



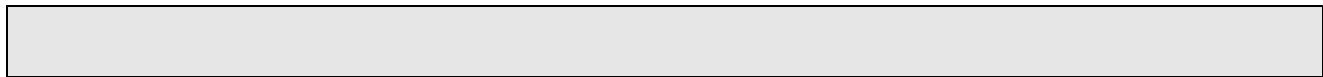
**MOTORIZED GRAPE CRUSHER-DESTEMMER WITH  
MUST PUMP**

Art. DVEP20/DVEP20I/DVEP30/DVEP30I



**INSTRUCTION, USE AND MAINTENANCE  
MANUAL**





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 our products!

GRIFO Macchine Enologiche S.n.c.



**GRIFO**

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

In capacity as manufacturer's,

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DECLARES THAT

the machine                                      **MOTORIZED GRAPE CRUSHER – DESTEMMER  
WITH MUST PUMP**

model    DVEP20, DVEP20I, DVEP30, DVEP30I

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 15<sup>th</sup> March 2002

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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–DESTEMMER AND MUST PUMP, Models DVEP20 DVEP20I, DVEP30, DVEP30I**, 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 Machine 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-DESTEMMER AND MUST PUMP Models DVEP20, DVEP20I, DVEP30, DVEP30I 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-Destemmer and Must Pump, Models DVEP20, DVEP20I, DVEP30 and DVEP30I, is a machine for processing grapes, designed and built for use in small and medium-sized wine-making companies. The centrifugal must pump moves the crushed grapes (must) to the fermenting vessel. Destemming is carried out to obtain a better quality wine. 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 – DESTEMMER AND MUST PUMP Q.20 OPENABLE (DVEP20)
- MOTORIZED STAINLESS STEEL GRAPE CRUSHER-DESTEMMER AND MUST PUMP Q. 20 OPENABLE (DVEP20I)
- MOTORIZED GRAPE CRUSHER-DESTEMMER AND MUST PUMP Q. 30 OPENABLE (DVEP30)
- MOTORIZED STAINLESS STEEL GRAPE CRUSHER-DESTEMMER AND MUST PUMP Q.30 OPENABLE (DVEP30I)

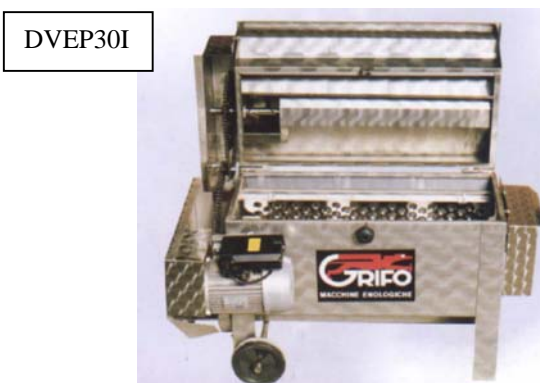
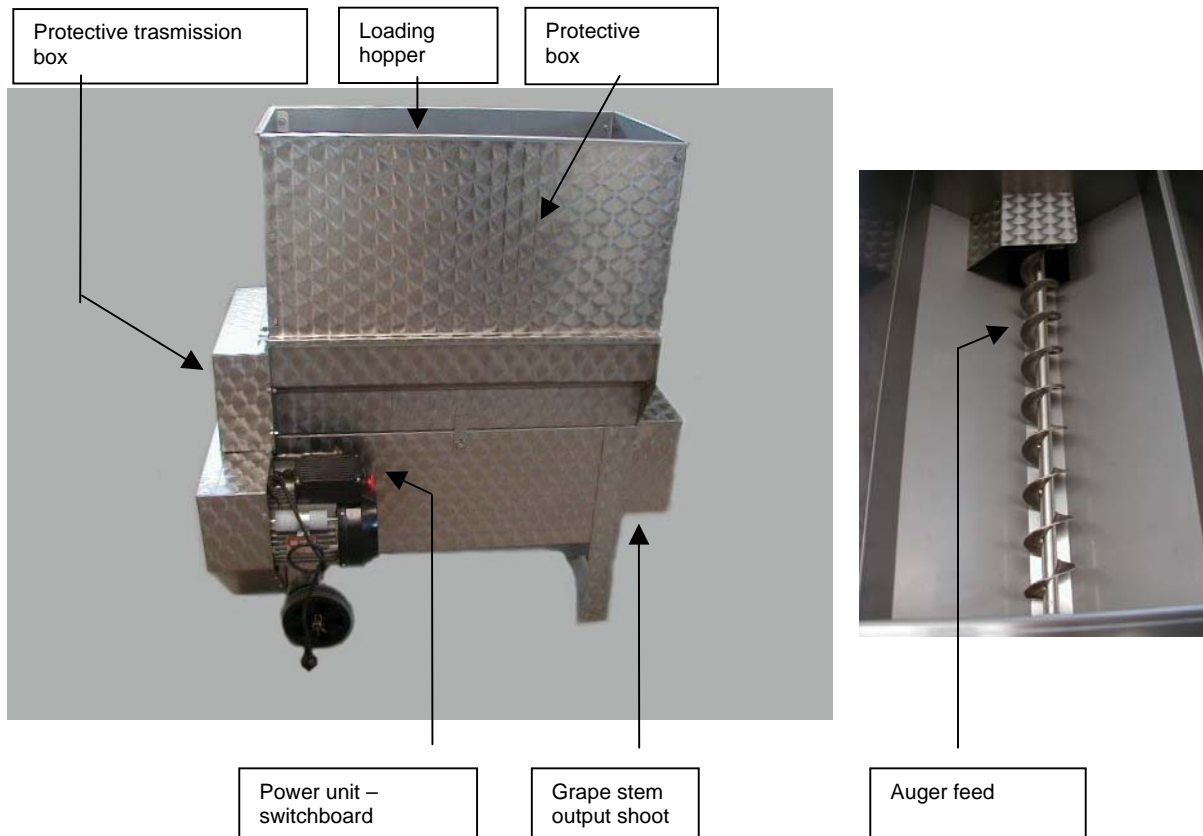


