



TECHNICAL LITERATURE

INSTRUCTIONS FOR USE AND MAINTENANCE

MINI DLE

Manufacturer:

Mori Tem S.r.l.

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CF e P. IVA 06464360483

LETTER ON DELIVERY

⇒Dear customer,

⇒We would like to inform you that the equipment covered by this manual has been designed, built and tested in accordance with mandatory applicable regulations, as specified in the enclosed Certificate of conformity.

⇒In this manual, we have described the parts of the machine, the dimensional and technical specifications of the same, providing instructions on how to use and service the equipment.

⇒We would like to confirm that the equipment represents no danger for the operator if the instructions provided are followed, when built into a line with a machine that has been declared compliant with MACHINERY DIRECTIVE 2006/42/EC on the condition that:

⇒ the protective systems installed are maintained intact;

⇒ the safety systems are left active;

⇒ operators are given the specific instructions in this manual;

⇒ periodic maintenance is performed and the condition of components is checked for any wear and damage;

⇒ the equipment is used within the functional parameters it was designed for and with machines it was designed and built to be used with;

Thank you for choosing our product, we wish you all the best in your profitable activity.

Signature

The descriptions and illustrations in this documentation are NOT binding.

Even the partial reproduction and disclosure of this document is forbidden without the specific prior authorisation of the author.

Any violations will be prosecuted in accordance with the Law.

The trade names and brands referred to in this manual are owned by the relevant Manufacturers.

1.0 – Foreword

The machine user shall inform personnel about the risks of accident, devices for operator safety, risks of noise emission and about the general accident prevention rules set forth by international directives and the laws in force. Before starting the operating activities for which the machine is intended, the operator must be perfectly informed about machine operation, the position of all the controls and the technical characteristics and purpose of its use. The machine may only be used by operators who have completely read and understood the instructions contained herein. Tampering/unauthorised replacement of parts of the machine, the use of non genuine spares and the use of consumable materials that do not meet the specifications contained herein may represent a serious accident hazard and relieve the manufacturer of civil and criminal liabilities.

1.1 – Importance of the handbook

- 1) Consider the instructions handbook as an integral part of the product
- 2) Keep the handbook throughout the whole life of the machine
- 3) Give the handbook to any other machine user
- 4) The wiring and pneumatic diagrams are enclosed herewith

1.2 – Keeping the handbook

- 1) Use the handbook in such a way as not to damage its contents either wholly or in part
- 2) Do not remove, tear or write on parts of the handbook for any reason whatsoever
- 3) Keep the handbook in a protected place

1.3 – Contents of the handbook

This handbook is defined by specific sections with indications and descriptions that can be traced through the summary of the specific subjects.

1.4 – Use of the handbook

This handbook is an integral part of the supply. Any alteration or change or integration to the machine without the manufacturer's permission is prohibited. In the case of sale, hire, transfer for use or financial renting of the machine, the instructions must be attached to it. The technical specifications contained herein do not bind the manufacturer and may be changed on future supplies with no prior notice. Though it has been written with the utmost care, this handbook cannot entirely replace the experience of the user, which must, therefore, be adequate for the operations to be performed. The instructions contained herein do not replace, integrate or modify any of the standards, laws and/or decrees in force in the place in which the equipment is used.

1.5 – “CE” marking

To guarantee that the equipment complies with the requirements of the Machine Directive 89/392/EEC and subsequent amendments, it has the CE plate as per Annex III of law 459/96. Never remove the plate from its original position chosen by the manufacturer. Do not alter or falsify the technical data it contains. Do not clean the plate with sharp objects (e.g.:metal brushes), to avoid spoiling the above-mentioned data. If the plate deteriorates with use or is no longer legible, even in only one of its points, you are advised to ask the manufacturer for another one, stating the data contained in these instructions. If the declaration of conformity enclosed herewith is not present or has gone astray, it is possible to

ask our offices for a copy of it, stating the machine serial number given on the CE plate on the machine.

2.0 - References

Manufacturer	Mori Tem S.r.l. Via Leonardo da Vinci, 59 – 50028 TAVARNELLE V.P. (FI) Tel. 0039/55/8071568 –Fax 0039/55/8071293 E-mail : tem@tem.it – Internet: http://www.tem.it CF e P. IVA 06464360483
Machine name	MINI DLE unit (leaf remover + washer +lift)
Main reference standards	<ul style="list-style-type: none"> ••Machinery Directive 2006/42/EC ••EMC Directive 2014/30/EC ••Low Voltage Directive 2014/35/EU ••UNI EN ISO 12100
Service Centre	Solely c/o the manufacturer’s headquarters
Handbook	2017
Review	Rev.1

3.0 - Glossary

Hazardous areas Any area inside or in the vicinity of the machine in which the presence of an exposed person is a hazard to the safety and health of that person.

