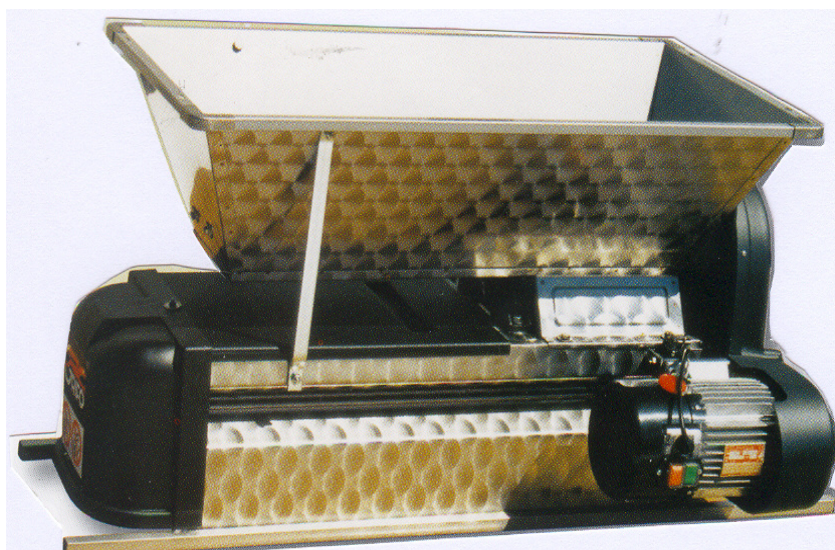




WINE MAKING MACHINES

**MOTORIZED GRAPE CRUSHER
AND DESTEMMER**
Art. DMC/DMCSI/DMCI



MANUAL
INSTRUCTION, USE AND MAINTENANCE





Dear Customer,

Thank you for choosing a GRIFO product which has always had a name for reliability, sturdiness and functionality.

We are pleased to give you this manual so as to enable you to operate the machine, in the safest and most efficient way.

We invite you to read this technical manual carefully and to show it to anyone who will use the machine, as well as the person who installs it and carries out maintenance work.

We are at your complete disposal for any further information you may need and will consider any proposals in order to make this manual evermore complete for the safety requirements for which it is intended.

Our best wishes and enjoy working with Grifo products!

GRIFO Macchine Enologiche S.n.c.



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Index

Statement of Conformity CE

1. INTRODUCTION
 - 1.1 Contents
 - 1.2 Consegnees and Conservation of the Manual
 - 1.3 Responsibility
 - 1.4 Manual update
 - 1.5 Notes
 - 1.6 Guarantee
2. MACHINE DETAILS
 - 2.1 Machine description and functioning
 - 2.2 Use
 - 2.3 Technical information and machine identification
 - 2.4 Reference regulations
3. SAFETY AND ACCIDENT PREVENTION
 - 3.1 General information
 - 3.2 Risks and preventive measures
4. INSTALLATION
 - 4.1 Preparation for installation
 - 4.2 Transport, unloading and installation
 - 4.3 Positioning
 - 4.4 Electric connections
 - 4.5 Lubrification
5. USE
 - 5.1 Preliminary operations
 - 5.2 Starting up and workING schedule
 - 5.3 Taking out of service
6. MAINTENANCE AND DISPOSAL
 - 6.1 Maintenance, inspections and controls
 - 6.1.1 Lubrification and controls
 - 6.1.2 Spare parts
 - 6.2 Demolition and subdivision of materials
 - 6.3 Maintenance register
- 7 ATTACHMENTS (drawings and components)

CE Statement of Conformity

(Directive 98/37 CE, Attached II, letter A)

In capacity as manufacturer's,

GRIFO MACCHINE ENOLOGICHE S.n.c.
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Italy

DECLARES THAT

the machine	MOTORIZED GRAPE CRUSHER AND DESTEMMER
model	DMC, DMCSI, DMCI
year of manufacture	2002

conforms to Directives 98/37/CE (Machines), 73/23/EEC (low-voltage) and 89/336/EEC (Electromagnetic Compatibility);

conforms to the following harmonized regulations:

UNI EN 292/1/2/3 (1991)	Safety of machinery. Fundamental Concepts, general principles of design.
UNI EN 294 (1993)	Safety distance to prevent the upper limbs reaching the dangerous zones.
UNI EN 418 (1992)	Safety of machinery. Emergency safety catches, functional aspects. Principles of design.
UNI EN 954-1 (1996)	Safety of machinery. Parts of command systems linked to safety. General principles of design.
UNI EN 1037 (1995)	Safety of machinery. Prevention of sudden starting.
UNI EN 1050 (1996)	Safety of machinery. Principles for risk evaluation.
CEI EN 60204-1 (1998)	Safety of machinery. Electric machine equipment Part 1: general rules.

