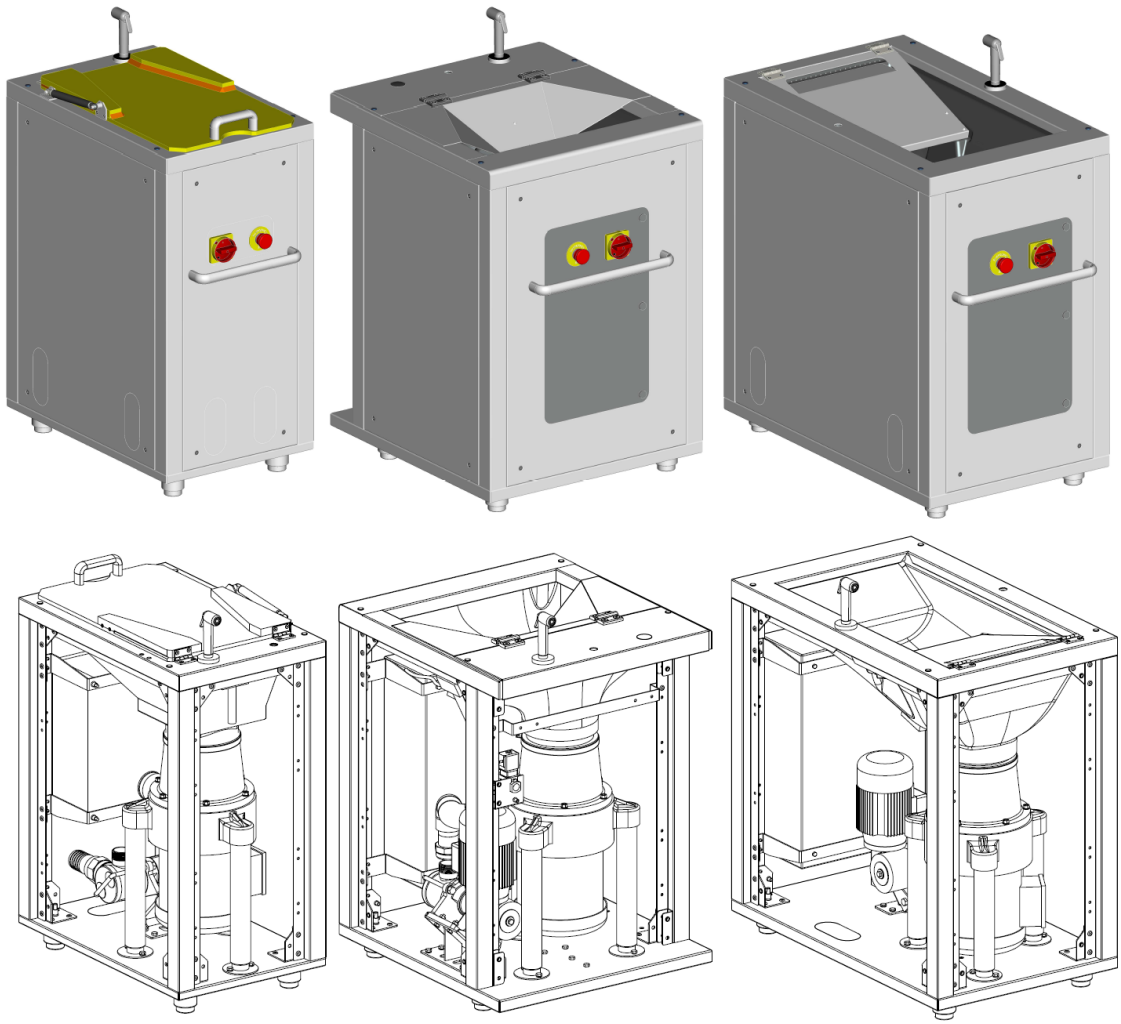
FREE STANDING UNITS

CE



USE AND MAINTENANCE MANUAL

Name of the Unit:

FREE STANDING UNIT

Model: _____
*Serial Number:*_____

USE AND MAINTENANCE MANUAL

Release: May 2012
Review: 00

Manufacturer:	ECOFAST ITALIA S.R.L.
Address:	Piazza Franco Martelli, 5 – 20162 Milano (MI) Italy
Phone:	(+39) 0 2 6 6 1 1 1 6 1 8
Fax:	(+39) 0 2 6 6 1 1 2 0 0 0
Email:	INFO@ECOFAST.EU

INDEX

Chapter 1 General Information ..... - 1 -

1.1. GENERAL DATA ..... - 1 -

1.2. PROPERTY OF INFORMATION ..... - 3 -

1.3. CONTENTS ..... - 4 -

1.4. CONVENTIONS AND DEFINITIONS ..... - 7 -

1.4.1. General information ..... - 7 -

1.4.2. Terminology conventions ..... - 7 -

1.4.3. Definitions ..... - 7 -

1.4.2. Personal means of protection and rules of behaviour ..... - 9 -

1.4.3. State of the MACHINE ..... - 9 -

1.4.4. Typography conventions ..... - 9 -

1.5. GUARANTEE ..... - 12 -

1.6. ASSISTANCE ..... - 13 -

1.6.1. Request for Assistance Interventions ..... - 13 -

Chapter 2 Description of the machine ..... - 14 -

2.1.1 Working principles ..... - 15 -

Chapter 3 ..... - 16 -

Safety and Technical Data ..... - 16 -

3.1. GENERAL INFORMATION ABOUT SAFETY ..... - 16 -

3.1.1. Design criteria ..... - 16 -

3.1. DEVICES AND SOLUTIONS FOR PROTECTION ..... - 17 -

3.1.2. Safety devices ..... - 17 -

3.3 WARNINGS CONCERNING RESIDUAL RISKS ..... - 19 -

3.3.1 Lifting and transport ..... - 19 -

3.3.1.1. necessary individual means of protection ..... - 19 -

3.3.1.2 precautions to be taken during the phases of lifting and transport ..... - 19 -

3.3.2 . Installation and connection ..... - 20 -

3.3.2.1. necessary individual means of protection ..... - 20 -

3.3.2.2. precautions to be taken during the phases of installation and connection ..... - 20 -

3.3.2.3. signage ..... - 20 -

3.3.3 Use and cleaning ..... - 21 -

3.3.3.1. necessary individual means of protection ..... - 21 -
3.3.3.2 Signage ..... - 21 -
3.3.3.3 precautions to be taken during the phases of use and cleaning ..... - 21 -
3.3.4 Maintenance and demolition ..... *- 21 -*
3.3.4.1. Residual risks ..... - 21 -
3.3.4.2 necessary individual means of protection ..... - 22 -
3.3.4.3 Signage ..... - 22 -
3.3.4.4 precautions to be taken during the phases of maintenance and demolition ..... - 22 -
3.3.5 Indications concerning Safety ..... *- 23 -*
3.4 EMPLACEMENT OF OPERATOR ..... - 24 -
3.5 INDICATIONS ON NOISE ..... - 24 -
3.5.1 Noise ..... *- 24 -*
3.6 Proper and Improper use of the machine ..... *- 24 -*
3.6.1 Warnings and General Rules of Behaviour ..... *- 25 -*
3.7 DATA AND TECHNICAL FEATURES OF THE MACHINE ..... - 27 -
3.7.1 Identification plate ..... *- 27 -*
3.8 TECHNICAL DATA AND OVERALL SIZES ..... - 28 -
Chapter 4 Transport and installation ..... - 30 -
4.1. GENERAL INFORMATION ..... - 30 -
4.1.1. Environmental conditions of the installation place ..... *- 30 -*
4.1.2. Minimum room for installation of the machine ..... *- 30 -*
4.2. TRANSPORT AND HANDLING ..... - 30 -
4.2.1. Unloading and unpacking ..... *- 30 -*
4.3. INSTALLATION ..... - 31 -
4.3.1. Connection to the mains electricity supply ..... *- 31 -*
4.3.2. Connection to the water supply ..... *- 31 -*
4.3.3. Connection to mains drainage ..... *- 32 -*
4.3.4. Connection to the overflow ..... *- 32 -*
4.4. STORAGE ..... - 32 -
4.4.1. Uninstalling ..... *- 32 -*
Chapter 5 Fine tuning ..... - 33 -
5.1 FINE TUNING OF THE MACHINE ..... - 33 -
5.5.1 Fine tuning ..... *- 33 -*
Chapter 6 Use of the machine ..... - 34 -

6.1. MACHINE STARTING ..... - 34 -
6.1.1. Start/ Stop Sequences ..... *- 34 -*
6.2. CONTROLS AND SETTINGS ..... - 35 -
6.2.1 Safety device control ..... *- 35 -*
6.2.2 Anomalous situations and alerts ..... *- 36 -*
6.3. START/STOP PROCEDURE ..... - 39 -
6.3.1. Start ..... *- 39 -*
6.3.2. Stop ..... *- 39 -*
6.3.3. Emergency stop ..... *- 39 -*
Chapter 7 Maintenance ..... - 41 -
7.1. GENERAL INFORMATION ..... - 41 -
7.1.1. Indications concerning safety ..... *- 42 -*
7.2. CLEANING ..... - 43 -
7.2.1. Hopper and pipes cleaning ..... *- 43 -*
7.3. ROUTINE AND EMERGENCY MAINTENANCE OPERATIONS ..... - 43 -
Routine and emergency maintenance are in charge to the assigned staff, authorized by the seller. The user must only clean as described in chapter 7.2.1 and check the safety devices as described in chapter 6.2.1 ..... *- 43 -*
7.4. Clogging, obstruction ..... *- 43 -*
7.5. Operative instructions plastic coated, on machine side ..... *- 45 -*
Chapter 8 Machine demolition and disposal ..... - 46 -
8.1 SHUT DOWN, DISASSEMBLY AND DEMOLITION ..... - 46 -
8.1.1 Shut down of the machine ..... *- 46 -*
Chapter 9 Failure search ..... - 49 -
9.1 Failures and malfunctions ..... *- 49 -*
Chapter 10 List of spare parts ..... - 50 -
10.2 MACHINE'S MAIN PARTS PICTURE ..... - 50 -
Chapter 11 Mechanical drawings ..... - 51 -
Chapter 12 Electrical drawings ..... - 52 -
Chapter 13 Technical Documentation useful for maintenance . - 53 -

Chapter 1
General Information

1.1. General data

This Use and Maintenance Manual is an integral part of the FREE STANDING UNIT (identified, in the Present Document, by the term MACHINE) made by ECOFAST ITALIA S.R.L.; for such a reason it has to accompany the MACHINE in the case it should be transferred to a new user or owner.