Exposed person Any person wholly or partly inside a hazardous area.

Operator or worker The person or persons appointed to install, operate, adjust, carry out maintenance operations, clean, repair or handle the machine.

Expert operator or skilled personnel In charge of set-up and start-up, lubrication, greasing, routine and extraordinary maintenance, expressly authorised by the “Plant Manager”.

Electrical expert operator or skilled personnel In charge of set-up, start-up and maintenance of the electrical section expressly authorised by the “Plant Safety Manager”.

4.0 – MACHINE IDENTIFICATION

Name	LEAF REMOVER+WASHER+LIFT
Machine	MINI DLE
Model	MINI DLE
Serial no.	See Declaration of Conformity
Year of manufacture	See Declaration of Conformity

5.0 - GUARANTEE

The guarantee period is 24 months from the date of shipment (date of issue of shipping document). During the guarantee period the transport expenses to our factory of parts, components and machines covered by guarantee and re-delivery to destination are at the customer’s expense. The guarantee does not include ordinary consumable materials like lubricants and materials needed for cleaning, materials or parts subject to wear and those damaged due to incorrect machine operation.

The manufacturer reserves to repair or replace parts proving to be faulty at its discretion. TEM’s guarantee gives the customer the right to the replacement, in the shortest time possible, of components or parts that prove to be faulty owing to poor quality or workmanship. The guarantee ends 24 months from the time of shipment and any repairs, replacements or service will be charged according to our current rates.


LIMITS OF GUARANTEE

The guarantee does not cover all the glass parts, knobs, fuses, trim parts and removable ones made of plastic materials and also parts and components such as for example micro-switches, solenoid valves, etc... The guarantee does not cover parts damaged by transport, faults caused by poor or incorrect installation or maintenance, incorrect electrical or pneumatic supply, carelessness,

negligence or improper use, and in any case the failure to comply with the instructions given in the handbook. This guarantee will not apply to defects caused by improper or inadequate maintenance, or unauthorised alterations or use not in accordance with the specifications given for the machine itself. The guarantee is invalidated in the case of alterations made on the machine without the express permission of the manufacturer. Tampering, unauthorised replacement of machine parts, the use of consumable materials other than those foreseen and stated in the handbook, may be a source of danger of accident and relieve the manufacturer of any civil and criminal liabilities. The manufacturer is also not to be considered liable for any accidents that may arise to operators resulting from manoeuvres not foreseen or advised against by this handbook. The guarantee does not include compensation for damages or production stoppages.

N.B. No other guarantee is expressed or implicit.

6.0 - Graphic symbols

	DANGER SIGNS		
	GENERAL DANGER		DANGER OF ELECTROCUTION
	DANGER OF CRUSHING		DANGER OF CRUSHING
	OVERHEAD LOAD WARNING		MOVING PARTS WARNING
	PROHIBITORY SIGNS		
	DO NOT REMOVE GUARDS		DO NOT LUBRICATE MOVING PARTS
	DO NOT EXTINGUISH WITH WATER		
	MANDATORY SIGNS		
	WEAR SUITABLE CLOTHING		SAFETY HELMET MUST BE WORN
	SAFETY GLOVES MUST BE WORN		SAFETY BOOTS MUST BE WORN
	EYE PROTECTION MUST BE WORN		EAR PROTECTION MUST BE WORN

7.0 – DATA PLATE AND NOTICES APPLIED

7.1 – Data plate

The machine is identified by a plate (**Errore. L'origine riferimento non è stata trovata.**) made upon request by the Machinery Directive 2006/42 EC, displayed at position A (Figure 1)