This "EC" Declaration of Conformity was drawn up according to what is specified in Attachment II of the Directive 98/37 EC. Every modification to the machines carried out without the authorization of the abovementioned manufacturer will nullify this Declaration.

Piadena (CR), Italy 15th March 2002

GRIFO MACCHINE ENOLOGICHE S.n.c.
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Legal Representative

1. INTRODUCTION

1.1 Contents

This manual contains a description of the technical characteristics and functioning of the MOTORIZED GRAPE CRUSHER AND DESTEMMER, Models DMC, DMCSI, DMCI, as well as instructions of installation, use and maintenance.

This instruction manual uses the following symbols.

	Pay maximum attention to the instructions marked by this symbol keeping scrupulously to what is specified.
	Indications and useful tips for manipulation, mounting and installation, use and maintenance operations.
	Operations or behaviour absolutely forbidden
	Continue in the indicated, operating sequence

1.2 Consegnees and conservation of manual

This publication refers to:

- factory managers and department managers
- installation personnel
- machine operator
- maintenance personnel

The manual must be kept by the manager in a suitable place in order for it to be always **available for consultation** in the best state of conservation.

In case of loss or deterioration, a replacement document should be requested directly from GRIFO Macchine Enologiche S.n.c.



The manual constitutes an integral part of the machine and as such must be conserved for all the life of the machine and passed on to any user or successive owner.



The location and state of conservation of the manual must be such as to guarantee easy consultation.

In particular:

- do not remove, tear or rewrite any part of the manual for any reason
- conserve it integrally and in a safe place protected from humidity or heat
- conserve it in a special place, well in sight and known to all operators or workers trained to use the machine

1.3 Responsibility

The guarantee of the well functioning and full conformity performance of the machine to its foreseen service, is strictly dependent on the correct application of all the instructions in this manual.



Before operating the machine it is obligatory to read what is specified in the manual

These written instructions do not substitute, but summarize the obligations to respect the safety and accident prevention laws in force.



The only configurations and destination of use allowed by the manufacturer are those expressly stated in the manual.

In reference to the above indicated in this instruction manual, GRIFO Macchine Enologiche S.n.c. **declines every responsibility** in the case of:

- inobservation of the instructions regarding installation, use and maintenance printed in this manual;
- inadequacy of the plant engineering and environmental conditions in which the machine is used,

- non authorised modifications to the machine
- use by unauthorised or untrained persone

1.4 Manual Update

This manual is an integral part of MOTORIZED GRAPE CRUSHER AND DESTEMMER Models DMC, DMCSI and DMCI introduced in March 2002.

Any modifications, that are made to any successive machines, **do not oblige** the manufacturer to carry out any intervention or adaptation to the machine already on the market.

Any supplement to the manual that the manufacturer considers necessary to send to the user should be kept together with the manual of which it will be integral part of.

1.5 Notes

GRIFO Macchine Enalogiche S.n.c. reserves all the intellectual and editorial rights relative to the present technical manual of which it claims all the property and forbids duplication or transfer to third parties without previous written consent.

1.6 Guarantee



The guarantee of the machine covers the first twelve months of operation. In case of non immediate use, the guarantee expires on the eighteenth month from its delivery.



The guarantee does not cover transportation of the machine, which is the purchaser's responsibility, and the guarantee will be invalid if machine use does not conform to what is indicated in this manual.

Conditions other than those specified may be defined in the contractual phase.

2. MACHINE DETAILS

2.1 Machine Description and functioning

Motorized Grape Crusher Machine and Destemmer, Models DMC, DMCSI and DMCI is a machine for crushing grapes, designed and built for use in small and medium-sized wine-making companies. The models which this manual refers to are different only for the material used for their production, enamel painted steel or stainless steel; the names in the manual of the models are as follows:

- **MOTORIZED GRAPE CRUSHER AND DESTEMMER (DMC)**
- **MOTORIZED SEMI-STAINLESS STEEL GRAPE CRUSHER AND DESTEMMER (DMCSI)**
- **MOTORIZED STAINLESS STEEL GRAPE CRUSHER AND DESTEMMER (DMCI)**

