2), fix with a suitable tool, and insert the protection, fixing both safety pins (3). Then mount the grill and fix it to the funnel (4) of the machine.



### Danger of being hurt!

The machine cannot be used without the use of fixed grills!  
Extreme danger of being hurt!

## STARTING-UP

The procedures for starting-up the machine are described in the following paragraph.

### Positioning

Position the machine on a flat and stable base and make sure that it cannot move by using the brakes on the wheels.



#### **Danger of being hurt!**

The brakes on the wheels must be locked when using the machine to give it sufficient stability.



Check that all switches, including the switch for adjusting the direction of rotation of the machine and **especially the main switch of the machine**, are deactivated before fixing the single parts.

### Electrical connection



Make sure that the fuses and switches cabinet in the building yard is equipped with a grounded switch and a 25 A safety device.

In addition, it is necessary to make sure that the power supply is stable and that there are no possible rapid fluctuations of tension. If this cannot be guaranteed, MALTECH forbids the use of the machine and does not offer any guarantee for the electrical parts of the machine.

The machine is equipped with a central supplier of current (**A**). The entire machine is supplied electrically thanks to the connection to this plug.



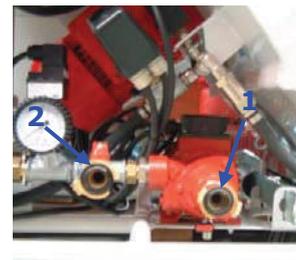
#### **Attention!**

The machine must be turned off, disconnecting the power by removing the plug from the socket, before any intervention (cleaning, maintenance, repair).

Two water connections have been envisaged on the machine.

The main connection (1) supplies the water needed for mixing.

The secondary connection (2) is for cleaning the machine.



The machine is equipped with a water pump for setting sufficient pressure, independent of the pressure of the water supply connection.



A rubber hose (at least 10 bars) at least 3/4" in diameter must be used as a connecting hose. It is necessary to check the compatibility of the attachments to the hose and the machine before connecting the hose. Unsuitable connections must be replaced by suitable ones.

A filter to avoid contamination must be installed at the entrance of the water. The filter must be cleaned regularly and replaced if damaged.



In the case of particularly dirty water we also recommend cleaning the filter several times during the day.



**Damaging the machine!**

Damage because of particles of dirt can occur if the filter is not used. Inobservance forfeits any possible guarantee.

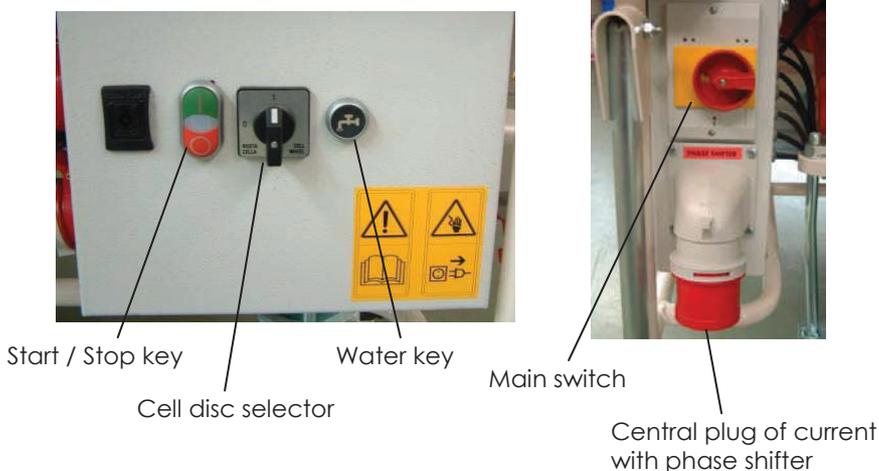
Connect the hose for the water supply (B) of the machine to an external tap and expel the air. To do this it is necessary to leave the unloading valve open until there are no bubbles left in the hose.



The pressure of the water entering must be at least 3 bars. If this amount of pressure is not guaranteed (check the plant water pressure (A)), it is necessary to use an overpressure pump with the following characteristics between the water input and the machine:

- **Maximum flow pressure (water column 42 m)**
- **Maximum capacity 45 l/Min.**

### Main electrical cabinet



**Main switch:** Turning on the main switch provides power to the machine, which is, therefore, ready for use.

**Cell disc selector:** Two states are possible for the cell disc switch:

**0 = „OFF“ or 1 = „AUTOMATIC“.**

These uses correspond to the following ways of adjustment:

**OFF:** If the switch is set on „0“ the cell disc will be turned off and filling the mixing chamber with the relative material will be interrupted.