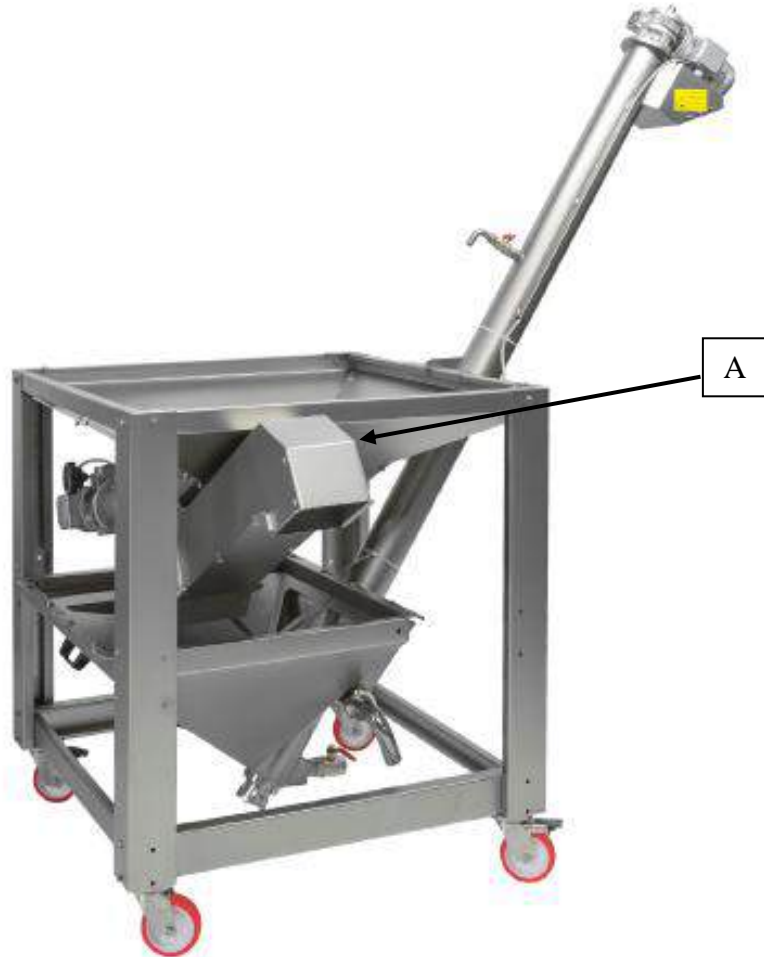


Figure 1 System plan view with data plate references



Figure 2 Data plate reference model



WARNING

Never remove the data plate from its original position chosen by the manufacturer. Do not alter or falsify the technical data specified. Do not clean the plate with sharp objects (e.g.: metal brushes), to avoid effacing the data. If the plate deteriorates with use or is no longer legible, even in only one of its points, you are advised to ask the manufacturer for another one, stating the data contained in these instructions.