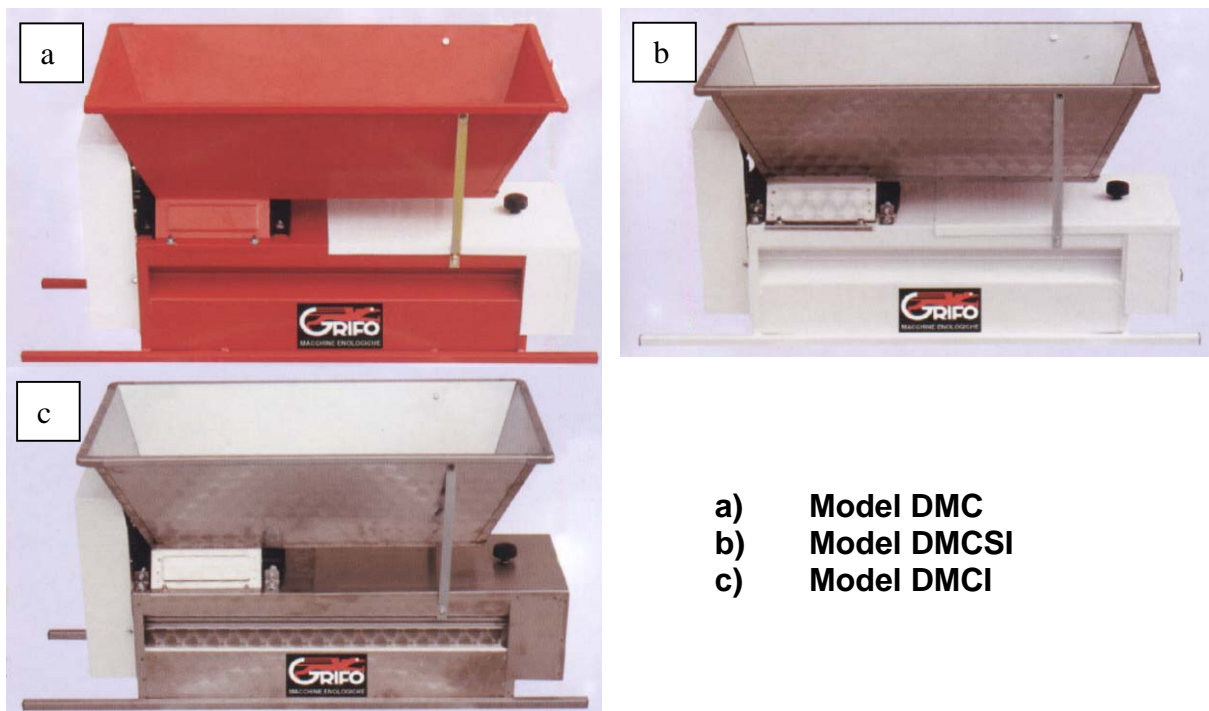


Fig. 1 different models of the MOTORIZED GRAPE CRUSHER AND DESTEMMER

The machine consists of a loading **hopper** which contains the grapes to be destemmed. At the bottom of the loading hopper there is a auger feed that pushes the grapes towards two rollers that will crush them. It then conducts them into the lower part where, thanks to a circular movement, the destemmer shaft paddles separate the grapes from the stems. The grapes, together with the freshly squeezed must, fall into the lower bin through the grate situated inside the machine. The destemmer shaft is manufactured in such a way that through its helical movement, the welded paddles on it push the stems to the output shoot.