This manual has to be kept with care and protected from any agent which could deteriorate it, for all the life cycle of the MACHINE.

This manual has been compiled with the purpose of providing the operators and the technicians in charge of the use and maintenance of the MACHINE with the information and the instructions essential to operate correctly and in conditions of safety

ATTENTION: *having to be of easy and immediate consultation, the present manual has to be kept in a known and accessible place.*

This manual contains all the data and information necessary for carrying out the preliminary training of the staff in charge of managing the MACHINE correctly; it is imperative it be used to this end.

DANGER: ***for reasons of clarity, some of the illustrations of this manual show the machine and its components open or dismantled; it is forbidden, however, to use the machine in these conditions.***

While highlighting all the warnings and the precautions for a correct use of the MACHINE by the operators or to allow the staff in charge of the machine to intervene correctly, this manual presupposes that, in the environments in which the MACHINE has been installed, the current rules and regulations concerning safety and hygiene are observed and that the staff in charge of operation

and maintenance have a level of instruction which enables them to understand correctly the information given.

NOTE: ***the User may request a copy of the present document for example, in the case of damage of the original document) by means of a written request to the Technical Office of the Manufacturer (see* Paragraph 1.6.1 – Request for Assistance Interventions of the Present Chapter*), ensuring, however, that the damaged copy is returned.***

1.2. Property of information

This Use and Maintenance Manual contains information of reserved property. All rights are reserved.

This manual may not be reproduced or photocopied, in its entirety or in part, without the prior written authorization of the Manufacturer. Use of this documentary material is allowed only to the client to whom the manual has been supplied together with the machine and only for reasons of installation, use and maintenance of the machine to which the manual refers.

The Manufacturer declares that the information contained in this manual is congruent with the technical and safety specifications of the machine to which the manual refers. The drawings, the diagrams and the technical data given have been updated to the date of publication of this document and are valid exclusively for the machine to which they have been attached.

The manufacturer reserves the right to modify or improve this documentary material without forewarning.

The Manufacturer is not to be held responsible in any way for direct or indirect damage to the people, things or domestic animals resulting from a use of the machine in conditions different from those foreseen.

1.3. Contents

This manual, in fact, contains, as well as a functional description of the MACHINE and of its principal parts, the instructions and the indications for:

- ttransporting and installing the machine correctly;
- uusing the machine correctly;
- ccarrying out correct cleaning, adjustment and maintenance operations on the machine;
- oobserving the basic rules of safety and prevention of accidents at work.

The above mentioned staff will be able to know about with both the potential of the MACHINE and the problems which may occur during its management.

It is necessary to read all the chapters attentively to understand the indications provided in this manual and to operate the MACHINE; for a further and more user friendly contents search please refer to *Table 1*, which contains a description of the topics dealt with in the chapters.

.Table 1 – Structure of the Use and Maintenance Manual

CHAPTER	CONTENTS	ADDRESSEES
Chapter 1 General information	- Ddescription of the present Use and Maintenance manual, of its structure and of the conventions used; - Ddefinitions of the terms used; - Ddefinition of the relationship between the Manufacturer and the Purchaser/User (in terms of **conditions of guarantee and assistance**).	All staff in charge of the machine.
Chapter 2 Description of the machine	- Ddescription of the machine and of the functional process.	All staff in charge of the machine.
Chapter 3 Safety and Technical Data	- Ggeneral indications on the machine, on the solutions to be adopted for the protection of the operating staff, on the **generic warnings to be observed for a correct use** and on the residual risks present during the phases of life of the machine; - Ddescription of the principal **technical data** concerning the machine	All staff in charge of the machine (in particular, the electrical and mechanical maintenance workers and those in charge of handling).

CHAPTER	CONTENTS	ADDRESSEES
Chapter 4 Transport and Installation	↳ Ddescription of the necessary requisites for the **place of installation**; ↳ Ddescription of the **lifting and transport** procedure of the parts which constitute the MACHINE; ↳ Ddescription of the procedure for connecting to power supplies and services; ↳ Ddescription of the procedure for **storage** of the machine	All staff in charge of the machine (in particular, the electrical and mechanical maintenance workers, the technicians of the Manufacturer and those in charge of handling).
Chapter 5 Fine tuning	↳ Iinstructions for the **fine tuning** of the machine	All staff in charge of the machine.
Chapter 6 Use of the machine	↳ Ddescription of the procedures to follow for the **start up and use** of the machine.	All staff in charge of the machine.
Chapter 7 Machine maintenance	↳ Ddescription of the **checking and co**ntrol procedures for the parts and the components of the machine (in particular the parts most subject to wear); ↳ Ddescription of the procedures which enable staff to **clean** the machine.	All staff in charge of the machine (in particular, the electrical and mechanical maintenance workers, the technicians of the Manufacturer and those in charge of handling).
Chapter 8 Demolition	↳ Iindications for carrying out the **disassembly and the demolition** of the machine.	All staff in charge of the machine (in particular, the electrical and mechanical maintenance workers, the technicians of the Manufacturer and those in charge of handling).
Chapter 9 Failure search	↳ Iindications concerning the search for the causes of **failure and malfunctions** which the machine	All staff in charge of the machine

CHAPTER	CONTENTS	ADDRESSEES
	could present	
Chapter 10 List of spare parts	➢ **Llist of spare parts** of the machine	All staff in charge of the machine (in particular, the electrical and mechanical maintenance workers and the technicians of the Manufacturer).
Chapter 11 Mechanical drawings	➢ **Mtechanical drawings** of the machine	All staff in charge of the machine.
Chapter 12 electrical drawings	➢ **Ddiagrams and documents** inherent to the electrical part of the machine	All staff in charge of the machine.
Chapter 13 Documentation of components useful for maintenance	➢ Ccollection of instruction manuals of the principal components present on the machine	All staff in charge of the machine.

1.4. Conventions and definitions

1.4.1. General information

The Use and Maintenance Manual of the MACHINE has been divided into chapters which, for each principal phase of the life of the MACHINE (transport, installation, use, adjustment, maintenance and shut down), permit the necessary information to be found more easily by the user of the MACHINE.

The entire documentation relative to the machine has been compiled developing the themes indicated by the Machines Directive (2006/42/EC) and by the existing Rules and Regulations; therefore, it is indispensable *to read all of the relative manual* in order to obtain from the machine the best performance and to ensure the maximum duration of all the organs.

The configuration of some organs or devices described or shown may differ from that with which the MACHINE is provided in the specific set up carried out according to particular requirements or safety standards; in such case, some descriptions, references or procedures advised may have a generic character while still maintaining their efficiency. The use of tools or special equipment provided with the MACHINE is strictly tied to the specific characteristics and to the existing safety standards in each country. Dimensioned drawings and photographs are provided for explanatory purposes as a reference for an easier understanding of the text.

1.4.2. Terminology conventions

MACHINE : is the term used in the present Use and Maintenance Manual to indicate the FREE STANDING UNIT.

IMP: is the acronym which indicates the Individual Means of Protection.

1.4.3. Definitions

DANGER ZONE

Any ZONE inside or in proximity of the machine, in which the presence of a person exposed, constitutes a risk for the safety and health of that person.

USER

Any PERSON (entrepreneur/enterprise) who uses the machine adequately or who entrusts its use and the operations connected to its use to prepared people.

EXPOSED PERSON

Any PERSON who is entirely or in part in a danger zone or in proximity of such a zone.

OPERATOR

Personnel, generally without specific competences, who carries out the operations necessary to run the machine and the cleaning of the machine and of the place where it is installed, if necessary they may carry out simple adjustment or start up operations on the machine.

MECHANICAL MAINTENANCE WORKER

A QUALIFIED TECHNICIAN who may intervene on any mechanical organ to carry out the adjustments, the repairs and the necessary maintenance interventions.

The mechanical maintenance worker has to have sufficient experience in the field of pneumatics, hydraulics and of the technique of control; typically he or she is not qualified to carry out interventions on electrical plants in the presence of tension.

ELECTRICAL MAINTENANCE WORKER

A QUALIFIED TECHNICIAN who is responsible for all the interventions of an electrical nature (regulating, maintenance and repairs) and, when necessary, he or she operates in the presence of tension inside the electrical boxes and of the connector blocks.

HANDLER

QUALIFIED PERSONNEL who carries out tasks of handling the machine or the materials used should the operation require the use of lifting devices.

TECHNICIAN OF THE MANUFACTURER

A QUALIFIED TECHNICIAN made available by the Manufacturer of the machine to carry out operations of a complex nature in particular situations or, anyway, when agreed with the user.

1.4.2. Personal means of protection and rules of behaviour

For each of the operations described in the present manual, means of protection are indicated which are to be used by the staff in charge (if necessary in addition to those that the staff have to wear in the place of installation of the MACHINE) and the rules of behaviour to be observed to ensure the safeguard of the operators themselves.

NOTE: Paragraph 3.6.1 – Warnings and General Rules of Behaviour of Chapter 3 – Safety and Technical Data *gives, in particular, a series of general recommendations to be respected to avoid conditions of risk to people or damage to the machine.*

1.4.3. State of the MACHINE

The *State* of the machine is the characteristic which describes both the operational procedure.(for example, running, stopping), and the safety conditions present (for example, aprons included, aprons excluded, cutting off from the electricity supply).