**AUTOMATIC:** The use of the cell disc is coupled to the mixing pump work cycle. The cell disc rotates as soon as the air in the sprayer is opened and stops as soon as the sprayer is closed.

**Start / Stop key:** Pressing the „1“ start key will start the mixing pump and/or pressing the „0“ stop key will stop the pump.

**Phase shifter:** The phase shifter adapts the direction of rotation of the machine to the electrical power of the building yard.

It is possible to change the direction of rotation of the machine by means of the phase shifter on the plug. Turn the phase shifter using a screwdriver.



The phase exchanger can only be used if the machine is off and the power supply has been disconnected (main switch on „0“ and supply plug removed).

**Water key:** Supplies water. Pressing the key inserts more water into the mixing chamber. Keep the key pressed until the quantity of water wanted is reached.

## Controls for the direction of rotation



Check that the direction of rotation is correct before using the machine. If not, the machine may suffer damage.

**Procedure:** After having turned off the machine by turning off the main switch (Pos. „0“), remove the power supply plug.

Then open the side blocking device (1) of the inclinable flange and tilt the pressure reduction motor sideways. Remove the shaft from the mixing chamber and close the pressure reduction motor again. Block the inclinable flange again.



It is now possible to test the rotation of the machine.

To do this, turn the main switch on, position the cell disc selector on Automatic „1“ and press the „1“ Start key briefly to begin.

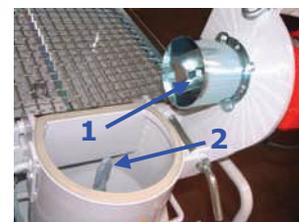


It is necessary to observe the rotation of the cooling fan on the front of the motor to establish the direction of rotation.

The direction of rotation is indicated on the motor by an arrow.

If the direction of rotation is wrong, turn the machine off and position the phase shifter on the current plug in the opposite direction. (The procedure is described in the control elements paragraph).

After having turned the machine off, turning off the main switch (Pos. „0“) and remove the power supply plug.



Tilt the pressure reduction motor and mount the mixing shaft. Close the pressure reduction motor again and block the inclinable flange.

**Note:** Before closing the pressure reduction motor with the mixing shaft mounted, check that the joint (1) is in the relative position with respect to the shaft (2).



**It is not possible to close the pressure reduction motor if the joint is not positioned correctly.**



**The main switch must always remain turned off when opening and closing the pressure reduction motor!**



To guarantee good treatment of the material, the manufacturer recommends: direction of the cell-disc rotation clockwise and direction of the pump motor anticlockwise.

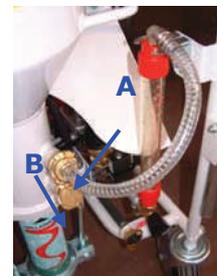


The use of the machine in inverse rotation directions can damage the machine!



If the pump motor does not rotate, check the electrical connections and the position of the main switch in the electrical box. If the pump still does not rotate even with all the electrical connections correct and the main switch on, **do not open the electrical box but leave the machine to be examined by an authorised technician or a qualified electrician.**

The water plant can be connected to joint **(A)** of the mixing chamber after having checked the correct direction of rotation of the machine.

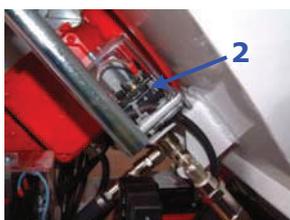


**Attention!** In the case of rapid binding materials (with many additives) the water hose will be connected to the **(B)** joint of the mixing chamber.

### Air connection

Air connection **(1)** on the machine provides a possible cleaning pistol.

Check the compatibility of the attachments to the hose and the machine before connecting the hose. Unsuitable connections must be replaced by suitable connections.



The supplied manometer **(2)** adjusts the compressor and is preset by the factory.

### Compressor

There is an on/off switch **(3)** on the compressor. Since the compressor is controlled by the manometer the switch must be „On“ to be able to use it.

The compressor can be turned off thanks to this switch if there are electrical or maintenance problems.



### Adjusting the quantity of water



Pressure flow indicator

Pressure flow adjuster

It is possible to adjust the desired flow of water pressure with the pressure flow adjuster.

The first adjustment acts as a rough calibration. Thanks to successive micro-adjustments it is possible to adjust the machine perfectly, depending upon the composition of the desired material. Take the instructions of the manufacturer of dry materials into consideration during the adjustment of the values.