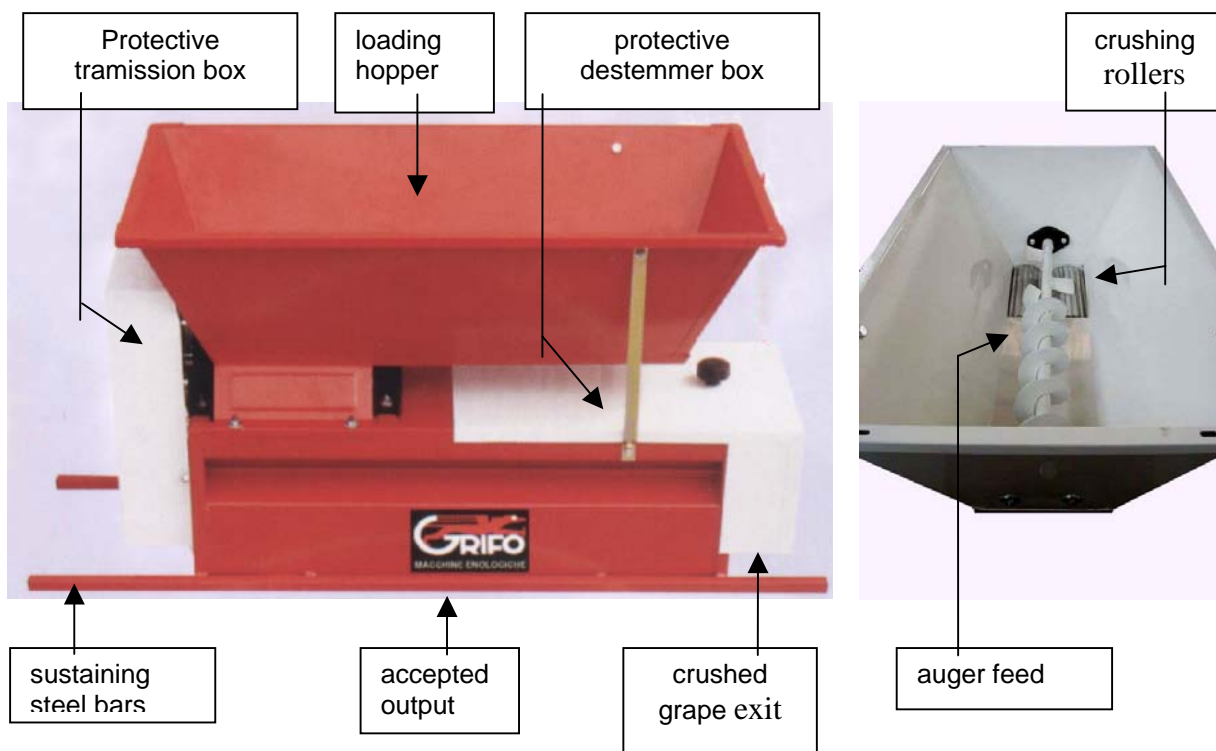


Fig. 2 Main parts of the MOTORIZED GRAPE CRUSHER AND DESTEMMER

On top of the hopper a **protective box** (supplied) must be placed in order to avoid upper limbs coming into contact with the destemmer and rollers.

The machine must be positioned above a container which collects the crushed grapes according to the instructions described in chapter 5.

2.2 Use

The MOTORIZED GRAPE CRUSHER AND DESTEMMER Models DMC, DMCSI, DMCI is a crusher-destemmer machine used for grape processing. The operations of the machine are:

- **grape crushing** by means of two rollers positioned inside the hopper
- **destemming** i.e. separating the grapes from their discarded stems by means of a destemmer shaft inside the machine.



Any variations of the conditions of use of the machine both in terms of use and materials processed must be considered as a new use of the machine under the directive 98/37/CE and therefore relieves the manufacturer of any responsibility.

2.3 Technical information and machine identification

The basic characteristics of the machine and those required by the environment for correct functioning are reported in Table 1.

maximum overall dimensions	Height 600 mm - Width 600 mm - Length 1200 mm
weight	54 kg
engine power	0.75 kW
hopper dimensions	900 x 500 mm
diameter of alluminium rollers	220 mm
engine speed	1400 rpm (revolutions per minute)
hourly production	1500 Kg.
voltage and frequency	110 V – 60 Hz
operating temperature	5° ÷ 45° C
noise level	less than 70 dBA

Table 1 Technical data of the MOTORIZED GRAPE CRUSHER AND DESTEMMER

The name plate on the machine gives the identification of the manufacturer and of the machine.

2.4 Reference regulations

The MOTORIZED GRAPE CRUSHER AND DESTEMMER Models DMC, DMCSI, DMCI was designed and manufactured in accordance with what is specified by **European Directives** 98/37 EC (Machinery), 73/23/EEC (Low-Tension), 89/336 (Electromagnetic Compatibility) in accordance with the **regulations**

UNI EN 292/1/2/3 (1991)	Safety of machinery. Fundamental Concepts, general principles of design.
UNI EN 294 (1993)	Safety distance to prevent the upper limbs reaching dangerous zones.
UNI EN 418 (1992)	Safety of machinery. Emergency safety catches, functional aspects. Principles of design.
UNI EN 954-1 (1996)	Safety of machinery. Parts of command systems linked to safety. General principles of design.
UNI EN 1037 (1995)	Safety of machinery. Prevention of sudden starting.
UNI EN 1050 (1996)	Safety of machinery. Principles for risk evaluation.
CEI EN 60204-1 (1998)	Safety of machinery. Motorized machine equipment Part 1: general rules.

3 SAFETY AND ACCIDENT PREVENTION

3.1 General information

Within the obligation of information and training of workers foreseen by current legislation, the company employer, management and the authorised users operating the MOTORIZED GRAPE CRUSHER AND DESTEMMER Model DMC, DMCSI, DMCI must supply personnel who will carry out operations of installation, use and maintenance all the necessary information in order to guarantee their safety while using the machine.

In particular, they must request and control that

- all workers assigned to the abovementioned operations must scrupulously conform to the **procedures** in this manual and the general accident prevention measures foreseen by current regulations.
- **no different operations** must be carried out other than those specified by the manufacturer.
- **no tampering or modifications** to the machine must be made and the machine is used exclusively in its original configuration.