7.2 – NOTICES PRESENT

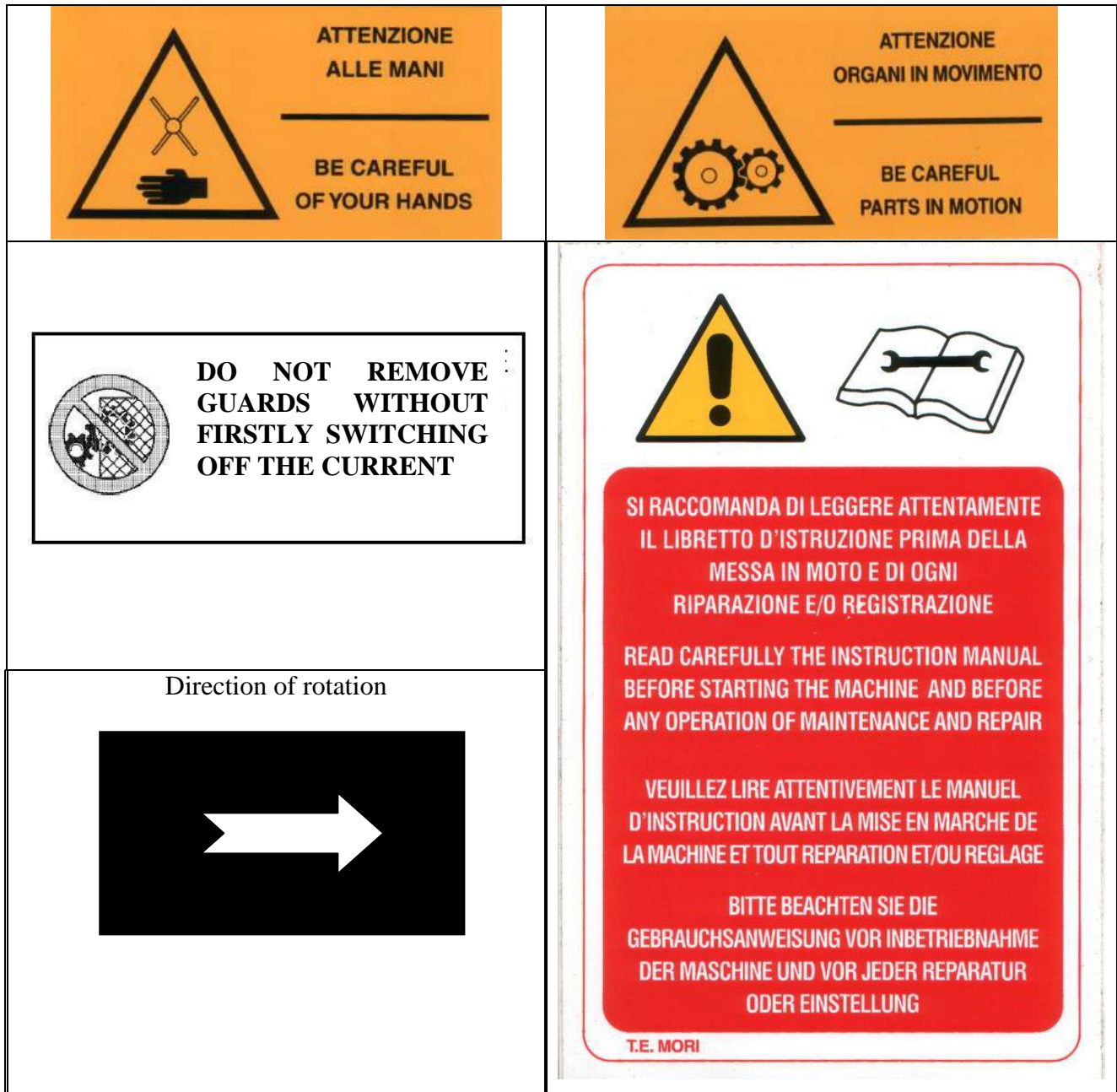


Figure 3 – Possible notices present on the machine

The Customer shall replace any data plate, pictogram or warning and danger signs if they are effaced, worn, or in any case illegible.

8.0 – Plant introduction and description

8.1 – Use and description

The machine has been designed and manufactured for a defined purpose (to prepare the crushing stage of olives) and it may only be used for harvesting, cleaning and transport of olives. Leaf remover is the first component of the olive oil extraction unit and it is used for harvesting, separation and cleaning of olives from leaves, stones, branches and other foreign body and for olives transport. Olives are poured into the receiving hopper, some water jets clean the olives and all the heavy parts are conveyed on the bottom, while a fan removes the lights parts; than the olives comes out of the machine by means of a screw elevator and go to the crusher. The plant is basically comprised of the below listed modules:

- 1) Loading hopper
- 2) Washed olives discharge
- 3) Leaves discharge
- 4) Elevator
- 5) Motovariator
- 6) Water connection
- 7) Tank discahrge valve