1.4.4. Typography conventions

The graphic lay out of the present Use and Maintenance Manual is such as to permit an *easy recognition of the contents*; in this optic, for example, the instructions are associated with lists, as shown below:

- this symbol identifies a generic list of points or a list of points formed by simple actions (the order in which the actions are presented is not binding, but advisable);

1. in this way an explanatory numbered list is identified for a complex procedure (the order in which the actions are presented is binding for the correct and safe performance of the intervention in question).

Text in italics is used in, particular, for:

- the cross referencing used in this manual is expressed in the following way: “Paragraph/Figure/Table” with the number and, generally, the specification “of the Chapter” with the number and the relative denomination (when it is not specified it is understood that the paragraph, the table or the figure belong to the current Chapter);
- the technical and specialized technical terms, the first time they appear in the text;
- the terms in a foreign language of not common use (also, usually, only the first time they appear in the text).

BThe **bold** text is used to highlight words, sentences or parts of procedure.

- IIn the description of the machine, its components, its use and its maintenance, explanatory figures are used of the portion in question and on it, the specific points of interest are identified, with the following wording:
-

number	Symbolic representation of a command or signaling device (for example, switch, selector or pilot light).
letter **or** number	Symbolic representation of a part of the MACHINE.

-
- WWhat is more, to guarantee a more in depth knowledge of the machine and of the indications for a safe and correct use, the text of the present Use and Maintenance Manual is supplied with indications which complete it, providing supplementary information, indispensable precautions or particularly significant dangers to be considered; the following notation is then used:

NOTE: *indicates the notes, the warnings, the suggestions and other points to which the attention of the reader is to be drawn or it completes the explanation with further information.*

ATTENTION: *indicates situations or operations in which there is the possibility of damaging the machine, the apparatus connected to it or the environment.*

DANGER: ***indicates situations or operations which it is compulsory to carry out or the information to which particular attention has to be paid to avoid damage to people.***

GRAPHIC SYMBOLS USED TO INDICATE THE NECESSITY FOR INDIVIDUAL MEANS OF PROTECTION

In this paragraph the graphic symbols are indicated which are used in the present manual to indicate the need to wear determined IMP.

Indicates the need to use a protection for the head suitable to carry out the operation described.

Indicates the need to use protective gloves suitable to carry out the operation described (if necessary dielectric gloves for performing interventions on the electrical plant).

Indicates the need to use protective clothing suitable to carry out the operation described.

Indicates the need to use anti-accident shoes suitable to carry out the operation described.

1.5. Guarantee

The Manufacturer, ECOFAST ITALIA S.R.L., guarantees the MODULAR AND REMOTE DE-WATERING SYSTEM and the different FREE STANDING UNITS, or the MACHINES, produced by the same Manufacturer, are free from defects of material or machining, for a period of twelve months from the date of installation.

During the guarantee period, the Manufacturer undertakes to remove within the required time the evident defects of material or machining in the case of malfunction or breakages; that is on condition the machine has been assembled with the assistance of the technicians of the Manufacturer and that it has been used correctly in compliance with the best rules of behavior and maintenance indicated in this manual.

The defective parts under guarantee will be repaired or replaced for free by the Manufacturer, if proven that the defects already existed.

Transport or shipping costs, if not otherwise stated in the contract of sale, as well as the travelling expenses relative to the intervention of the technicians of the Manufacturer to the premises of the User are at the expense of the user

For the construction of the machine, the Manufacturer uses materials, organs and mechanisms of a type, state and quality, which are retained to be, in his unquestionable opinion, suitable for the function the machine has to carry out; the Manufacturer, in carrying out a policy of constant development and updating of the product, reserves the right to modify both the functional characteristics and the aesthetic ones, to alter the design of whatsoever functional organ or accessory, or to stop the production and the supply without undertaking to inform of this without any obligation. What is more, ECOFAST ITALIA S.R.L. reserves the right to carry out any structural or functional modification, as well as modifying the supply of spare parts and accessories without being under obligation to communicate this to whosoever for whatever reason.

The Manufacturer, ECOFAST ITALIA S.R.L., although providing general information about the best execution of the electrical and water connections, is not responsible in any way of the execution of the same or of any direct or indirect damages related to them, by reason of the fact that these information are provided for only information purpose, and they want to get the best performance in the use of the MACHINES.

In addition, the Manufacturer ECOFAST ITALIA S.R.L., not being able to perform any checks on power lines, hydraulic lines and masonry, as well as not being liable for the realization of the same, reserves the right to disconnect the MACHINES, if these connections should be prejudicial to the proper functioning and / or use of the MACHINES.

1.6. Assistance

As concerns the maximum exploitation of the performance provided by the machine and the operations of extraordinary maintenance, this manual does not replace the experience of installers, users and maintenance staff both qualified and trained.

In this case, the Technical Assistance Service of ECOFAST ITALIA S.R.L. provides:

- Telephone support for the characteristics and the most simple interventions to be carried out on the machine;
- The sending of documentary material;
- Interventions of training of the User's staff in charge of the MACHINE;
  - Interventions to modify the machine (only on request).

ATTENTION: *in case of doubts on the correct interpretation of the instructions given in the present Use and Maintenance Manual, call the Technical Assistance Service (as shown below) to obtain the NECESSARY clarifications.*

1.6.1. Request for Assistance Interventions

To contact the Technical Service of the Manufacturer, please refer to:

ECOFAST ITALIA SERVICE DEPARTMENT

Piazza Franco Martelli, 5

20162 Milano (MI) – ITALY

Phone: (+39) 02 66111618

Fax: (+39) 02 66112000

Email: INFO@ECOFAST.EU

During the requests for assistance interventions specify the name and the model of the machine.

Chapter 2
Description of the machine

2.1 Machine description

The machine is a system designed for grinding food waste produced in commercial kitchens with the following targets:

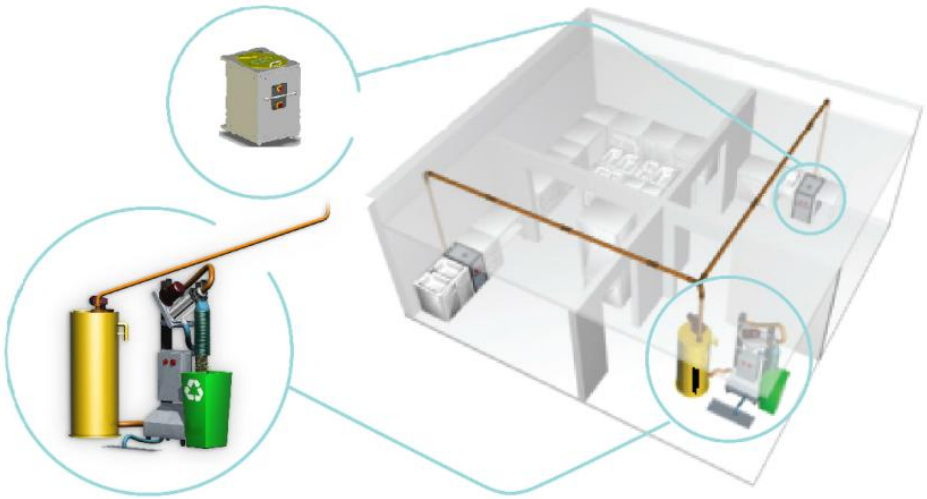
- To minimize the labour cost in the food waste management and more in general, to improve the efficiency of the work and internal management;
- To be in compliance with HACCP sanitary rules and regulations;
- To perform a real separate collection of the organic fraction.

The unit is made up by a stainless steel cabinet containing a commercial food waste disposer fitted with a proper design "intake hopper" to feed food waste inside the disposer and an electrical control panel which runs the whole unit by means of a suitable PLC working software which informs the operator about any possible failures or malfunctions of the unit.

To ensure safety inside the disposer's upper housing, there are no blades but a turntable (rotor) with impact bars which shatter food waste, conveyed by centrifugal force, towards a grinding ring located at the outside edge of the rotor.

All the free-standing units are fitted with a passive safety system, made up by the particular design of the intake hopper and the cabinet's lid which prevents the access to the moving parts of the disposer while in use, and an active safety reed device which stops the disposers in case of accidental opening of the cabinet's lid.

The machine is predisposed to be connected, by means of appropriate tubes to other free standing disposal units (continuous cycle and/or batch cycle) themselves connected to a storage tank and to a dehydration unit, *(for more details see the use and maintenance manuals relative to the tank and dehydration unit).*



2.1.1 Working principles

Once the food waste has been ground, it is sent to a storage tank, by means of a dedicate drainage line, and then to the de-water unit which physically carries out the hydro-extracting activity, separating the liquid from the ground waste.

While the watery component goes into the sewage system, the solid component (food waste), drastically reduced in weight (by about 50%) and volume (by about 80%) and, therefore, with reduced fermentation, may easily be stored and recycled for a possible re-use.

An electrical panel placed inside the steel cabinet controls and manages by means of PLC all the functioning cycles, automatically; the display of the PLC (inside the panel) indicates to the operator any failure and/or malfunction of the machine. The same information are reported on the control panel by specific flashings of the yellow alarm light

The parameters of the operation (cycle and phases) may be modified, exclusively by the manufacturer, in a simple and fast way intervening on the software of the PLC.

The running of the machine is carried out by the operator by pressing the only button switch on the panel which, in function of the work cycle, acts as a start/stop switch.

The operational procedure is clearly described in chapters 6 and 7 " Use and Maintenance of the Machine", while in chapter 7.5 are available the " Operational Instructions" which, printed and plasticized, have to be affixed to the side of the machine so that they may be consulted by the operator(s).