3.2 Risks and Preventive Measures

According to Machine Directive 98/37/EC all the areas characterised by an intrinsic danger in the nature of the process or in the essential structure of the machine have been analysed.

In this manual we are limited to underline the **main risks**, in the installation, use and maintenance, and taking out of use. For the foreseen preventive measures, refer to relevant paragraphs.

With reference to Appendix A of the UNI EN 1050 regulation, the risks directly connected to the use of the machine, are those reported in Table 2. For what concerns the risks connected to the interaction between the machine and the environment in which it is placed, it is necessary for the user to make an overall risk evaluation.

RISKS	DANGER ZONE	PREVENTIVE MEASURES
Crushing of lower limbs	machine or part of it falling	<ul style="list-style-type: none"> - Insure that the machine is stable in particular with reference to the compatibility between the dimensions of the support rods and those of the container above which the machine is place. (par. 4.3). - Use safety boots with steel toe-caps.
Crushing/cutting of upper limbs	<ul style="list-style-type: none"> - agitator e crushing rollers - engine transmission gears - outlet hole for crushed grapes 	<ul style="list-style-type: none"> - Stop the machine in case of intervention on the moving parts. - Do not remove the protective case.
Muscular/skeletal injuries	- manual movement operations	- Move the machine with at least two people.
Fulgoration for direct or indirect contact with electric parts. Fire	- electrical equipment	<ul style="list-style-type: none"> - Regularly control the integrity of wires and make necessary replacements. - Protect wires and engine from humidity. - Carry out any maintenance work with the machine turned off. - Authorize only skilled personnel to work on the electrical parts. - Control that the voltage is the same as that indicated on the machine identification plate.



IT IS FORBIDDEN TO WORK ON ENGINE WHILE IN MOTION	DO NOT REMOVE SAFETY OR PROTECTION DEVICES	IT IS COMPULSORY TO WEAR PROTECTIVE BOOTS.	IT IS COMPULSORY TO WEAR GLOVES
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Table 2. Main risks connected to the use of MOTORIZED GRAPE CRUSHER AND DESTEMMER



Maintenance operations must be carried out with the machine disconnected from the power mains and a special warning notice must be affixed.

The evaluation of the correct place of use of the machine is the user's responsibility. Some useful tips regarding this are the following;

Positioning	The machine must be placed so as not to obstruct the movement of men or equipment, and in such a way as to guarantee that all the points requiring the presence of an operator are easily accessible
Environment	Environmental conditions (temperature, humidity, magnetic fields, etc.) must be such as to guarantee the correct functioning of the electrical components.
Noise	The noise level of this machine is inferior to 70 dBA. The distribution of jobs of the operators must be such to insure exposure to noise remains within the limits allowed by current legislation.

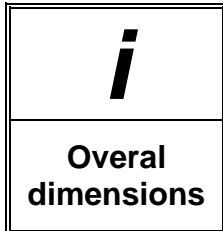


Any tampering with parts, and in particular parts connected with the safety of the machine, will relieve the manufacturer of any civil or criminal liability in the case of accidents.

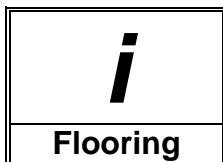
4 INSTALLATION

4.1 Preparation for installation

Before installing the machine it is necessary to control the suitability of the place where it will be located. It being understood that such evaluation must consider the specific conditions of the location, some important general controls are the following:



Check the overall dimensions of the machine, leaving a distance of at least **one metre** from any type of fixed obstacle (walls, columns, walkways) to allow the operator to move without impediments
Check that the foreseen location of the machine does not interfere with any other machinery.



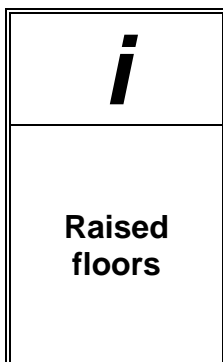
Check the suitability of flooring in terms of stability, cleanliness and slope.



Insure constant, uniform lightning to avoid risks due to shaded areas.



If the machine is positioned near to transit zones, you must place suitable barriers around it for protection of accidental bumps with trolleys, trucks etc.



If it is located on intermediate floors, elevated floors or raised platforms, check that the maximum carrying capacity is more than the overall weight of the machine and any other accessories such as lifting equipment etc. always considering an adequate safety factor.

4.2 Transport, unloading and installation

The machine is supplied already assembled into its operating configuration so the risks due to movement concern the whole machine.

Transport must be by qualified transporters able to guarantee the correct movement of the transported materials.



Grifo Macchine Enologiche S.n.c. does not accept any responsibility for damages from transport. The goods are supplied ex-factory.

On receipt, control the integrity of the different parts of the machine and check that the necessary parts for installation are not missing.