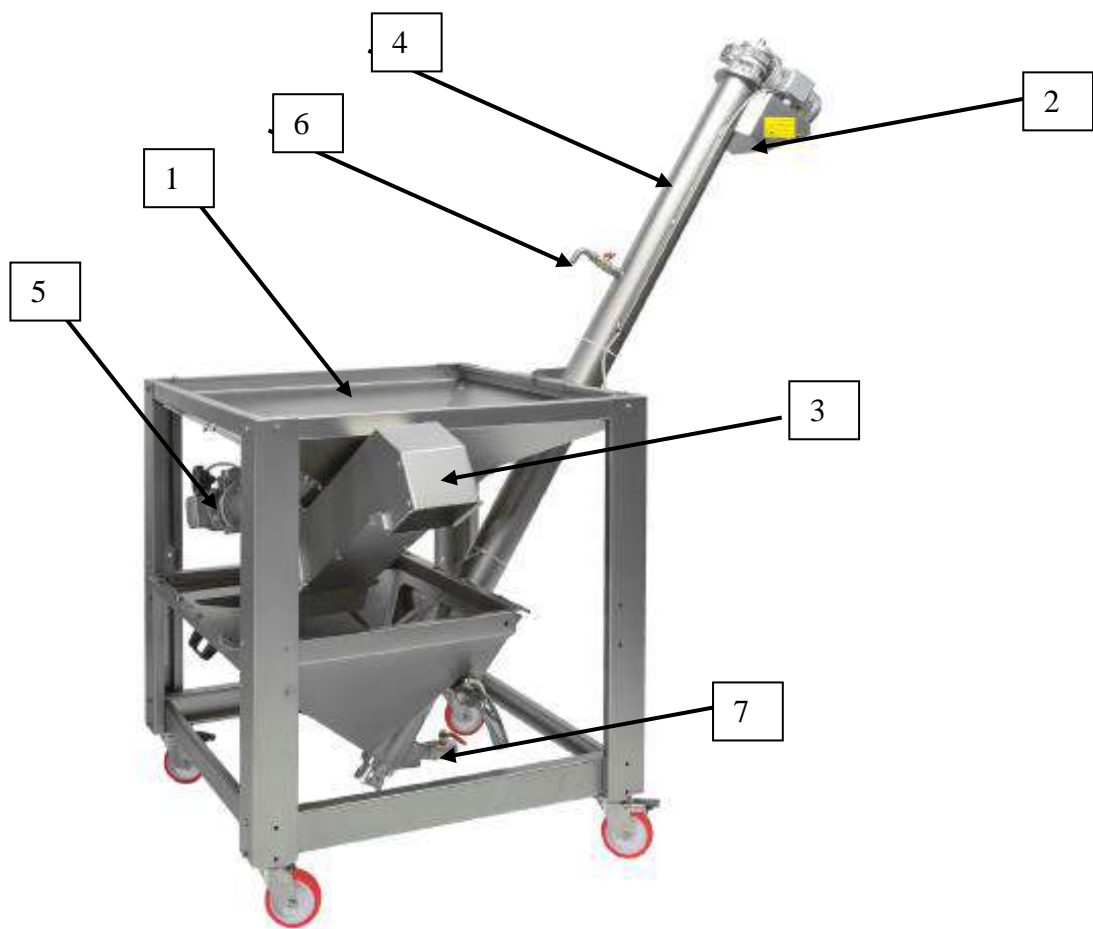


Figure4 – Plant description

8.2 – Illicit, improper or unauthorised use

The manufacturer declines any liability in the case of improper machine use, other than for the purposes for which it has been designed and manufactured. It is necessary to always carefully adhere to the rules of safety and to the instructions provided herein. In particular, it is indispensable to comply with the operating limits stated in this handbook. Unauthorised personnel must not be allowed near the equipment in use. Use, maintenance and repairs are only allowed for suitably prepared and trained operators with their own accident prevention equipment. The manufacturer is also relieved of any liability in the case of:

- incorrect installation
- inadequate maintenance
- tampering
- use of non genuine spare parts
- failure to adhere to the indications provided
- exceptional events.

Use of the machine is forbidden:

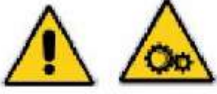
- in places of public access;
- in environments with the risk of explosion or fire;
- in environments containing contaminants such as powders, acids, corrosive gases, etc.;
- in environments where the possibility exists of exposing it to radiations;

8.3 – The User company's responsibility

The User company is responsible for ensuring that the persons appointed to the various tasks:

- possess the requirements listed below;
- read and understand the instructions for use and maintenance;
- receive suitable training for the tasks entrusted to them and are capable of performing them under safety conditions;
- receive specific training for correct use of the machine;
- have received appropriate individual protective devices.
- are in suitable physical and mental conditions (in any case not under the influence of alcohol, medicines or drugs).

9.0 – Plant disassembly and assembly



WARNING:

Never start disassembly operations for any reason whatsoever before the machine has stopped completely and the hot parts have cooled down. Make sure that the machine is not powered, (remove the fuses or press the emergency button).

Place special notices to indicate that repair and/or maintenance work is in progress.



WARNING: For all other maintenance operations not mentioned in this handbook, it is indispensable to contact an authorised TEM workshop.