It is possible that the hose that transports the mixed material to the sprayer becomes obstructed if there is an insufficient quantity of water. This can cause grave wear to the pumping unit. We recommend, therefore, beginning with a lot of water in order to be able later to diminish the flow of water desired.

### Adjusting the water pressure

A pressure reducer for adjusting the water pressure has been installed and preset by the factory. If the water pressure needs adjusting again, it can be done by turning the adjustment knob (1) to have the relative new adjustment on the pressure reducer.



### Preparing material

Fill the container of the machine with dry material.



Check after emptying the dry material that possible fragments of the bag have not fallen into the material container, becoming mixed with the material and obstructing the sprayer, causing grave damage to the machine.



The mixing chamber must be filled with water before starting to operate the machine. Press the „water key “ on the electrical box To do this.

Then set the „cell disc selector“ on AUTOMATIC „1“, turn on the main switch and press start key „1“.

(Description and functioning of the switches available in the Control elements paragraph).



If the machine does not start, check the electrical connections and the position of the main switch in the electrical box. If the machine still does not start even with all the electrical connections correct and the main switch on, **do not open the electrical box but leave the machine to be examined by an authorised technician or a qualified electrician.**

Next check the consistency of the material emerging from the pump (1) and the quantity of water supplied possibly corrected.

The material coming out will initially be rather fluid, so it will be possible to close the flow pressure adjustor a little at a time until reaching the consistency wanted. Once the consistency wanted has been reached, turn the machine off at the main switch (Pos. „0“) and remove the plug. Connect the air (2) and transport (3) hose to the sprayer first, and then connect the machine.



A manometer for the pressure of the mortar must be mounted between the pump outlet and the transport hose as an additional control device.



This manometer supervises and indicates the pressure present in the transport hose.



**ATTENTION!**

**It is possible to use only transport hoses that can guarantee an operative pressure of at least 40 bars!**



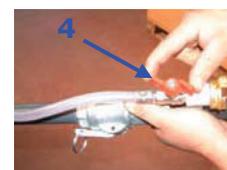
**Important**

We recommend, before connecting the transport hose to the machine, to use water internally so that the material can flow easier and does not dry up. In this way it is possible to avoid the hose becoming obstructed.



**ATTENTION**

Check whether the air tap **(4)** on the sprayer has been closed and whether this sprayer has been well cleaned before connecting the air and transport hoses.



Adjusting the sprayer



Next the distance between the air jet tube **(A)** and the opening of the nozzle **(B)** must be adjusted by unscrewing the fixing screw **(1)** on the nozzle.

The ideal adjustment corresponds to the diameter of the opening of the nozzle.

You must consider, choosing the nozzle for the sprayer and the relative opening, that with large diameters a more copious spray is obtained but a minor distance of spray.

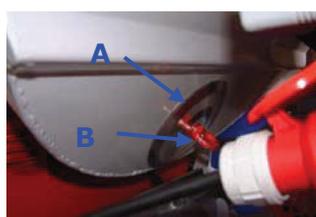
Using a small opening instead, a less copious spray is obtained but greater speed of spray with better vaporisation of the material.



**ATTENTION**

During the procedures of connection and adjustment, the sprayer must be directed at a free zone where there are no people or objects that might be hit. In any case, people must be kept away from the range of action of the plaster sprayer (see the technical data of the machine).

Material container cleaning hole



There is a cleaning hole on the lower side of the material container of the machine, closed by a flat disc **(A)** and fixed with a ring screw **(B)**.

The cleaning hole is for emptying the used materials remaining in the container.



**Important**

Always check that the cleaning hole is closed before beginning to use it.

## USE

It is possible to start when the machine is ready for use.



Check the machine before every use. In particular, check that all the protective covers are integral, mounted and fixed.

**It will not be possible to use the machine if damage eventually occurs!**

## Automatic functioning

Set the cell disc selector on the electrical box on „1“ (Automatic), move the main switch onto „I“. The machine is now ready for use.

It is now possible to put the dry material into the relative container of the plaster sprayer. A comb to facilitate the opening of the bags is installed on the protection grill of the material container.



### **Danger of being cut!**

The possibility exists of being cut on the sharp surface of the comb. Gloves for protecting the hands must be worn while filling the plaster sprayer.



### **Health danger!**

Pollution from dust cannot be completely avoided while filling with dry material. Use suitable masks equipped with an anti-dust filter in the case of high pollution. Also consider the data supplied by the manufacturer of the material with regard to this.