Check that the consignment corresponds to the order specifications.

Complaints relative to the goods must be made in writing, to GRIFO Macchine Enologiche S.n.c. within **15 days** from receipt of delivery.



Pay maximum attention when moving the machine, respecting what is set out in current regulations and in any safety procedures.

Any moving of the machine must be done by two adults holding the four support tubes at its extremes.

4.3 Positioning

When positioning the MOTORIZED GRAPE CRUSHER AND DESTEMMER, Model DMC, DMCSI, DMCI, other than respecting the general conditions in paragraphs 3.2 and 4.1, particular attention must be paid to the dimensional compatibility between the support tubes and the container over which the machine is placed.

The container must be placed in such a way that the grape stems, coming out of the machine, fall outside of it.

The containers used must have the same shape and dimensions as to guarantee the stability of the machine. The distance between resting points must not be more than **850mm** (Fig. 3).

When positioning the machine you must choose the height so as to guarantee accessibility to the destemmer and rollers situated at the bottom of the hopper. With regards to this, a protective case is provided to screw onto the hopper itself.

Bearing in mind that the case provided has a height of 450 mm, the top end of this must be at a height not inferior to **1600 mm**.

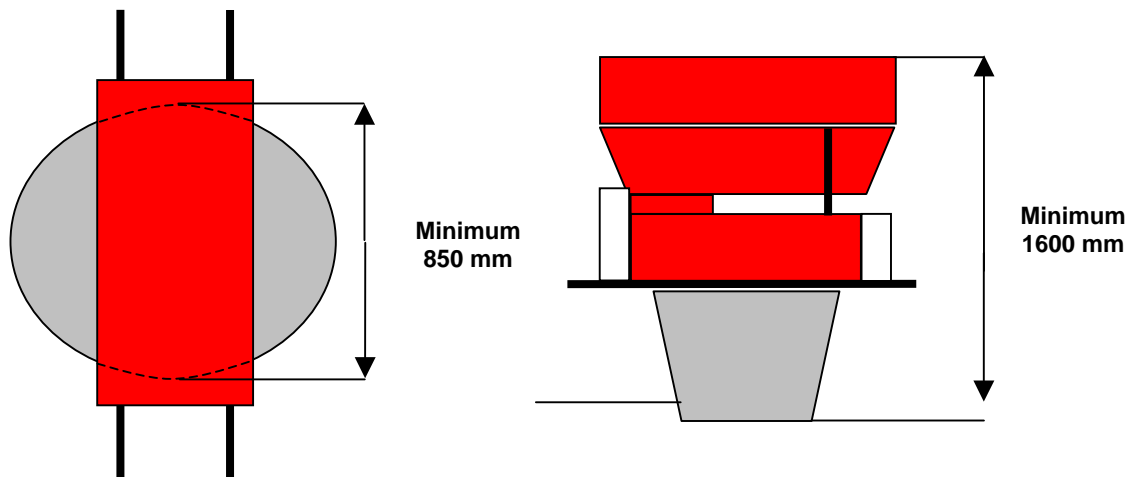


Fig. 3 Dimensional limits in the positioning

The user should also be careful to guarantee machine stability when positioning. For this purpose, adjustable feet to fix to the support tubes are supplied in order for the machine to remain secured to the container on which it is placed.

4.4 Electrical connections

Connection to the mains is done by simply inserting the plug. The corresponding wall plug must correspond to what is set in the safety regulations.

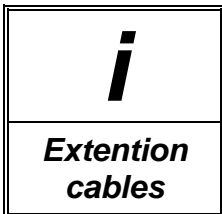


It is obligatory to connect the machine to an earthed wall plug. The plant must be fitted with an emergency safety cutout switch.

The simplicity of the connection must not make you underevaluate the importance of respecting general security measures for electricity. Therefore it is important to:

- control that the mains voltage is the same as that indicated on the engine plate

- before using check the integrity of the electric cable and in case of damage it must be replaced
- avoid leaving the cable exposed to collisions, passage of people or vehicles or any other situation that could be a threat to its integrity
- protect the cable, plug-wall socket connection and any other electric parts from humidity



In case the use of an extention cable is necessary, it is advisable to use an electric 1.5 mm cable for lengths of up to 20 m and a 2.5 mm cable for over 20m.

4.5 Lubrication

The machine does not need particular servicing. Before starting it up you should check oil levels, as indicated in chapter 6.



GRIFO Macchine Enologiche S.n.c. decline all responsibility for damages to people or things caused by failure to comply to the installation instructions set out in this section.

5. USE

5.1 Preliminary Operations

Before starting up the machine you must check that all moving parts have been lubricated, then periodically you should control the state of lubrication and make any necessary interventions. For the instructions of use see paragraph 6.1.1.