9.1 – Equipment and safety systems used

- 1 Safety grille on the hopper
- 2 Safety grille on the elevator

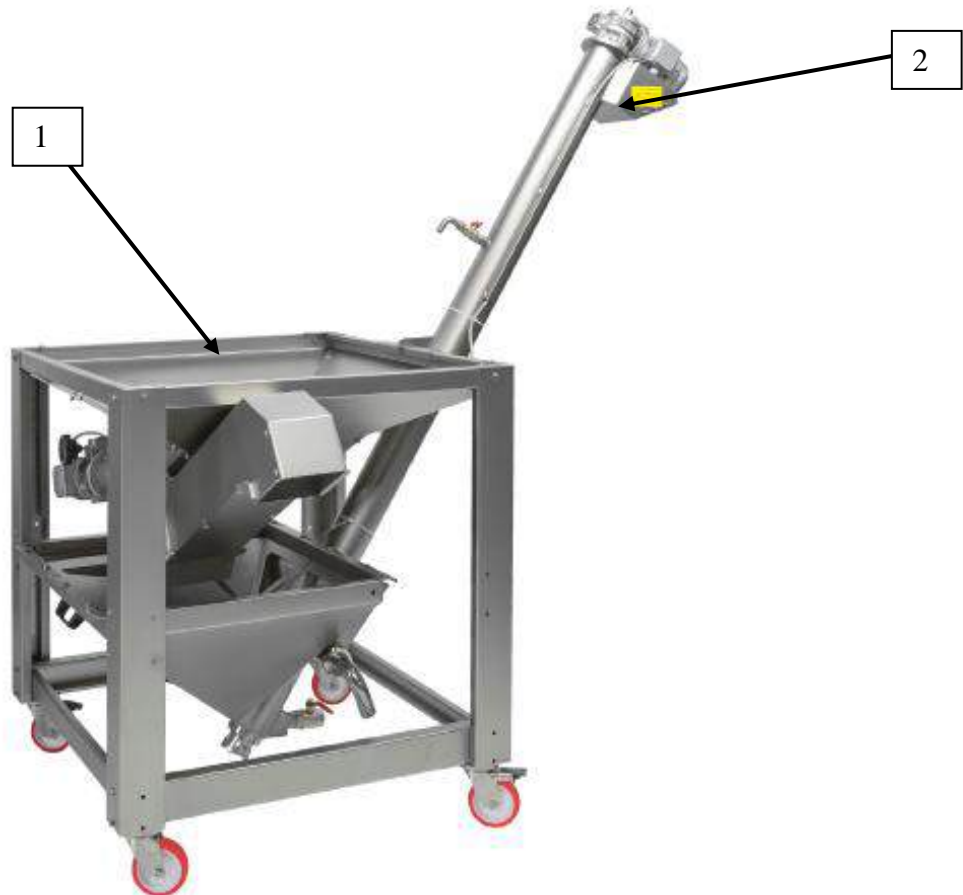


Figure 5 – Identification of safety systems used

10.0 – Operations and use

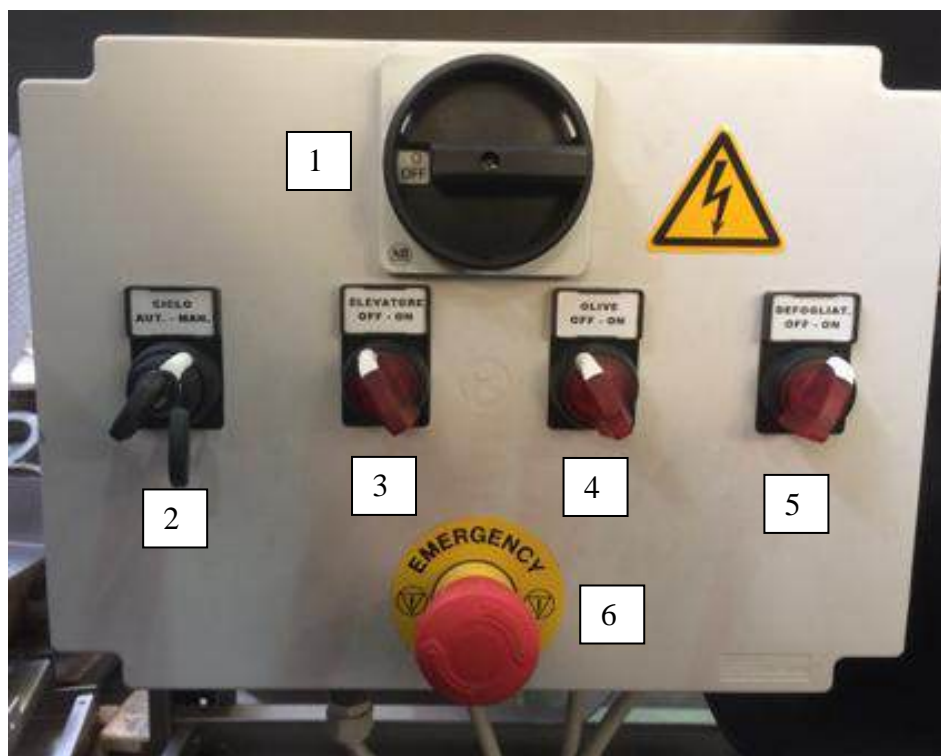


Figure 6

POS.	DESCRIPTION	PURPOSE
1	TWO POSITIONS SWITCH ("ON" and "OFF")	SET on "ON" THE MACHINE IS POWERED
2	CYCLE TWO POSITIONS KEY SELECTOR (AUT-MAN)	SET on "AUT"- THE MINI DLE WORKS THROUGH THE MACHINE ELECTRIC SYSTEM TO WHICH IT IS CONNECTED (OLIOMIO50/100) SET on "MAN" THE MINI DLE IS NOT POWERED BY THE SYSTEM TO WHICH IT IS CONNECTED AND IN CASE OF LACK OF POWER SUPPLY IT CANNOT RE-START AUTOMATICALLY.
3	ELEVATOR TWO POSITIONS SELECTOR (OFF/ON)	STARTS THE MOTOR OF THE VERTICAL SCREW OF THE ELEVATOR
4	OLIVES TWO POSITIONS SELECTOR (OFF/ON)	STARTS THE MOTOR OF THE OLIVES SCREW
5	DE-LEAFER TWO POSITIONS SELECTOR (OFF/ON)	STARTS THE MOTOR OF THE DE-LEAFER EXTRACTOR FAN

10.3 – Plant adjustments

ADJUSTMENT OF OLIVE FEED SPEED

The speed of the olive feed to the crusher can be adjusted using the Mini DLE speed change drive unit adjustment flywheel (Increase – Decrease), when the crusher cannot drain off the olives and the hopper is full; you have to decrease the speed. When the hopper is empty increase the speed.



Figure 7

WATER REGULATION FOR CLEANING PROCEDURE

You have to regulate the water inlet flow to the DLE so that the tank overflow can maintain the right level. Inlet of too much water let the water overflow to the floor.