Chapter 3

Safety and Technical Data

3.1. General information about safety

3.1.1. Design criteria

For the design of the machine have been adopted the principles and the concepts which are introduced by the pertinent paragraphs on the rules and regulations indicated in *Table 2*.

Table 2 – Principle harmonized rules and regulations used for the design of the machine

RULES AND REGULATIONS	TITLE
UNI EN ISO 12100-1: 2005	Safety of the machinery – Fundamental concepts, general principles of design - Part 1: Basic terminology, methodology
UNI EN ISO 12100-2: 2005	Safety of the machinery – Fundamental concepts, general principles of design- Part 2: Technical principles
UNI EN ISO 14121-1: 2007	Safety of machinery – Evaluation of risk – Part 1: principles
UNI EN 954-1: 1998	Safety of the machinery – Parts of the command system connected to safety. General design principles
UNI EN ISO 13857: 2008	Safety of the machinery – Safety distances to prevent the upper and lower limbs from reaching dangerous zones
UNI EN 349:2008	Safety of the machinery – Minimum distances to avoid crushing of parts of the human body
UNI EN 953: 2009	Safety of the machinery – Protection guards – General requisites for the design and construction of fixed and mobile protection guards
CEI EN 60204-1: 2006	Safety of the machinery – Electrical equipping of the machines - Part 1: General rules

The compliance of the pertinent paragraphs of the above mentioned harmonized rules and regulations has permitted the elimination or reduction of the risks in the best way possible, equally during normal function and during the adjustment and maintenance operations, for all the life cycle of the machine.

The components used have been accurately chosen amongst those available on the market and the materials which make up the machine (and the accessory instruments) are devoid of risks for the health and integrity of the person. All parts provided by third parties are marked EC (when foreseen) and conform to the relative directives of reference. All the particulars have been strictly controlled in conformity with the standards of quality as prescribed by the current rules and regulations.

What is more, the necessary measures of warning and protection concerning residual risks have been adopted for the machine (see *Paragraph 3.3 – Warnings concerning Residual Risk)*.

3.1. Devices and solutions for protection

3.1.2. Safety devices

The Safety Devices of the MACHINE have been selected, designed, built and installed according to the actual risks; the designers have taken note of the Essential Safety Requirements and of the regulations regarding:

- the general principles concerning the safety of the machinery;
- the design and construction of safety mechanisms;
- the safe distances required to prevent reaching dangerous areas with upper limbs;

This MACHINE is provided with a set of safety devices of **fixed and movable interlock**.

The **Fixed** devices are installed to increase the level of safety provided by the MACHINE meeting the requirements listed below.

They are firmly fixed to the metal structure of the MACHINE.

They are set so that their removal is only possible with special tools (or because they are welded or fixed by means of appropriate fasteners, such as, for example, screws or bolts) and in this way, the operator must act intentionally, using special tools, to remove these devices from the UNIT.

Where possible, these devices will not stay in place without their fixings.

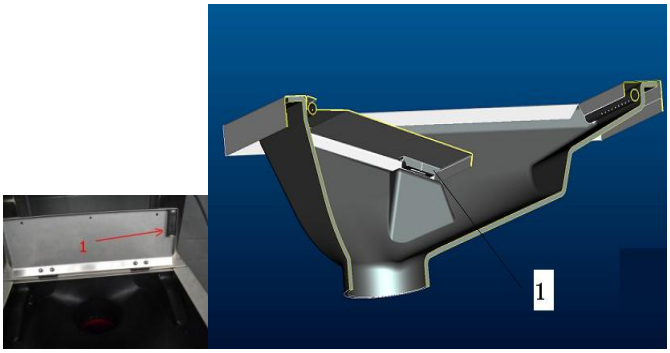
Figure A

The machine has a **removable safety device** (hopper lid) close to the heavy duty disposer, where the food waste is introduced to the feed hopper.

The removable device is equipped with a magnetic micro-switch (1):

The opening of hopper lid immediately stops the disposer.

Figure A



With regard to the risks related to the moving parts existing on the MACHINE, it must be noted as indicated below:

Wherever there exists the danger of cutting and/or of sectioning and/or entanglement, the rotating part of the grinder (grinding system (1) in figure B) are inside the structure in cast iron of the disposer which is housed in the metal cabinet of the machine.

Both the body of the disposer and the metal parts of the machine are assembled in such a way that their removal is possible only using special tools.

The possibility of reaching the rotating part is prevented by the presence of the protective hopper lid: in fact, it is impossible to reach the rotating part with an upper limb as required by the rules and regulations **UNI EN ISO 13857**.

The machine presents a **removable safety device** (hopper lid) close to the heavy duty disposer, where the food waste is introduced to the feed hopper.

The removable safety device is equipped with a magnetic micro-switch (1):

The opening of hopper lid entails the immediate stop of the disposer.

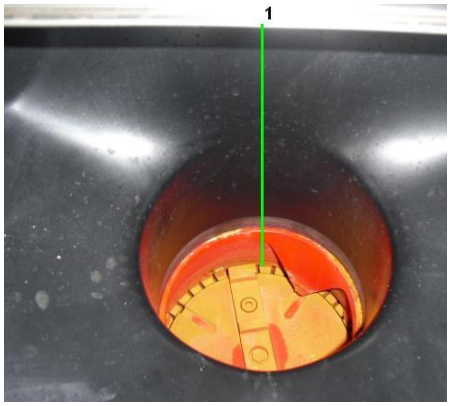


Figure B

On the machine, in proximity of the areas of potential risk are displayed the appropriate danger and/or forbidden warning signs . (See paragraph 3.2.6 Tab 3.)

The controls on the control panel are set out in such a way as to guarantee the safe operation of the system. They are protected so that the command cannot take place unintentionally.

They have been manufactured to resist foreseeable strain during normal operation.

As well as the safety devices described above the PLC placed inside the control panel manages any anomalies of function and/or sequence of actions.

Figure D

The management software of the machine is in English/Italian and consists of a few screens, easily understandable by the operator.

Figure D

3.3 Warnings concerning residual risks

3.3.1 Lifting and transport

3.3.1.1. NECESSARY INDIVIDUAL MEANS OF PROTECTION

3.3.1.2 PRECAUTIONS TO BE TAKEN DURING THE PHASES OF LIFTING AND TRANSPORT

The MACHINE has been designed to be easily transportable in accordance with the following precautions:

- it is of such a shape that the normal lifting devices can easily adapt to it;

- it has been designed and built to permit the removal or fixing of the mobile components during transport and handling operations.

Transport of the machine takes place on wooden pallets after the machine has been wrapped in protective plastic sheeting so that the mobile parts are not protruding from the machine.

As well as plastic sheeting, cardboard is used to guarantee adequate protection.

As concerns the lifting and transport procedure of the MACHINE the general indications given below are valid.

The means of lifting and transport (for example, cranes, hoists, lifts, fork lift trucks) have to be appropriate, as concerns safety, to the nature, to the form, to the volume and weight of the loads the lifting and transport of which they are to be used for, as well as the conditions of use.

The means for lifting and transport have to be used in a way which corresponds to their characteristics, in particular, they have to adopt necessary measures to ensure the stability of the means and of its load (if necessary in a sling), in relation to the type of means, its speed, its acceleration in the phases of start up and stop and to the characteristics of the itinerary, to prevent the load from being damaged or to avoid its falling or its movement from its original position so as to become a source of danger to people and/or things.

The risks present in the handling activity of the load, both manual and mechanical, may be reduced using the appropriate IMP, such as, for example, safety hat, gloves, anti-accident shoes and, if necessary lumbar protection (able to re-establish the realignment of the backbone and to maintain uniform compression between the discs of the backbone).

The staff who carry out these operations have to be competent and trained for this specific task.

It is prohibited to transit below the suspended loads.

It is not possible to be transported with the load.

3.3.2. Installation and connection

3.3.2.1. NECESSARY INDIVIDUAL MEANS OF PROTECTION

3.3.2.2. PRECAUTIONS TO BE TAKEN DURING THE PHASES OF INSTALLATION AND CONNECTION

The assembly and installation of the MACHINE have to be carried out on the premises of the user by qualified staff: this consists in staff who have specific training relative to (electrical and mechanical setting up and maintenance) of industrial and civil machinery.

In fact, the MACHINE is delivered as a whole to the final client requiring exclusively installation rather than a real assembly.

There is, however, the risk of assembling or reassembling in an incorrect manner some elements of the MACHINE due to distraction or insufficient instruction of the operators in charge of such operations; it is recommended, therefore, to have the reassembly of the MACHINE carried out by (chosen and authorized for this task) a member of staff who has undergone specific training

In case of doubts concerning the correct installation always refer to the technical office of the constructor (Par. 1.6.1)

The MACHINE, in the operating conditions foreseen, is **stable** and does not comport **any risks of falling or undue movement.**

The MACHINE has been designed and constructed to be installed in a closed environment sheltered from atmospheric agents.

The MACHINE has not been designed and constructed to be installed in an explosive environment.

3.3.2.3. SIGNAGE

The machine is provided with appropriate signs of danger and prohibition, see *Paragraph 3 5 – Indications Concerning Safety*.

3.3.3 Use and cleaning

3.3.3.1. NECESSARY INDIVIDUAL MEANS OF PROTECTION

3.3.3.2 SIGNAGE

The machine is provided with appropriate signs of danger and prohibition, see *Paragraph 3. 5 – Indications Concerning Safety*.

3.3.3.3 PRECAUTIONS TO BE TAKEN DURING THE PHASES OF USE AND CLEANING

The MACHINE has to be used **exclusively** for grinding food waste (including bones) deriving from preparation and/or cleaning up and for the successive de-watering of the ground material.

The use of the MACHINE for other operations could cause damage to the people or the machine and are therefore to be considered **improper use** for which the Manufacturer is not to be held responsible.