Pressing the green start key „I“ on the electrical box starts the treatment procedure.

We recommend regularly examining the consistency of the material that emerges from the sprayer and if necessary adjust the quantity of water.



While adjusting the quantity of water, look at the length of the transport hose because the quantity of water takes a little time to emerge effectively at the quantity wanted after having been adjusted. On the average it takes 20 seconds for every 15 m of hose.



Possible interruptions of the vaporising procedure can cause small irregularities in the composition of the material. These irregularities are in any case balanced at the restarting of the machine.

The operator can now start the vaporising procedure. The machine can be turned on or/and off by opening and closing the air tap on the sprayer. We recommend spraying from left to right or from above downwards to apply the material as uniformly as possible.



The distance of the sprayer from the surface to be treated must be about 30 cm. This distance, however, can vary according to the degree of opening of the sprayer nozzle (read the instructions in paragraph „Adjusting the sprayer “ carefully).



If there is insufficient pressure in the jet, examine the air nozzle for possible obstructions and both hoses for possible bends. In the case of obstruction the parts must be cleaned immediately! In the same way promptly eliminate possible bends found on the hoses!



During the vaporising procedure check whether the flow has been interrupted. In any case avoid the formation of possible bends and obstructions on the hoses.

### Stopping the work

It is enough to close the air tap in the case of a brief interruption of work (less than 20 minutes).

The machine must be cleaned in the case of interruptions longer than 20 minutes. Observe the instructions in the „Ending work and cleaning“ chapter during the procedure. Interruption time is reduced to 10 minutes using rapid binding material. In any case we recommend observing the instructions provided by the manufacturer of the material.

### Refilling dry material

The material at the outlet of the sprayer becomes increasingly watery as the dry material is slowly used up. At this point the work must be interrupted and the instructions in the next chapter followed. It is possible to restart the work after filling the container with new dry material.

### Choosing the dry material

The material previously used must be removed before being able to fill the container with the new material. In the case of using another type of dry material in the container.



**The machine must be stopped and the electrical power disconnected by removing the plug from the electrical box to do this!**

It is now possible to remove the protection grill from the sprayer and remove the dry material.  
Install and fix the grill again before restarting the machine.



The pump and the hoses must also be emptied and cleaned if changing the material used. Consult the information in the „Ending work and cleaning“ paragraph to do this.



**Attention!**  
The machine must be turned off, disconnecting the power by removing the plug from the socket, before any intervention (cleaning, maintenance, repair).



Check the machine before every use. In particular, check that all the protective covers are integral, mounted and fixed.  
**It will not be possible to use the machine if damage eventually occurs!**

## ENDING WORK AND CLEANING

In the case of ending the work or interruptions longer than 20 minutes (10 minutes if using rapid binding material) the machine must be turned off and cleaned to avoid incrustations forming in the hoses and the mixing chamber. The individual steps to do so are described in this chapter.

Cleaning as described here is a condition for long-lasting use of the machine and without problems.



The parts of the machine that must not come into contact with water (electrical box, cables and electrical connections) have to be protected with impermeable material (e.g. Nylon) before beginning cleaning.



Attention!  
The selector of the cell disc must be put in position „0“ to turn the disc off at the end of the work.

If the hoses still contain material, continue to use the sprayer until only water emerges.

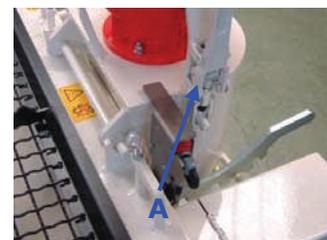
It is then possible to close the air tap on the sprayer.



**Attention!**  
**Closing the air tap stops the machine but does not turn it off!**  
The machine must be turned off, disconnecting the power by removing the plug from the socket, before any intervention (cleaning, maintenance, repair).

After having turned off the machine by turning off the main switch (Pos. „0“), remove the power supply plug.

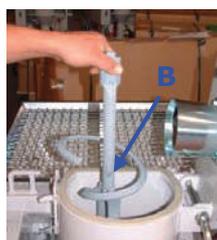
Then open the side blocking device (A) of the inclinable flange and tilt the reduction motor sideways.



Remove the shaft (B) from the mixing chamber and insert cleaning device (C).

After introducing the cleaning device rotate it slowly until it blocks and close the pressure reduction motor again. Block the inclinable flange again.