Fig. 1 Different models of the MOTORIZED GRAPE CRUSHER –DESTEMMER AND MUST PUMP

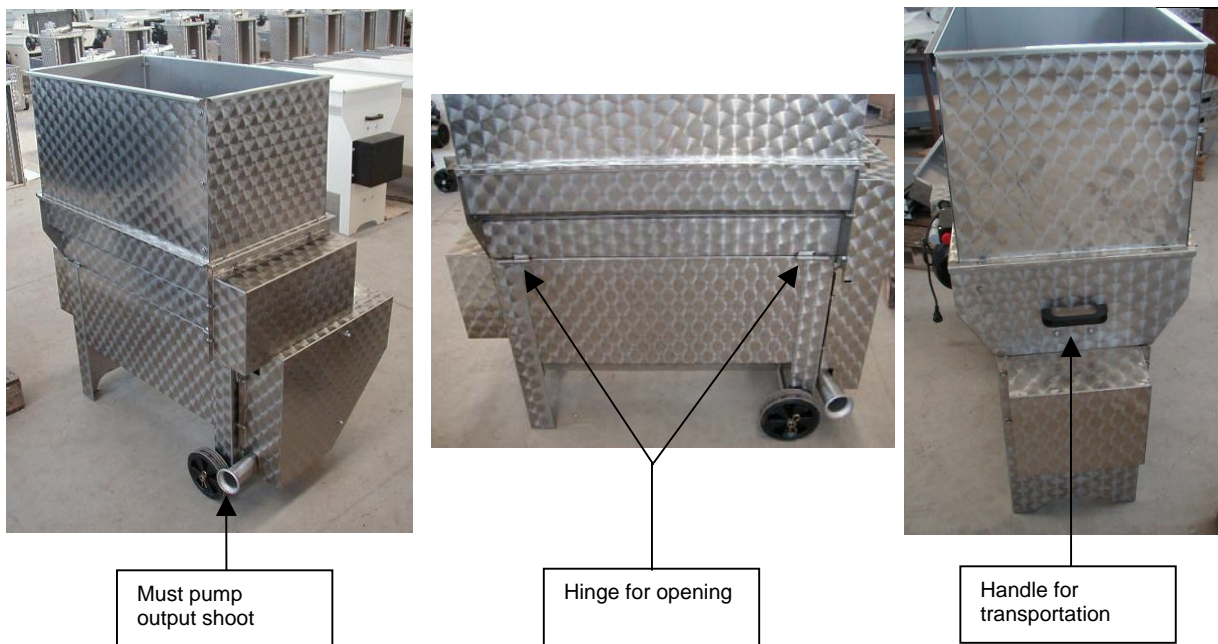


The machine consists of a loading **hopper** which contains the grapes to be destemmed. At the bottom of the loading hopper there is an auger feed that pushes the grapes towards two rollers that will crush them. It then conducts them into the lower part where, thanks to a circular movement, the destemmer 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. They are then taken by another auger feed into the centrifugal must pump that transfers them into a fermenting vessel. 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-DESTEMMER AND MUST PUMP**

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.