The MACHINE carries out, at the end of every cycle, an automatic cleaning cycle of the hydro-extractor and at every start up a wash of the feed hopper. However, it may be necessary for the operator to carry out this operation manually thanks also to the hose-spray with which the machine is provided.

The staff in charge of the cleaning operations of the MACHINE has to have the competency necessary to carry out the cleaning interventions and will have to follow the instructions given in the Use and Maintenance Manual of the MACHINE.

All cleaning and maintenance interventions have to be carried out with the MACHINE at a standstill and with the engine and the apparatus cold and they have to be carried out in the absence of free flames or high temperatures.

3.3.4 Maintenance and demolition

3.3.4.1. RESIDUAL RISKS

None of the materials used for the construction of the components of the machine is dangerous for the people in charge of its management (during all the phases of life of the MACHINE); in the specific, the materials used for the construction of the MACHINE are, principally:

- derivatives of iron (prevalently);

- derivatives of plastic (for example for the sleeves of the command panels and for the isolation of the electric cables);

- derivatives of copper (for example, for cabling and electric wires).

3.3.4.2 NECESSARY INDIVIDUAL MEANS OF PROTECTION

3.3.4.3 SIGNAGE

The machine is provided with appropriate signs of danger and prohibition, see *Paragraph 3. 5 – Indications Concerning Safety*.

3.3.4.4 PRECAUTIONS TO BE TAKEN DURING THE PHASES OF MAINTENANCE AND DEMOLITION

It is to be underlined that for any eventual disposal of oils and fats it is necessary to comply with the current rules and regulations in charge in the country of installation of the MACHINE.

When the MACHINE has finished its life cycle, before proceeding to the final disassembly, certain operations are necessary with the purpose to minimize the environmental impact tied to the disposal of the components of the system, as required by current rules and regulations on waste disposal.

The operations are:

recovery and disposal of oils: any oil contained in the components or sections of the MACHINE has to be drained and collected in suitable containers, the disposal has to be carried out by appropriate structures (Compulsory Consortium for Used Oils);

separation and storage of the parts of environmental impact: the various parts which could cause pollution are (particulars in plastic or rubber, electric cables and electrical/electronic components) these have to be separated from the others and destined to a different separate waste collection, carrying out a selection of the materials with the objective of helping recycling.

disposal of the casing: having concluded the removal and the storage of the polluting elements, it is necessary to entrust the disposal of the casing to specialized companies.

At the end of the interventions, it is necessary to inform the Technical Office of the Manufacturer of the completed disposal of the MACHINE

3.3.5 Indications concerning Safety

4 On the MACHINE there are sign plates relative to the potential dangers and prohibitions shown in Table 3.

Table 3 – Description of the sign plates present on the MACHINE

	PLATE	DESCRIPTION
A		Indicates the prohibition to remove the safety devices and aprons installed and is usually accompanied by the explanatory words: DO NOT REMOVE THE PROTECTION DEVICES.
B		Indicates the prohibition to carry out any intervention (including lubrication and cleaning) in correspondence of moving organs; typically, it is accompanied by the explanatory words: DO NOT REPAIR OR REGISTER WHILE MOVING.
C		Indicates the danger of dragging in correspondence of the zone where the MACHINE is situated
D		Indicates danger of the presence of electric tension (typically positioned in correspondence of electric control panels).

3.4 Emplacement of operator

During operation, the position of the operator is in proximity of the loading hopper.

The operator has to stand in front of the hopper and has to be able to manoeuvre and reach the various commands and/or emergency switches in a rapid way.

3.5 Indications on noise

3.5.1 Noise

The MACHINE has been designed and constructed to reduce the level of noise emitted during normal operation to a minimum.

In compliance with criteria imposed by the current rules and regulations, the level of acoustic pressure weighed and measured in correspondence to the operator's emplacement during operation is equal to 79 dB (A).

3.6 Proper and Improper use of the machine

The machine may be used **exclusively** for the grinding of food waste (including bones) deriving from preparation and/or cleaning and the successive dehydration.

The MACHINE has been designed, constructed and equipped to limit the intervention of the operator just to the intervention of processing the food waste to be ground and the removal of the solid material from the collecting bin.

Use of the machine for other operations could cause damage to people or to the machine and is therefore considered **improper use** for which the Manufacturer is not responsible.

Unforeseen uses are all those uses not explicitly indicated in Foreseen uses, in particular:

- processing waste other than that indicated in Foreseen uses, in particular the machine is not suitable for

  grinding **PLASTIC**, **METALS or RAGS;**

- cleaning the command and control instruments with water;

- installing and using the MACHINE in an aggressive environment or with a high concentration of dust or oily substances in suspension in the air;

- installing and using the MACHINE in the open.

- installing and using the MACHINE in a potentially explosive environment.

The MACHINE has been designed and constructed to work in places where **there is not a potentially explosive environment** and it itself cannot generate a potentially explosive environment.

It is a good precaution to dispose anyway of powder extinguishers in the vicinity of the machine. To foresee the possibility of fire it is necessary to keep the machine free from pieces of plastic, oils, solvents, paper and rags.

ATTENTION: *in case of a different use it is indispensable to consult the Technical Office of the Manufacturer beforehand.*

3.6.1 Warnings and General Rules of Behaviour

In order to avoid whatever condition of risk to people or damage to the machine, it is recommended to follow scrupulously the warnings and the general rules of behaviour given here.

DANGER: ***the Manufacturer declines all responsibility for any eventual damage to things and7or people deriving from improper interventions carried out by unqualified, untrained or unauthorised staff.***

The operators in charge of the management of the machine have to be opportunely instructed to use the machine to its best without risks and they have to operate in a comfortable environment which guarantees the best safety and hygiene conditions possible

DANGER: ***prevent the machine from being used by unauthorised staff or staff who are not instructed to operate without supervision: in fact, before start working, each operator has to be perfectly aware of the position and the function of all the commands and of the characteristics of the machine; and has, what is more, to have read the present manual IN ITS ENTIRETY.***

- Before using the machine check that whatever condition dangerous for safety has been opportunely eliminated and that no operators are present in the dangerous zones in proximity of the machine itself.
- Before using the machine, check that all the protection apparatus are in their place and that all the safety devices are present and efficient.

- Warn the person in charge about every irregularity of operation of the machine or of every problem relative to the integrity of the protections of the machine.
- Consult the present manual concerning the current safety measures and the specific IMP to adopt for personal safety, in particular, however, the staff in charge of the machine have to wear suitable clothing, avoiding and paying due attention to:
  - Flapping clothes,
  - Loose sleeves,
  - Loose ties or scarves,
  - Necklaces, bracelets and rings.
- To avoid causing damage to the machine and triggering dangerous situations, it is recommended not to try to climb on to the machine.
- Staff in charge of machine maintenance have to be aware of all the procedures given in *Chapter 7 – Maintenance of the Machine* and should have an adequate technical preparation to interpret correctly the instructions and the diagrams attached to the present manual and to intervene on the machine.
- The area where the maintenance operations are to be carried out (ordinary and extraordinary) has always to be clean, dry and with the suitable equipment always available and efficient.
- The work area should never be occupied as to interfere with the freedom of movement of the operator. In the case of an emergency immediate access to the machine by the staff in charge has to be guaranteed.
- Access to the above mentioned area is forbidden to people who are not directly in charge of the operation of the machine thus to avoid dangers due to distraction or negligence during intervention on the machine
- If it were necessary to carry out interventions in proximity of electrical components operate with properly dried hands and use dielectric gloves (operating on the electrical components with wet hands may cause a near certain danger of electric shock).

DANGER: ***before any intervention on the machine or in correspondence of its components or accessory equipment, it is necessary to cut off the power supplies; if that were not possible it is necessary to foresee measures which permit, anyway, operation in complete safety on the machine.***

DANGER: ***mishandling or unauthorised replacement of one or more parts of the machine and the use of accessories, tools, consumer materials other than those indicated by the Manufacturer may generate the danger of accidents at work.***

ATTENTION: ***all material of environmental impact which it is necessary to dispose of after any interventions or operations on the machine have to be disposed of according to current rules and regulations.***

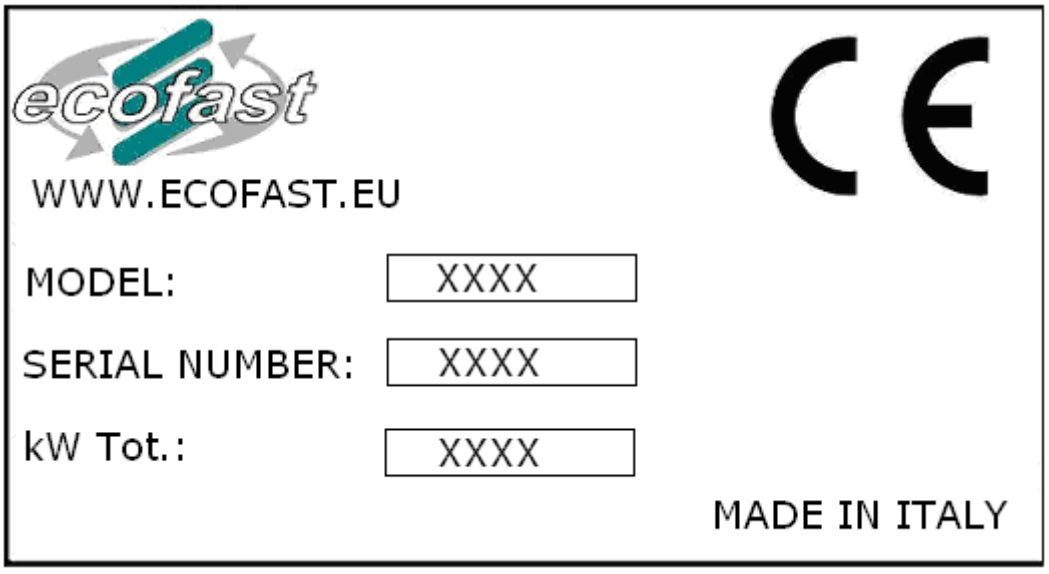
If necessary, refer to specialized companies for their disposal.

