

# MOTORIZED GRAPE CRUSHER AND DESTEMMER

Art. DMS/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.

# **GRIFO**

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# **EC Declaration of Conformity**

(Directive 2006/42 CE, Annex II, A)

GRIFO MACCHINE ENOLOGICHE S.n.c. di Marchetti Giordano & C. Via Mantova, 1 26034 Piadena (CR) Italia

#### **DECLARES THAT**

The machine Model

MOTORIZED GRAPE CRUSHER AND DESTEMMER DMS, DMC, DMCSI, DMCI

conforms to Directives 2006/42/EC (Machines), 2006/95/EC (Low-voltage) and 2004/108/EEC (Electromagnetic Compatibility);

conforms to the standards EN 953, EN 13850, EN 60204-1.

Name and address of the person authorised to compile the technical file:

Giordano Marchetti Via Mantova, 1 26034 Piadena (CR) Italia

Identity and signature of the person empowered to draw up the declaration on behalf of the manufacturer

#### Rosa Busi

Place and date of the declaration

Piadena (CR), 17 febbraio 2012

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#### 1. INTRODUCTION

#### 1.1 Contents

This manual contains a description of the technical characteristics and functioning of the MOTORIZED GRAPE CRUSHER AND DESTEMMER, Mod. DMS, 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 Consegnes and conservation of the manual

This publication refers to use, transport, installation and manteinance operator.

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.

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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

## 1.3 Responsability

The guarantee of the well functioning and full conformity performance of the machine to its forseen 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

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 personne



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

#### 1.4 Manual update

This manuali Is an integral part of the machine.

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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 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.

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# 2. MACHINE DETAILS

## 2.1 Machine description and functioning

MOTORIZED GRAPE CRUSHER MACHINE AND DESTEMMER, Models DMS, 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, painted steel or stainless steel; the names in the manual of the models are as follows:

GRAPE CRUSHER AND DESTEMMER (DMS)



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• GRAPE CRUSHER AND DESTEMMER (DMC)



• SEMI STAINLESS STEEL GRAPE CRUSHER AND DESTEMMER (DMCSI)



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# STAINLESS STEEL GRAPE CRUSHER AND DESTEMMER (DMCI)



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.

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Fig. 1 Main parts of the MOTORIZED GRAPE CRUSHER AND DESTEMMER

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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 Correct use

The MOTORIZED GRAPE CRUSHER AND DESTEMMER, Mod. DMS, 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 Directives and standards

The MOTORIZED GRAPE CRUSHER AND DESTEMMER, Mod. DMS, DMC, DMCSI, DMCI is designed and manufactured according to European Directives 2006/42 CE (Machines), 2006/95/CE (Low voltage), 2004/108/CE (Electromagnetical Compatibility) and according to standards EN 953, EN 13850, EN 60204-1.

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# 2.4 Technical informations

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	220 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

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#### 3. SAFETY

#### 3.1 General informations

Within the obbligation of information and training of workers forseen by current legislation, the company employer, management and the authorised users operating the MOTORIZED GRAPE CRUSHER AND DESTEMMER Model DMS, DMC, DMCSI, DMCI must supply personnel who will carry out operations of installation, use and maintanence 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 esclusively in its original configuration.

#### 3.2 Risks and preventive measures

The machine is designed to eliminate or reduce the risks for the people who will use it. The preventive measures for a safe use of the machine are the following:

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# Machine falling



- 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.

## **Moving parts**



- Stop the machine in case of intervention on the moving parts.
- Do not remove the protective case.



Fig. 2 Hazardous moving parts

# **Machine moving**



- Move the machine with at least two people.

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# **Electrical equipment**



- 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.

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.

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#### 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 70 cm from any type of fixed obstacle (walls, columns, walkways) to allow the operator to move without impediments. Check that the forseen 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 does not accept any responsibility for damages from transport. The goods are supplied ex-factory.

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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 Enalogiche 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 DMS, 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).

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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.

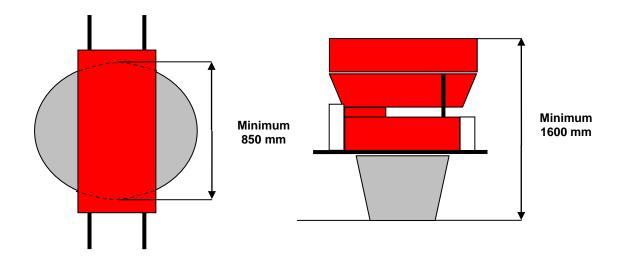


Fig. 3 Dimensional limits in the positioning

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.