10.4 – Machine starting and stopping

STARTING THE MACHINE

After the a.m. operation act as follows:

- Open water tap
- Move the general selector of the machine to ON.
- Move selector ELEVATOR to “ON”.
- Move the selector horizontal OLIVE screw to “ON”.
- Move the LEAF REMOVER selector to “ON”.
- Now the machine is ready to work; adjust the speed of the olive feeding gear to set the right quantity of olives to determinate the olive flow to the crusher.
- Load the MINI DLE hopper with olives.
-

STOPPING THE MACHINE

Once the working cycle is to the end (stop to feed olives to the MINI DLE hopper!) proceed as follows to stop the machine:



IMPORTANT:

Before stopping the machine verify that no more olives are going from the vertical hopper to the crusher.

- Move the General switch to OFF.
- Act on the MINI DLE board to disconnect all the commands.

10.5 – Troubleshooting



WARNING:

Before doing any maintenance work, make sure that the electric plug is disconnected.

SYMPTOM	CAUSE	MEASURE
MINI DLE UNIT IS NOT STARTING	THE EMERGENCY IS CONNECTED	Disconnect the mushroom button when machine is connected.
	POWER SUPPLY PLUG IS NOT CONNECTED	Properly connect the power supply plug.
MACHINE STOPS AND THERMIC SHUTDOWN LIGHT IS ON	ONE OF THE MOTOR OF THE LEAF REMOVER IS IN THERMIC SHUTDOWN	Open the board and repute in service the correspondent relay. IF the problem is not solved contact after sale service.

11.0 – Specifications

A table with technical specifications and a reference figure are included below for each unit mentioned in paragraph 8.1.

11.1 – MINI DLE

Model	Power	Production Kgs/hour	Production Kgs/8 hour	Weight in Kgs
Mini DLE	1	200	1600	230



Figure 8 – MINI DLE dimensions

12.0 – Handling and disposal instructions



WARNING:

Before handling the various parts, it is firstly necessary to check the conditions of preservation of every piece of equipment used. Only use appropriate equipment that meets current safety regulations on working equipment.

When handling loads, operators should pay the utmost care to avoid dangerous movements for themselves and for others.

Use slings and hoisting equipment suited to the weight of the machine to be positioned and take the machine to be lifted properly.

During handling, **adhere** to the following instructions to be carried out by duly trained personnel:

1. Before removing the machine, make sure that it is secured to the handling equipment.
2. Place on anchored pallets or carry with crane or bridge crane taking care to tie the component firmly.
3. During road transport secure the machine with ropes and anything else needed to keep it stable.
4. The width of the corridors must allow the passage of the necessary means of handling (fork lift trucks, etc.) and in any case leave a minimum space of 1500 mm. around the machine.
5. The machine must be positioned on a floor capable of bearing the weight of the machine fully loaded and must not be sloped by more than 3°.

12.1 – Packing

The machine is delivered packed on and protected externally by nylon film or closed in a wooden crate. For handling use a transpallet or forklift truck. Upon receiving the machine, place it near its place of work and remove the packing. The material used for packing does not involve particular environmental hazards as it is composed of:

- Polyethylene – Outer film to protect against the weather and blister pack to protect against shocks.
- Plastic – Various parts of the packing used to protect against shocks.
- Wood – Fastening blocks for mechanical parts and container crate.

13.0 – Installation and working environment.

Before starting to install the machine, the operator should make sure that all the equipment needed for installation is available.

The machine must be installed correctly in order to ensure correct operation.

Stability: the machine mounted on castors might be moved accidentally, care must be given to prevent accidental movements.

The machine and its electrical equipment have been designed and manufactured for installation in an industrial environment and for use only in closed places where they cannot be subjected to the weather.

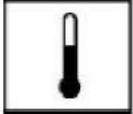


ENVIRONMENT:		Closed (1)
	ENVIRONMENT TEMPERATURE:	From - 5° C to + 50° C (2)
	PRODUCT TEMPERATURE:	From + 5° C to + 60° C (2)
	MAXIMUM ALTITUDE:	1,000 metres above sea level
	MAXIMUM OUTSIDE HUMIDITY	50% R.H. at 40° C (3)

Figure 10 – Environmental working conditions

- 1) The plant must be installed in places where it is not directly exposed to atmospheric agents.
- 2) Different temperatures are admissible for short periods, however not during operation.
- 3) Different humidity degrees are admissible for short periods, however not during operation.
- 4) Different temperatures could be admissible only if some machine parts are replaced.

Unless otherwise specified contractually, the machine can operate smoothly only in the environmental conditions indicated above and in the following paragraphs. Environmental conditions other than those specified may cause operating faults or breakage with consequent hazardous situations for the health of the operator and persons exposed.