3.7 Data and technical features of the machine

3.7.1 Identification plate

For the identification of the machine an appropriate identification plate has been affixed (*Diagram 1*); the identification data given on this plate have to be communicated to the offices of the Manufacturer at every request for intervention or for ordering spare parts.

Diagram 1



3.8 Technical data and overall sizes

Here below are listed the technical features and overall dimensions of the FREE STANDING UNITS (*) manyfactured by ECOFAST ITALIA S.R.L..

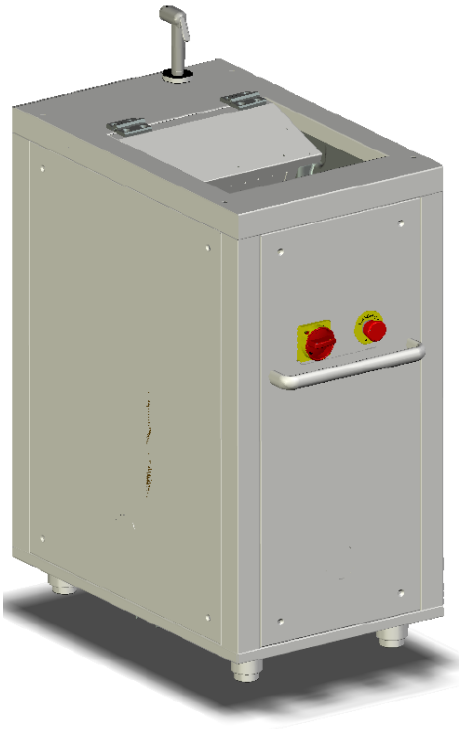
In particular the following models:

- MFS3.0P-BATCH
- FS3.0PRCC
- FSB3.0PRCC

(*) *the specific FREE STANDING UNIT whose this manual refers, it is reported on the frontispiece of the second page of the present manual.*

MINI FREE STANDING UNIT

Continuous Feed Cycle – It may be use for small batch feeding.



MFS3.0P-BATCH

SUGGESTED USE

Given its small size, this unit is well suited for tight room in the preparation area of the kitchen. The limited size of the hopper feed let the unit suitable for continuous feed cycle. The unit is NOT SUITABLE for vegetable preparation area.

OVERALL DIMENSION:

Width (W). 450 – Length (L). 700 mm (different heights)

- STANDARD 925 - 965 mm.
- OPTIONAL 880 - 910 mm.
- OPTIONAL WITH WHEEL - 1010 mm.

FREE STANDING UNIT Continuous Feed Cycle

FS3.0PRCC

SUGGESTED USE

The typical use of this unit is for CLEAN_UP AREA if the unit is fitted with permanent magnets (mod. FS3.0PRCC). This unit may be also use in FOOD PREPARATION AREA but it is not suited for vegetable preparation area. For this last utilization, it is recommended the model FSB3.0PRCC.

OVERALL DIMENSION:

Width (W). 650 – Length (L). 700 mm (different heights)

- STANDARD 925 - 965 mm.
- OPTIONAL 880 - 910 mm.
- OPTIONAL WITH WHEEL - 1010 mm.

FREE STANDING UNIT FOR SINGLE OR 2 OPERATORS Continuous Feed Cycle

FSB3.0PRCC

SUGGESTED USE

This Free Standing unit is equipped with double commands, permanent magnets and it has been designed for a *BIFRONTAL* utilization. It is normally installed in line with the dishwashing machine for the clean-up of the dishes, or, *for a single user*, in the vegetable preparation area, thanks to its bigger feed opening hopper.

OVERALL DIMENSION:

Width (W). 550 – Length (L). 900 mm (different heights)

- STANDARD 925 - 965 mm.
- OPTIONAL 880 - 910 mm.
- OPTIONAL WITH WHEEL - 1010 mm

Chapter 4
Transport and installation

4.1. General information

4.1.1. Environmental conditions of the installation place

The MACHINE (including all the command and indication devices) has been designed and constructed in such a way that it can operate and be cleaned and maintained in safety in environments with normal lighting. To this effect the machine does not dispose of supplementary illumination.

The MACHINE has been designed to be installed in a closed environment and sheltered from atmospheric agents.

Do not install the MACHINE in an aggressive environment or one where there is a high concentration of dust or oily substances in suspension in the air.

Please remember that the MACHINE has NOT been designed to operate in potentially explosive environments.

4.1.2. Minimum room for installation of the machine

The overall dimension of the single units are available in the chapter 3.8 "Technical Data and Overall Size".

The machine may be aligned with other machines in the kitchen but, nevertheless, it is preferable to have a room to be able to carry out maintenance on site, avoiding any displacement.

To this end it is useful to assess the ease of assembly/disassembly or a simple displacement of any working table side by side the machine.

4.2. Transport and handling

See paragraphs 3.2.2.2.

4.2.1. Unloading and unpacking

Once the MACHINE has been positioned in the workplace proceed to remove, with the most opportune means, the supports and the wooden, plastic and cardboard protection, disposing of the packaging material according to the nature of each one

4.3. Installation

4.3.1. Connection to the mains electricity supply

The power supply line of the MACHINE requires a connection to the electrical current by means of an interlocked socket with an ON/OFF switch with suitable fuses or circuit breakers/RCD, as shown in fig. a

Fig. a 

POWER SUPPLY: three phase 400V - 50Hz

POWER INPUT: 3.2 kW total

SOCKET : 3P+Earth - 16Amp (4 wires)

Ensure that the electrical supply is suitable and correctly sized for the specific power requirement of the machine. Ensure that the supply line upstream of the electrical socket is protected with suitable fuses or circuit breakesr/RCD.

The control panel key is inside the panel. Remove the stainless steel front panel with an Allen wrench n. 5. The panel is not locked. Turn the main switch off and open it. Inside there are the keys (panel and emergency switch) and the electrical drawings.

Ensure to check first the sequence of the phases in the power supply (only for three phase unit). In case of incorrect polarity the yellow warning light on the panel will start flashing: 1 flash for two seconds every 5 seconds. The PLC screen inside the panel advices the operator with the following information: LOW WATER PRESSURE/ SEQUENCE . In the panel there is a phase reversing device. By switching from point 2 to point 1 or vice versa the sequence of the phases will be correctly set up. Once the sequence is correct the yellow lights stops flashing.

4.3.2. Connection to the water supply

The machine needs to be connected to the cold water supply, in particular:

COLD WATER: 3/4" - 2,5 ÷ 3,0 bar

Cold water supply is required to feed the disposer. A pressure resistant flexible pipe is required to be piped to the electrical solenoid valve as close to the machine as possible.
An isolation valve has to be installed to disconnect the machine for maintenance.

4.3.3. Connection to mains drainage

Ø 50 mm waste line required with trap to avoid odours.

It is recommended to always have the connection and/o
out by qualified and sufficiently trained staff.

4.3.4. Connection to the overflow

All the FREE STANDING UNITS are fit with overflow which is connected to an extensible and corrugated pipe located inside the cabinet. This pipe Ø 40 mm. has to be connected to the drainage line in the vicinity of the unit.

4.4. Storage

4.4.1. Uninstalling

If the MACHINE has to be disconnected from the workplace and from the various power supplies proceed, first of all, to carry out several cleaning cycles to ensure that no residual organic material remains inside the various functional parts.

Protect the MACHINE adequately from dust and other atmospheric agents by means of suitable packaging.

Position the machine in a safe way on a stable surface and away from transit zones indicating its presence. When proceeding to demolition and disposal refer to CHAPTER 8.

Chapter 5
Fine tuning

5.1 Fine tuning of the machine

5.5.1 Fine tuning

No specific Fine Tuning is required for this type of machine seeing as it is a standard model which adapts to normal use in typical kitchen operations (e.g. “restaurant” - see paragraph 2.1);

Nevertheless it is possible to personalize the diagram of the PLC times for eventual specific use (programming and tests have to be previously agreed upon and that this activity takes place exclusively on the premises of the Manufacturer);

The machine does not require any particular fine tuning, except for a simple check of the connections (see paragraph 4.3) and an initial functional test.

Chapter 6
Use of the machine

6.1. Machine starting

6.1.1. Start/ Stop Sequences

The sequence of the working program and any other functions of the system are handled automatically by the PLC, housed in the control panel - At the time of sale, a "standard" software has been uploaded in the PLC. This software is able to meet the normal needs required by the operators.

To simplify the starting and shutdown of the working cycle program, the operator must only press the GREEN button on the control panel.

The Standard program, uploaded in the PLC, has the following features:

- By briefly pressing the Green button "**START**" the working cycle program starts following a precise sequence of instructions predetermined by the manufacturer: at the beginning starts the pump to empty any possible residual of water in the hopper, then cold water comes into the hopper and, immediately after (very few seconds), the disposer starts.
- The running time, predetermined by the manufacturer, is of about 5 minutes. Before the shutdown of the working cycle program, the unit automatically performs a cleaning cycle to wash hopper and pipes, then the unit goes in stand-by.
- The working cycle program can be stopped by pressing the "start" button again. In this case the machine, before stopping, will perform a prompt cleaning cycle to wash hopper and pipes.
- At the end of the day, normally during the night, the dewatering unit is scheduled to start its own cleaning cycle. This task, if foreseen by the management, may involve or not the free standing units. For this reason, it is recommended that all the free standing units remain in stand-by and electrically powered.

In the design stage or later, there is the possibility to modify some parameters of the "standard" software, customizing the working cycle program to some specific needs requested by the operator.

This job is reserved to the manufacturer only, and it is absolutely forbidden to personally modify the "standard" software of the PLC.