**Note:** Before closing the pressure reduction motor with the cleaning device inserted, check that the joint (1) is in the relative position with respect to the device (2).



The next step is to turn the machine on for about 30 seconds. At the same time it is possible to clean the shaft with a jet of water.

**Note:** If there is a blackout, cleaning the mixing chamber can also be carried out manually by inserting the cleaning device into it and hand rotating it.



Then clean the walls of the mixing chamber manually and rinse with water.



The cone of the joint of the shaft must in any case be cleaned carefully.



**Attention!**

The water must not wet the dry material that otherwise would become thick, causing obstruction at the outlet of the hose that could intensify wear on the pumping unit.

The dirty water remaining must be pumped out of the mixing chamber.

After having turned off the machine by turning off the main switch (Pos. „0“), remove the power supply plug. Then open the side blocking device of the inclinable flange and tilt the pressure reduction motor sideways. Remove the shaft from the mixing chamber, extract the cleaning device and introduce the shaft.

Close the geared motor again and block the inclinable flange again.

The next step is to detach the hoses from the machine and the sprayer.



**Attention!**

Before detaching the hoses make sure that there is no pressure remaining inside them. It is possible to check the installed manometer for mortar visibly or by touching the hoses (these must feel soft and without lumps in particular zones) to do this.

Hoses under pressure can be emptied as follows on the basis of the type of hose:

**Transport hose:** the hose only contains water if the correct procedures have been followed to the letter. To empty it, bring it to the level of the machine and position it horizontally. Remove the attachment of the hose to the pump slowly and lift the end of the hose from the sprayer to let the water flow out.

**Air hose:** To empty the pressure on the air hose, open the air tap on the sprayer until air no longer emerges from the hose.



**Danger of being hurt!**

**The sprayer must not be directed toward people or dangerous objects.**

The transport hose used must be cleaned with a suitable sponge ball (supplied).



Place the ball inside the hose and connect the latter to the water tap.



With the machine off, open the tap and wait.

The ball will emerge from the other end of the hose. Repeat the procedure a sufficient number of times to eliminate all the dirt. After cleaning, empty the hose carefully of any possible remaining water.



If the ball does not emerge, close the tap. Look for possible hard parts to the touch from the opposite side of the tap. If they are found, there is an incrustation that is preventing the emergence of the ball. Hit the hose without damaging it until the hard part softens. Open the water tap again and wait for the ball to emerge. If the difficulty persists, repeat the procedure or, if necessary, replace the hose.

Rinse with water to clean the pumping unit.

**Procedure:**

Fill the mixing chamber with clean water, start the machine „with the cell disc deactivated“ and pump the water out of the machine.



Use a jet of water to clean the sprayer and the nozzle. First remove the nozzle from the sprayer and pre-treat the tube with a pipe cleaner (supplied).

It is possible to use a non-metallic brush together with a jet of water in the case of particularly resistant incrustations in the sprayer or the nozzle.



In this way damage to the surfaces will not be possible in any case.



Empty the container of material before cleaning the cell disc and the container.



The machine must be stopped and disconnected from the electrical power by removing the plug on the electrical box to do this!

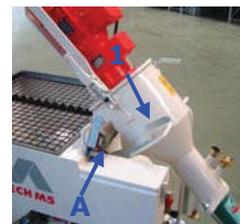
It is now possible to remove the protective grille and take the dry material out.



It is first necessary to remove the cover and extract and remove the disc from the central cone to clean the cell disc. The container and the disc can be cleaned dry or with water. It is possible to use a non-metallic brush in the case of persistent incrustations. This avoids damaging the cell disc.



The material entrance (A) of the mixing chamber and relative container must also be cleaned.



**Procedure:**

Tilt the mixing chamber upwards and use the blocking lever (1) to make sure that the chamber cannot fall.



**Danger of being hurt!**  
The blocking lever must be secured to the side handle to avoid the mixing chamber falling.

There is a cleaning hole on the lower side of the material container.



The cleaning hole is for emptying the used materials remaining in the container.



Everything must be carefully dried after cleaning the cell disc and the container with water, otherwise the dry material would thicken, obstructing the mixing chamber and overloading the cell disc. „**Danger of damaging the machine!**“

**Note:** The dry material can stay in the machine even for a year if the relative conservation regulations have been followed. In any case, we recommend cleaning the container every two months if the machine is not used during this period.

Opening the release taps (A) of the pressure reduction motor and the flow adjustment device empties the water in the water plant.