The following **controls** must be made before starting of every work session

- cleaning of the machine, taking care not to wet the engine
- Control the state of connections to the power mains
- Control that inside the machine there are no foreign bodies that could impede its correct functioning
- Control the presence of all protective covers
- Check the correct functioning of the controls, in particular the emergency stop



In the case when preliminary controls do not have positive results, you must action the emergency stop, unplug the machine and warn the department manager.

5.2 Starting up and working schedule

Following the preliminary controls, you can turn on the machine by activating the start button placed on the control board. After the engine is started, insert the bunches of grapes into the hopper that, by means of the agitator, will be taken to the rollers where the crushing takes place.

Once crushed it passes to where the rotating shaft is that separates the grapes from the bunch destemming them. The stems exit from the rear part of the machine while the grape, passing through the grate, is ready for fermentation.

The dimensions of the output shoot of the stems are determined by safety and functional needs, in order to favour the expulsion of the stems. In the case of abnormal accumulation of the stems that could obstruct the output shoot, **you must turn the machine off (disconnect from the mains)**, and only then, see to freeing the output shoot.



It is forbidden to put your hands near to the moving parts, in particular the output shoot of the grape stems.

5.4 Taking out of service

To turn off the machine it is sufficient to activate the stop button.

In case of setting aside or taking out of service for a long time, it is necessary:

1. Disconnect the machine from the electricity power mains.
2. Cover it and possibly place it in a storage warehouse.



When the machine is started up after a period of being in storage, you must follow carefully all the instructions in chapters 3, 4 and 5.

For restarting the machine you must proceed as indicated in paragraphs 5.1 and 5,2

6. MAINTENANCE AND DISPOSAL

6.1 Maintenance, inspections and controls

With careful maintenance parts subject to wear have a longer life.

To guarantee a safe and efficient functioning of the machine maintenance should be programmed and carried out thoroughly and punctually.



Any maintenance must be carried out by authorised personnel when the machine is disconnected from the power mains.



Records

In order to manage the machine in a correct, precise way, it is advisable to register all maintenance work taking care to indicate the date and type of work carried out.



Cleaning

A non-toxic, non-polluting detergent must be used for cleaning operations.

The main operations of general maintenance work to be carried out are described as follows.

The frequency of these depends on the conditions of use of the machine.

6.1.1 Lubrication and controls

Before starting up the machine and in later on, periodically you must check the state of lubrication of the movable parts of the machine (see par. 5.1)

OPERATION	FREQUENCY
A thorough cleaning of the hopper and rollers, paying attention not to wet the engine	After every grape crushing session
Oiling of all engine transmission parts	Monthly
Oiling of roller shafts through the holes situated on each support	Monthly
Oiling of destemmer shaft and paddle type auger supports	Monthly

The elimination of oil must be done according to the current laws in the countries where the machine is in use.

During oiling operations care must be taken that the oil does not dirty the elements that come into contact with the grapes and crushed grapes. The position of the lubrication points has been studied to facilitate these operations.



In any case it is forbidden to disassemble the engine. In case of necessity, please contact GRIFO Macchine Enologiche S.n.c. or the authorized dealer.

6.1.2 Spare Parts

All spare parts are available from GRIFO Macchine Enologiche S.n.c. or from the authorized dealer.



The use of unauthorized spare parts, different from those supplied by GRIFO Macchine Enologiche or the authorized dealer entail the forfeiture of the guarantee, as well as the Declaration of Conformity of the machine. Therefore, the use is strongly advised against.