The machine is designed to process mixed food waste including but not limited to, meat, fish, bones, vegetables, fruits, sauces, bread, rice and pasta. The processing of single (i.e. non-mixed) food stuffs such as rice and pasta, or bakery ingredients such as dough and flour, may cause malfunctions of the hydro-extractor (dewatering) apparatus. The machine **is not designed** to grind OYSTER AND OTHER HARD SHELLS, FATS, GREASE AND OIL, CUTLERY, PACKAGING, PAPER, PLASTICS AND RUBBER, CLING FILM, STRING, CLOTH, CORK, WIRE AND OTHER METALS, GLASS or FLOOR MOPS. The introduction of such non-organic matters may seriously damage the MACHINE

and greatly reduce its lifespan. The machine is fitted with a magnet to stop metal from going into the disposer's grinding chamber.

It is recommended to always inform and train adequately the various operators on the correct and safe use of the machine.

Every start command of the working process is conducted with voluntary actions by the operator by means of the control button on the control panel of the machine, even in the case of a restarting of the machine after a shutdown (eg. if caused by a lack of supply) or after any voluntary disconnection.

The stop of the MACHINE can be carried out performing the following stopping functions:

- **normal stop**: by pressing the STRAT button on the control panel of the machine (the stop is pre-set by a timer).
- **emergency stop (never use as a normal stop)**: by pressing the EMERGENCY SWITCH or by opening the feed hopper's lid which disconnects the main power supply by means of a micro switch of protection.
- **general stop:** by cutting off the electric power supply to the machine, by opening the interlocked socket on the control panel or disconnecting the MACHINE's plug from the interlocked socket.

All the rotating parts of the MACHINE are protected because they are inside of the steelwork structure. The Machine has been designed to enable the achievement of the cutting system of the disposer without first opening the feed hoper's lid.

In any case, an emergency SWITCH ON/OFF button has been provided to guarantee an emergency stop equivalent to that determined by opening the interlocked lid.

6.2. Controls and settings

6.2.1 Safety device control

Periodically, at least once a week, it is required to perform a functional test to verify the following components, IN NO LOAD CONDITIONS and with the emergency reset key in your hands:

feed hopper's lid sensors

PROCEDURE

- Start a normal working cycle and open the lid (the machine should stop immediately);

emergency switch

PROCEDURE

- Start a normal working cycle and try to activate the emergency switch (the machine should stop immediately);
- At the end of the test remember to re-activate the emergency switch again, using the reset key.

Metal sensors (if provided)

PROCEDURE

- Start a normal work cycle and insert a metallic object (e.g a fork) inside the hopper paying attention not to let it fall in the grinder (the machine should stop immediately);

Should the machine present anomalies relative to the correct functioning of the safety devices proceed with the immediately stop of the machine, disconnect the electrical power supply, affix a notice with the wording **"out of order"**, inform the person in charge or the assistance service directly describing in detail the occurrence and referring information and/or codes provided by the PLC.

6.2.2 Anomalous situations and alerts

Anomalies and alerts are indicated by the flashing of the YELLOW ALARM LIGHT on the control panel and, for maintenance staff, by useful tips on the PLC screen, located inside the control panel. The following table gives a briefly description of the types of anomaly:

description of anomaly (see also PLC display)	**Indication lights**	**Solution**
"Emergency ON"	Always on	The emergency switch has been pressed – arm it again (by using the key provided) in order to restore the electrical power supply
"LID Open"	Always on	Close the hopper's lid
"Metal Detector **(*)**" Indicates the accidental introduction of an extraneous body which causes the immediate stop of the machine **(*) in case the machine is provided with such a system**	4 flashes (continuous, without pause)	a) open the hopper's lid and keep pressed the START button until the water contained inside the disposer's grinding chamber is emptied by the pump; b) press the emergency switch, turn off the electrical power by switching off the interlocked socket, disconnect the machine's plug thus avoiding any interference of third parties; c) remove the extraneous body; d) reconnect the power supply,

		see (b) d) re-start the machine, again
"FWD Thermal Protection" Indicates the intervention of the thermal trip which protects the disposer's motor	(Disposer) 2 flashes -pause, then repeats again-	Check and remove any extraneous objects involuntary dropped into the disposer. Then, open the control panel and re-set the thermal protection by clicking on the disposer thermal strip switch. If the machine does not restart, report immediately to the Service Manager or to the outsourced Service describing in details what happened
"Pump Thermal Protector ON" Indicates the intervention of the thermal trip which protects the pump's motor	(Pump) 3 flashes -pause, then repeats again –	Maybe the pump is blocked. Before asking for services, re-set manually the pump thermal strip switch, opening first the control panel, and try to un-jam the pump by contacting the service department. If the machine does not restart, report immediately to the Service Manager or to the outsourced Service describing in details what happened
"Dehydra Thermal ON" Indicates the intervention of the thermal trip which protects the pump's motor	(Hydro-extractor) 1 flashes for 1 second -pause, then repeats again-	Check the level inside the storage tank and, then, turn off and on the hydro-extractor. If the hydro-extractor is blocked and has to be un-jammed, sk for the service, turning off the unit. Report immediately to the Service Manager or to the outsourced Service describing in details what happened
The machine is not able to drain and the hopper is full of water	Take note of any eventual information provided by the flashing light	a) open the hopper's lid and keep pressed the START button until the water contained inside the disposer's grinding chamber is emptied by the pump, then

summary notes	**The STAR/STOP button is the only dual control button to be used for starting and shutting down the working cycle:** ○ **by briefly pressing it, the operator starts or shuts down the standard working cycle program.**	

		start a new working cycle note: in case of failure, do not repeat the operation more than three times, because the machine is blocked and requires the assistance service; b) switch on (press) the emergency stop, turn off the electric power supply by switching off the interlocked socket, disconnect the machine's plug thus avoiding any interference of third parties;
"Low water pressure " No cold water in the machine	1 flash for 2 seconds every 5	Open the gate valve of the cold water. To reset the alarm start again the START button

in all failure cases:

1) Immediately stop the machine by disconnecting the electrical power supply
2) Affix a notice with the wording "out of order"
3) Inform the SERVICE describing in detail what happened and any information provided by the flashing light and the PLC.

6.3. Start/Stop procedure

6.3.1. Start

A single press starts the working cycle program of the machine which foresees (a) the emptying of any residual liquids inside the hopper (b) a grinding working cycle of about 5 minutes (c) a cleaning cycle of the hopper and pipes.

It is forbidden to use the EMERGENCY SWITCH to stop the machine during the normal working cycle, but follow the instruction in the later point 6.3.2.

The EMERGENCY SWITCH is provided to ONLY stop the machine in case of a real emergency

The MACHINE must always be fully disconnected from the electric power supply before any necessary repair or maintenance work is carried out. Even when the MACHINE is off, to access or clean the closest areas of the rotating parts of the disposer, it is always recommended to disconnect the unit from the electric power supply.

OPERATIONAL INDICATION IN CASE OF ACCIDENTAL DROP OF NON-ORGANIC MATTERS (SUCH AS NON MAGNETIC CUTLERY) INTO THE HOPPER

IF DURING THE WORKING CYCLE PROGRAM AN OBJECT DROPS INTO THE HOPPER IT IS RECOMMENDED NOT TO STOP THE WORKING CYCLE BY PRESSING THE STOP BUTTON OR THE EMERGENCY SWITCH. THE CORRECT INSTRUCTION IS TO LIFT THE HOPPER'S LID (COVER). THE YELLOW LIGHT ALARM IS ON. OPENING THE HOPPER'S LID IMMEDIATE STOPS THE DISPOSER. BEFORE REMOVING THE OBJECT FROM THE HOPPER WAIT UNTIL THE MACHINE STOPS THE SEQUENCE PREDETERMINED BY THE MANUFACTURER (1 MINUTE). AS SOON AS THE MACHINE HAS FINESHED THE STOP SEQUENCE, TURN OFF THE ELECTRICAL POWER BY SWITCHING OFF THE MACHINE'S MAIN SWITCH AND REMOVE THE OBJECT FROM THE HOPPER. ONCE THE OBJECT HAS BEEN REMOVED 1) CLOSE THE HOPPER'S LID (COVER) AND 2) RECONNECT ELECTRICAL SUPPLY TO THE MACHINE. NOW THE MACHINE IS READY TO START A NEW WORKING CYCLE.

6.3.2. Stop

The normal shutdown of the working cycle of the machine is performed by pressing the START button again [it is a dual control button]. It is important to point out that the starting of the machine performs a working cycle program with a precise sequences of commands [starting of the pump, opening of the solenoid valve, starting of the disposer], and the subsequent **normal arrest**, initiates a sequence of commands to carry out the cleaning of the hopper and pipes: in practice, the machine does not stop immediately a sit is properly programmed to perform this important function!

6.3.3. Emergency stop

To stop the machine in case of a real emergency, press the Emergency Switch, provided with a key which has to be handed over to the kitchen's manager.

Alternatively the machine can be stopped immediately, by lifting the hopper lid.

In fact the machine is provided with a micro-switch which cuts off the electrical power supply of the disposer. But it is important to point out that these operations also suspend the cleaning cycle as described above in section 6.3.1. - **To prevent clogging, after an emergency stop, once the emergency has been solved, it is recommended to reset the operation of the machine and to start again a new working cycle to carry out the cleaning operations!**

THE IMPROPER USE OF THE EMERGENCY SWITCH MAY CREATE BLOKAGES IN THE DRAINAGE LINE BECAUSE IT PREVENTS THE CORRECT EXECUTION OF THE WORKING AND CLEANING CYCLES PROGRAMS OF THE MACHINE. IN ORDER TO AVOID ANY IMPROPER USE, THE EMERGENCY SWITCH IS PROVIDED WITH A KEY WHICH HAS TO BE HANDED OVER TO THE KITCHEN'S MANAGER.