13.1 - Lighting

For the installation environment it is necessary to follow the regulation lighting criteria (ISO Std. 89953.89). The working area must be well lit to ensure that the operator has no difficulty in working and all the cut-off, operating, control and emergency devices are always in sight. In the event of poor workplace lighting, use portable lighting devices:

-Do not connect auxiliary lighting devices to the machine electric panel.

13.2 - Noise

It is necessary to follow the regulation noise criteria to ensure that the noise level produced by the machine does not exceed the acceptable value (80dB) if it is installed in particular conditions. The machine meets the regulation sound emission ratings. The tests performed recorded the following noise pressure measured in the respective work

MEASUREMENT POSITION	L_{pA} dB[A]
P1	77

Table 1- Working position

P1 Measurement performed at the OPERATOR POSITION, at a height of $1.55 \text{ m} \pm 0.075 \text{ m}$ from floor level.

L_{pA} dB[A] Sound pressure level emitted, corrected, weighted A, averaged in time.

The test was conducted in normal machine working conditions with the automatic cycle, in an industrial shed with Class 1 instrumentation (IEC804).

13.3 – Explosion or fire hazard

As mentioned in the risk analysis, the machine does not represent a fire hazard, but it must be concerned by the analysis process on the basis of the environment and standards that rule this application. In any case, the machine must not work in areas subjected to the danger of explosions.

13.4 – Space and obstacles

For installation, adapt the spaces to allow easy access to the persons involved in processing and maintenance operations. In addition, before installation, make sure that enough space is available for the necessary manoeuvres. The installation area must be free of obstacles. Also consider adequate aeration around the machine.

14.0 – Individual protective devices

For machine assembly personnel:



Suitable clothing



Protective helmet



Protective gloves



Protective boots

For machine operators:



Suitable clothing



Protective boots



Protective gloves



Ear protection

The machine does not exceed the noise level established by law above which the use of ear protection is necessary; despite this, the use of these devices is possible. In this case, it is underscored that the operator must be even more attentive as one of the senses for the perception of danger (hearing) will be lacking.

For machine maintenance operators:



Suitable clothing



Protective helmet



Protective gloves



Eye protection

This list is not exhaustive to warrant operator safety.

The operator should integrate the compulsory individual protection system (factory) specified by the employer.

15.0 – Maintenance



WARNING:

- The machine must not be powered. Move the main switch to OFF and take out the plug.
- Always wait for a few minutes from switch off before working on the machine.

ORDINARY CLEANING OF THE PLANT:

- At the end of the day's work, and any time the plant is stopped for more than 8 hours, wash the machines with water and non-toxic products.
- At the end of the season, use compressed air to clean the air grilles of the machine motors.
- At the end of the season and after stops longer than 8 hours, the plant must be washed as accurately as possible as residues from previous processes could damage the new product of the following processes.



WARNING: Place a special notice on the electric board and on the machines to indicate that maintenance work is in progress. Do not alter the plant. Use personal protection equipment during maintenance operations: gloves, safety shoes. In case of maintenance on the higher parts of the plant, use suitable equipment such as ladders, platforms, etc. that are adequately sized and positioned. After repairs, do not start the plant again before all protections have been put back into place.



WARNING: Do not perform substantial repairs, such as welding or other alterations of the load bearing structure, before having contacted TEM for their written approval and instructions. Carrying out important repairs without having first consulted TEM could cause breakage of the relevant parts, with the risk of serious accidents involving personnel or of serious damage to the equipment.

CLEANING PROCEDURE:

Let the machine run empty (without olives) and with the washing tap open. Then open the water drain. The machine is clean when the water discharged is clear.



EC DECLARATION OF CONFORMITY

(Annex II, part 1, section A of Directive 2006/42/EC)

The undersigned company **Mori Tem S.r.l.**, with Headquarters in Via Leonardo da Vinci, 59 – 50028 TAVARNELLE V.P. (FI) - Italy, represented by Mr. Giorgio Mori, the legal representative,

HEREBY DECLARES THAT:

The machine or system is identified as:

Model	
Type	
Serial number	

AND FURTHER DECLARES THAT:

- It is conformant to all pertinent provisions of directive 2006/42/EC the Machinery Directive and directive 2014/30/EU the Electromagnetic Compatibility Directive (EMC), and of (EC) Regulation n. 1935/2004 on materials and articles intended to come into contact with foodstuffs, of Directive 84/500/EEC ceramic articles intended to come into contact with foodstuffs, and Directive UE n° 10/2011 plastic materials and articles intended to come into contact with foodstuffs.
- As regards materials in contact with the foodstuff, the manufacturer guarantees the availability of all documents regarding the supplier conformity and production process management procedures that allow for traceability.
- The person authorized to prepare the technical file is Mr. Giorgio Mori, the legal representative of the company **Mori Tem S.r.l.**

Tavarnelle Val di Pesa (FI) ,/...../.....

Mr. Giorgio Mori
Legal Representative