6.2 Demolition and subdivision of materials

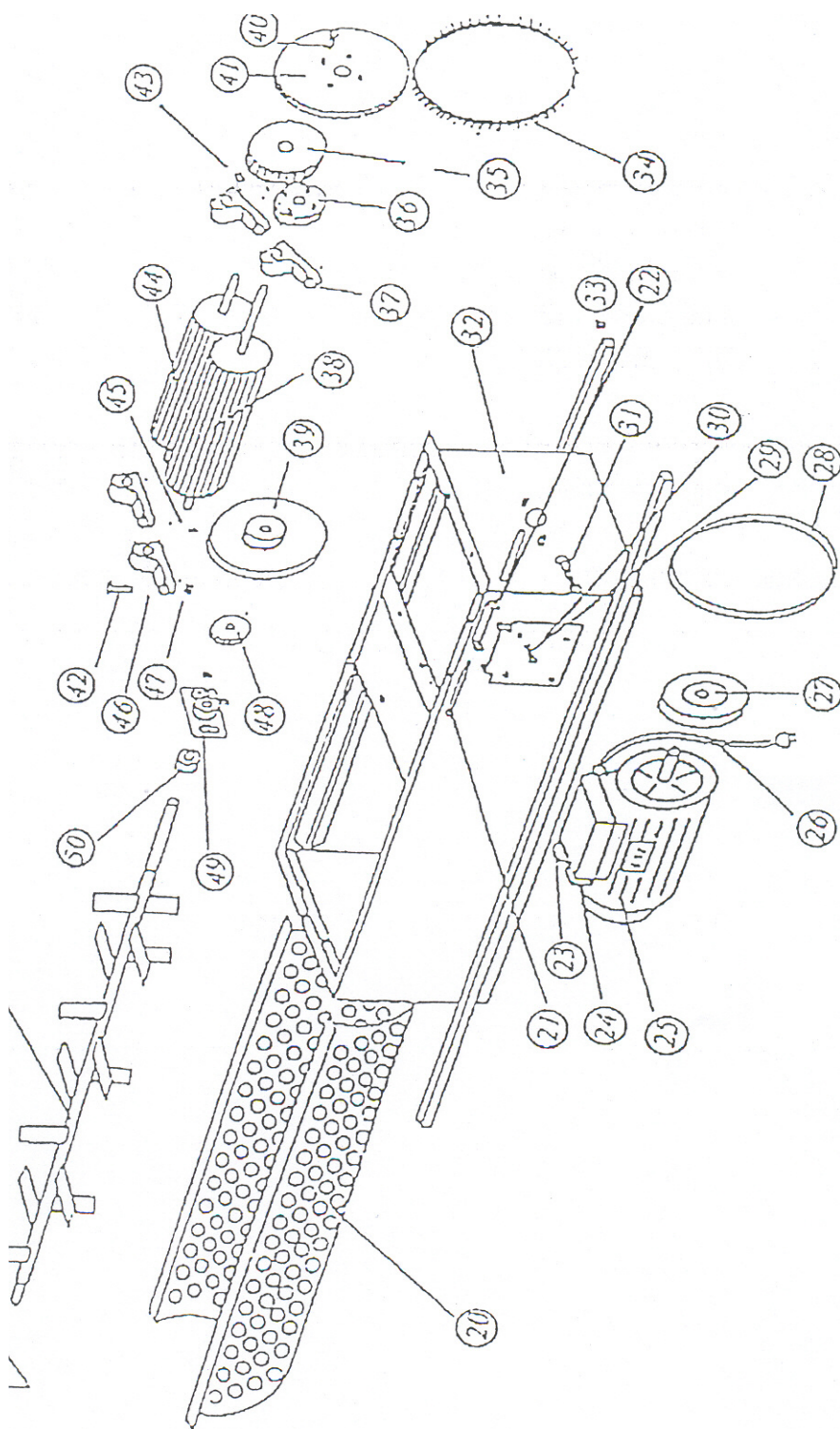
In the case the machine has to be demolished, it must be dismantled in uniform parts and such parts must be separately disposed of according to current laws.

7. ATTACHMENTS (drawings and components)

7. SPARE PARTS

- 1) large side of protection box
- 2) short side of protection box
- 3) 6 x 16MA screw
- 4) 6 MA screw nut
- 5) 6 MA threaded dowel
- 6) 6 MA screw nut
- 7) 6 x 12 MA screw
- 8) loading hopper gear in nylon
- 9) loading hopper
- 10) 8 x 20 MA screw nut
- 11) destemmer protective box
- 12) extension of protective box
- 13) 8 MA screw nut
- 14) loading hopper sustaining bar
- 15) 8 x 16 MA screw
- 16) AUGER feed
- 17) 6 x 20 MA screw
- 18) 6 MA screw nut
- 19) slanting auger support
- 20) stainless steel grate
- 21) 8 x 100 MA screw
- 22) engine attachment
- 23) emergency head
- 24) switch
- 25) electric engine
- 26) cable with engine switch
- 27) aluminum engine pulley
- 28) V belt
- 29) 8 x 25 MA screw
- 30) engine plate
- 31) 8 x 50 MA belt tightening pulley screw
- 32) machine case
- 33) plastic stoppers
- 34) belt
- 35) large roller gear
- 36) small roller gear
- 37) roller supports
- 38) left roller
- 39) destemmer shaft steel pulley
- 40) 8 x 16 MA dowel
- 41) crown gear
- 42) 8 x 20 MA screw
- 43) 8 MA cage nut
- 44) right roller
- 45) 8 x 16 MA dowel
- 46) roller supports
- 47) 8 MA cage nut
- 48) pinion
- 49) bearing holder support

50) 52 x 20 x 15 bearing
51) destemmer shaft
52) destemmer shaft support



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