**Fig. 3 Main parts of the MOTORIZED GRAPE CRUSHER-DESTEMMER AND MUST PUMP**

## **2.2 Use**

The MOTORIZED GRAPE CRUSHER-DESTEMMER AND MUST PUMP, Models DVEP20, DVEP20I, DVEP30 and DVEP30I, 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
- **transfer into fermenting vessel** by means of the centrifugal must pump



**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.

		DVEP20	DVEP30
Maximum overall dimens.	Length mm	870 mm	1040 mm
	Width mm	500 mm	550 mm
	Height mm	850 mm	900 mm
Weight		75 kg	95 kg
Engine power		2 HP	2.5 HP
Hopper dimensions		500 mm	500 mm
Engine speed		1400 rpm	1400 rpm
Hourly production		2000 kg	3000 kg
Voltage and frequency		110 V - 60 Hz	110 V - 60Hz
Operatine temperature		5°C ÷ 45°C	5°C ÷ 45°C
Pump head		4 m	4 m
Pump diameter		60 mm	60 mm

**Table 1 Technical data of MOTORIZED GRAPE CRUSHER – DESTEMMER AND MUST PUMP**

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

## **2.4 Reference regulations**

The MOTORIZED GRAPE CRUSHER-DESTEMMER AND MUST PUMP, Models DVEP20, DVEP20I, DVEP30 and DVEP30I 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-DESTEMMER, Models DVEP20, DVEP20I, DVEP30 and DVEP30I, 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"> <li>- 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 placed. (par. 4.3).</li> <li>- Use safety boots with steel toe-caps.</li> </ul>
Crushing/cutting of upper limbs	<ul style="list-style-type: none"> <li>- agitator e crushing rollers</li> <li>- engine transmission gears</li> <li>- outlet hole for crushed grapes</li> </ul>	<ul style="list-style-type: none"> <li>- Stop the machine in case of intervention on the moving parts.</li> <li>- Do not remove the protective case.</li> </ul>
Muscular/skeletal injuries	- manual movement operations	- Move the machine with at least two people.
<p>Fulguration for direct or indirect contact with electric parts.</p> <p>Fire</p>	- electrical equipment	<ul style="list-style-type: none"> <li>- Regularly control the integrity of wires and make necessary replacements.</li> <li>- Protect wires and engine from humidity.</li> <li>- Carry out any maintenance work with the machine turned off.</li> <li>- Authorize only skilled personnel to work on the electrical parts.</li> <li>- Control that the voltage is the same as that indicated on the machine identification plate.</li> </ul>



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-DESTEMMER and MUST PUMP**



**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.

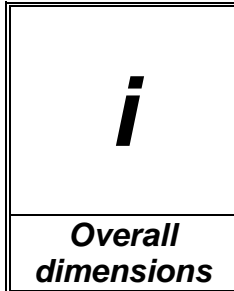


**Any tampering with parts, and in particular parts connected with the safety of the machine, will relieve the manufacturer of any civil or criminal liability in the case of accidents.**

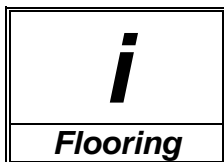
## 4 INSTALLATION

### 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 non 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 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.



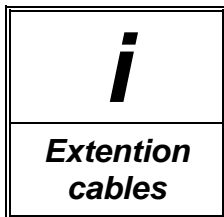
**It is obligatory to connect the machine to an earthed wall plug. The plant must be fitted with an emergency safety cut-out switch.**

**The simplicity of the connection must not make you under evaluate 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 extension 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.

#### **4.4 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 auger feed, will be taken to the lower bin where the rotating shaft separates the grapes from the bunch, destemming them. The stems exit out through the rear part of the machine while the grapes, passing through the grate, fall into a bin. There, another auger feed pushes them towards the must pump where they are transferred to the fermenting vessel.

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.

To reach the internal part it is sufficient, after removing the fixing bolt, to open the machine by rotating the upper part on the appropriate hinges.



**The opening of the machine does not inhibit its functioning. It is obligatory to disconnect the machine from the power mains before opening it.**

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 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.



**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) nylon gear
- 2) eccentric for auger feed
- 3) auger feed
- 4) auger feed support
- 5) upper case
- 6) opening hinges
- 7) A51 belt
- 8) engine pulley
- 9) 8 MA screw nut
- 10) 8 x 20 MA screws
- 11) engine support plate
- 12) electric engine
- 13) destemmer shaft support
- 14) support with bearing
- 15) destemmer shaft
- 16) stainless steel grate
- 17) auger feed pump support
- 18) auger feed
- 19) pump roter
- 20) pump gasket
- 21) stainless steel pump
- 22) pump oil seal
- 23) wheels
- 24) pump bearing
- 25) lower case
- 26) pump bearing support
- 27) pump spacer
- 28) elastic pin
- 29) pump pulley
- 30) oil seal
- 31) bearing
- 32) destemmer shaft bearing support
- 33) destemmer shaft pinion
- 34) spacer
- 35) destemmer shaft pulley
- 36) 8 x 16 MA dowel
- 37) chain
- 38) double pinion
- 39) protective box