This procedure must be carried out every day in winter to avoid the water freezing inside the plant. We recommend emptying the water every two months in the case of non-use to avoid the formation of crustations due to deposits of impurities.

At night, and when the machine is not being used, it should be kept in a dry place.



The cleaning hole must be closed, the cell disc mounted correctly and the protection grill installed and fixed again before restarting the machine.  
(The description of the procedure is in the Chapter („FIRST START-UP OF THE MACHINE“).

## MAINTENANCE

The necessary maintenance procedures are described in the following paragraph. Carrying out regular and periodical maintenance very much extends the life of the machine.

The **M5-Eco** plaster sprayer does not require complex maintenance. Carrying out the normal cleaning operations described in the present manual daily is enough for a use of the machine without problems.



### Attention!

The machine must be turned off, disconnecting the power by removing the plug from the socket, before any intervention (cleaning, maintenance, repair).

### Cleaning the filter applied to the water connection

The filter must be cleaned regularly and replaced if damaged.



Racomm.

In the case of particularly dirty water we recommend cleaning the filter even several times a day.



### Damage to the machine!

Damage can occur because of particles of dirt if the filter is not used. Inobservance forfeits any possible guarantee.

### Cleaning the filter applied to the pressure reducer

An additional filter has been installed around the pressure reducer for protection.

This filter must be cleaned regularly on the basis of the dirt present in the water but at least once a week.



To do this the cap must be unscrewed with a suitable tool to be able to clean the filter.

After having cleaned the filter, screw the cap up again.

### Pump and cell disc motor

The pump and cell disc motor must undergo a maintenance cycle every **300 hours of use** unless problems (strange noises) arise before that deadline.

The rotor and the screw must undergo a maintenance cycle if irregularities in the pressure or changes in the thickness of the material are met during the vaporising phase (e.g. the material is too thick or too fluid).



These problems depend upon wear of one of the above-mentioned parts.

The worn part must be replaced to guarantee a use without problems.

(The description of the procedure for mounting the pumping unit can be consulted in the „FIRST START-UP OF THE MACHINE“ chapter).



**Attention!**

Check that a suitable rotor relative to the screw has been installed. Only use MALTECH spare parts!

## SOLVING PROBLEMS



### Attention!

The machine must be turned off, disconnecting the power by removing the plug from the socket, before any intervention (cleaning, maintenance, repair).

Mistakes and faults should not occur if the instructions just described are observed carefully. For possible problems not treated in this manual call your zone representative who will be able to provide you with all the necessary information.

Problem	Possible cause	Solution	
The plant does not start-up. The plant stops and does not start-up again	Power interrupted	Check the electrical connection Check the switches	
	Fault at the electrical plant	Apply to the <b>MALTECH</b> assistance service	
	Water flow interrupted		Check that all the taps are open
			Check that the hoses have no bends
			Clean possibly obstructed hoses
	Water pump stopped	Apply to the <b>MALTECH</b> assistance service	
	Water pressure too low	Check the water pressure on the indicator	
Filter obstructed		Clean the filter	
		Install a new filter	
The plant makes strange noises		Apply to the <b>MALTECH</b> assistance service	
Only water emerges from the sprayer	Defective dry material	Fill the material container	
	Cell disc or shaft defective/not installed correctly	Check by specialised personnel	
Material does not emerge from the sprayer	Defective pressure reduction motor	Apply to the <b>MALTECH</b> assistance service	
	Direction of rotation incorrect	Check direction of rotation	
Material of the wrong consistency emerges from the sprayer	Adjust the quantity of water	Adjust the quantity of water on the flow adjuster	
Material of different consistencies emerge from the sprayer	Defective/worn rotor or screw	Replace rotor/screw	
	Defective pressure reducer	Apply to the <b>MALTECH</b> assistance service	
	Worn mixing shaft	Install new mixing shaft	

## SPARE PARTS

Modifications, changes or other tampering with the mixing plant are absolutely forbidden. Possible problems for special work must be solved without intervening on the machine. Another model must be used if the performance of the machine is insufficient.

Spare parts are available indicating the name of the piece wanted, the series number and the date of manufacture to your zone representative. These data can be found on the plaque installed on the machine.



**Only MALTECH spare parts should be used.**

## DISPOSAL AND DEMOLITION

The relative national regulations must be observed in the case of demolishing and disposal of the machine. Apply to your zone representative in the case of doubt or questions.

## ASSISTANCE

Apply to your zone representative immediately in the case of possible problems. If doubts possibly persist, apply to our main office.



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