For your safety, put the protective case as shown.

#### 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.

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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.

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## 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

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

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grapes into the hopper that, by means of the agitator, will be taken to the rollers where the crushing takes place.



Fig. 4 Controls

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.

#### 5.3 Instructions in case of blocking

If the machine is correctly used, the power of the electric motori is enough to prevent any blocking. Anyway, in case of blocking it's necessary to remove its cause.

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Before doing any attempt to remove materials that could be the cause of the blocking, you must disconnect the machine. Use gloves.

# 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

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#### 6. MAINTENANCE

# 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.



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.



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)

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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 dissemble 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.

#### 6.2 Demolition

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.

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# 7. ATTACHMENTS (drawings and components)

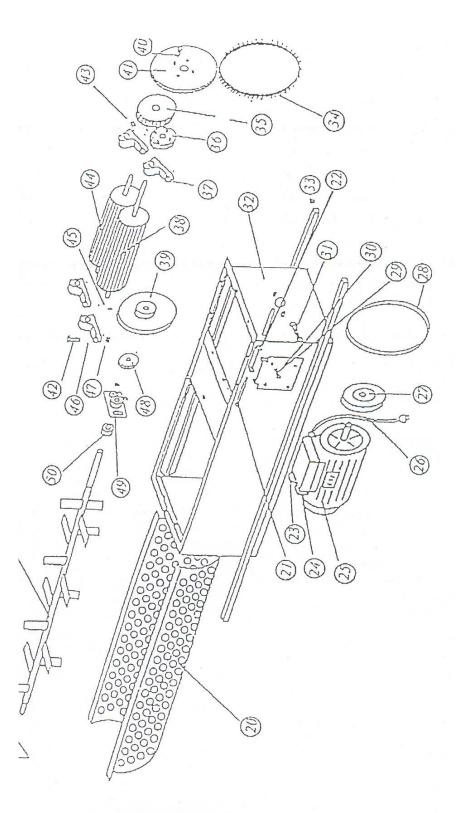
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# 7) SPARE PARTS

- 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 nut
- 44) right roller

- 45) 8 x 16 MA dowel
- 46) roller supports
- 47) 8 MA 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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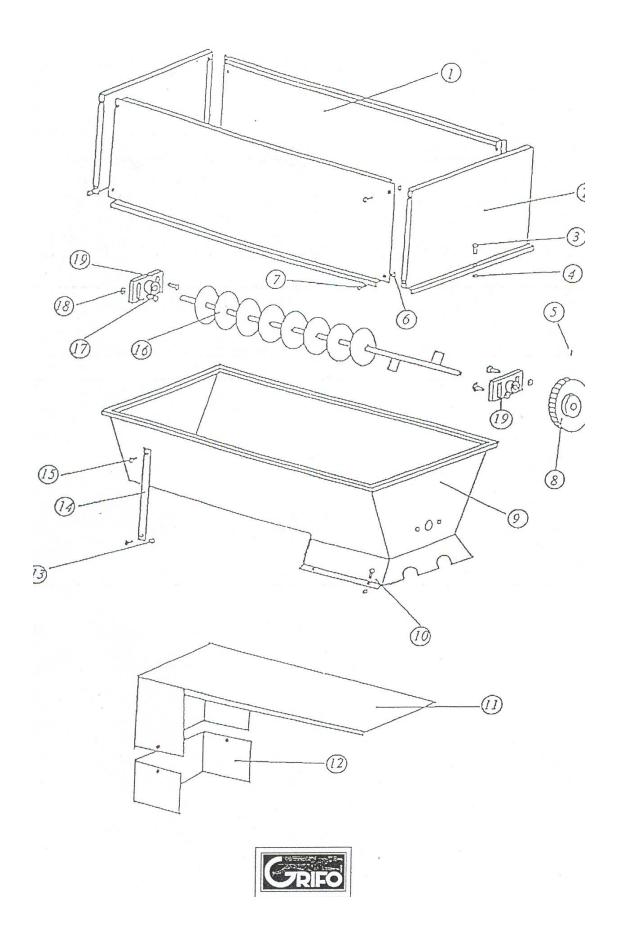




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