Chapter 7
Maintenance

7.1. General information

To guarantee the maximum reliability to the machine and to avoid conditions of danger keep strictly to the instructions and the warnings given in the following pages.

DANGER: ***for reasons of safety, all maintenance operations illustrated in the present chapter have to be carried out only by qualified and specifically trained staff. The technicians in charge, what is more, have to have all the instruments and the IMP necessary to operate in safety.***

ATTENTION: *to guarantee the operators complete efficiency and safety of the machine all the time and to prevent problems tied to the deterioration of the safety measures or machine stoppages which may be onerous, it is necessary to activate an efficient* ***preventive maintenance*** *planning interventions at programmed intervals, with the objective of renewing or replacing the parts of normal wear such as:* ***the grinding system of the disposer, the elastic impeller of pump body, the cochlea brushes of the hydro-extractor*** *and checking the general state of the mechanical and electrical components of the machine (and its auxiliary equipment), thus providing indications on any eventual extraordinary operations which may be necessary.*

Before carrying out any maintenance or cleaning operation as shown in the present paragraph it is necessary to disconnect the machine (and its auxiliary equipment) from the relative power supplies:

- Remove tension from the general control panel by means of the general switch putting it on **OFF**
- Predispose a visible notice with the wording "MACHINE IN MAINTENANCE" and at the same time cordon off the machine.

DANGER: **the manufacturer declines all responsibility for any eventual damage to things and/or to people deriving from improper interventions carried out by unqualified, untrained, inadequately equipped or unauthorised staff.**

7.1.1. Indications concerning safety

To carry out cleaning and maintenance operations correctly it is indispensable to take into consideration the following indications.

- During the interventions it is necessary to inform via suitable notices the intervention on the machine (such indications should be placed so that they prevent all undesired interventions on the machine).
- During the interventions **only authorised staff** may access the workplace

ATTENTION: *the maintenance and cleaning operations have to be carried out only by expert staff who have read and understood all the indications given in the present Use and Maintenance Manual.*

DANGER: ***only dismantle the parts of the machine effectively necessary to carry out the specific maintenance operation.***

What is more, before handing the machine back to the operators, it is necessary to check its integrity and functionality.

- All material of environmental impact which has to be eliminated as a result of maintenance operations has to be disposed of according to current rules and regulations.

ATTENTION: *for the disposal of materials of high environmental impact, if required, refer to specialized companies.*

In any case, to carry out all the maintenance and cleaning operations given below in correspondence of the machine, the following Individual Means of Protection are necessary:



7.2. Cleaning

The machine doesn't need any routine maintenance by the user, but a few simple cleaning actions only.

7.2.1. Hopper and pipes cleaning

Using a soft cleanser and in case the supplied gargoyle, clean the hopper completely. After this, (which is usually to be performed at the end of every shift in order to leave the machine clean for the following operator) press the START button to start the working cycle to remove leftovers and water from the hopper. This also performs, at the same time, a cleaning cycle of the pipes

7.3. Routine and emergency maintenance operations

Routine and emergency maintenance are in charge to the assigned staff, authorized by the seller. The user must only clean as described in chapter 7.2.1 and check the safety devices as described in chapter 6.2.1

7.4. Clogging, obstruction

Routine and emergency maintenance are in charge to the assigned staff, authorized by the seller. Nevertheless, in case of clogging or obstruction, before asking for a technical action by the assigned staff, the user has to perform some simple tasks aimed to a possible immediate recovery:

JAMMING: the machine can't grind metallic or plastic parts, nor rags!! In case of accidental fall, immediately stop the machine using the dedicated emergency "stop switch" button.

In case of clogging, it is recommended to perform the following procedure:

CLOGGING: reset of the machine after emergency stop

Verify that there is no water in the hopper4 by lifting the hopper's lid (cover). In any, **press and hold (keep pressed) the green "Start" button for the time required to empty the hopper**. The pump starts working while the disposer does not start. When finished (the hopper is emptied) release the button.

Turn off the electric power by switching off the main machines's switch and disconnect the unit from the electric power supply!

By wearing special gloves, try to remove any non food object dropped into the hopper

Reconnect electrically the machine, only after having well checked the drawback has been solved.

Close the hopper's lid and reset the emergency switch

Start a new working cycle to be sure to have cleared the trouble. [***otherwise ask for the service***]

OBSTRUCTION, checking and recovery procedure

Press and hold the green "Start" button to start the suction pump, in order to dry all liquid leftovers in the hopper

Using safety gloves, remove the exceeding material in the hopper. [*always remembering that the hopper must be feeded gradually, especially avoiding to overload it. The operator, after an initial training, must have the needed awareness to see and understand the actual process capacity of the machine]*

Reconnect electrically the machine, only after having well checked the drawback has been solved.

Close the hopper's lid and reset the emergency switch by rearming it using the dedicated key

Start a normal working cycle to be sure to have cleared the trouble [***ask for customer service only if recovery has failed***]

7.5. Operative instructions *plastic coated, on machine side*

PRELIMINAR CHECKS [after downtime]	
	**Check if the unit is correctly powered: switch to ON**
	**Turn the main switch ON**
	**Check the emergency "stop switch" is armed, in case reset it using the unlocking key**
	**Open the tap water supply water. The unit needs cold water to run. Check if the water is on by using the supplied hose spray**
	**Check if there in no water inside the hopper; in case, press and hold the START button until the hopper is empty**
ELECTRIC AND HYDRAULIC INPUTS: machines must never be disconnected from electric and hydraulic inputs, except for the time strictly needed for cleaning or service	
	STARTING OF THE WORKING CYCLE PROGRAM
	Press the START button (the working cycle program starts working, its running time is predetermined by the manufacturer (5 minutes)
	SHUTTING DOWN OF THE WORKING CYCLE PROGRAM
	Press the START button again. The shutting down of the working cycle is executed. The stop sequences are predetermined by the manufacturer. **During the shutting down not pour any food waste into the hopper**.
	HOPPER EMPTYING
	Press and hold (keep pressed) the START button for the time required to empty the hopper. (only the pump works, while the disposer is does not start. The pump is designed to work with water. Therefore it is recommended not to keep pressed the START button if no more water is in the hopper)
	END OF DAY/ END OF EACH WORKING SHIFT
	With the of hose spray provided, clean the hopper by using non aggressive, non foaming products, following the schedule indicated by the internal HACCP regulations
	Lift the hopper's lid (cover) and press and hold (keep pressed) the START button for the time required to empty the hopper from water
	Press the START button to start the working cycle thereby removing the last leftovers in the hopper. When the work is completed, press the START button again to shut down the working cycle, correctly
SUMMARY	The green button named START is the only dual control button to be pressed for daily routine tasks: ○ First pushing: it starts the working cycle program ○ Second pushing: it shuts down the working cycle working ○ Pressing and holding: it starts working the pump 
	The possible yellow warning light flashing might be caused by the startup of "WATER SAVING" cycle, which comes up when the tank in the dehydrating zone is closed to overflow level; this can be noticed by the irregular flow of water in the hopper. But if the yellow light flashes without irregular flow of water, this means a failure or alarm: flashings can be understood by reading the user manual
Using the emergency "STOP switch" is forbidden unless STRICTLY NEEDED **IT IS FORBIDDEN OPENING THE HOPPER'S LID DURING THE WORKING CYCLE, UNLESS STRICTLY NEEDED** **ABUSE OF THE EMERGENCY "STOP SWITCH " CAN LEAD TO DRAINAGES PROBLEMS**	
This machine is provided with micro-switches which cuts off the electrical power supply of the disposer when the hopper lid is opened, rendering it harmless. **Nevertheless, even if the machine is OFF, to access or clean the areas close to the rotating parts of the disposer, it is always recommended to disconnect the unit from the electric supply.**	

Chapter 8
Machine demolition and disposal

8.1 Shut down, disassembly and demolition

To carry out the disassembly and demolition operations the following Individual Means of Protection are necessary:

8.1.1 Shut down of the machine

To shut down the machine for a long period, carry out the following operations:

1 Switch off the tension, acting in correspondence of the general disconnecting switch present on the electric control panel.

2 Clean the machine.

3 Carry out also the ordinary maintenance operations, too; then cover the machine with a canvas.

8.1.2 Disassembly

If necessary to disassemble the machine, follow the procedure as follows.

1. Isolate the machine and the auxiliary equipment from the various sources of power (electric and water)
2. Referring to *Paragraph 4.4.1 – Disassembly of Chapter 4 - Transport and Installation*, proceed with the disassembly of the machine; contact, besides, the Technical Offices of the Manufacturer to obtain the necessary assistance during such an intervention.
3. To proceed with the handling of the machine components, operate according to the instructions given in *Paragraph 4.2 – Transport and handling of Chapter 4 - Transport and Installation.*
4. Arrange opportunely the components to be transported to other premises (refer to *Paragraph 4.2 – Transport and Handling of Chapter 4 – Transport and Installation*), to be stocked (refer to *Paragraph 4.4 – Storage of Chapter 4 – Transport and Installation*) or to be demolished (refer to *Paragraph 8.1.3 – Demolition and generalities on disposal*).

DANGER: ***the Manufacturer declines all responsibility for any eventual damage to things and/or people deriving from improper interventions carried out by unqualified, untrained, inadequately equipped or unauthorised staff.***

8.1.3 Demolition and general information about disposal

When the machine (and its auxiliary equipment) has come to the end of its life cycle, before proceeding with its final disposal, it is necessary to carry out a series of operations destined to minimize the environmental impact connected to the disposal of the components of the machine, as required by the current rules and regulations on waste disposal.

Such operations are:

1. Recovery and disposal of oils, that is:
   a. By means of an appropriate pump, drain any oil which may be contained in components of the machine, collecting it in suitable containers;
   b. Store the recovered oil in cans or drums;
   c. Dispose of the recovered oil via appropriate companies;
2. Separate and stock the parts of environmental impact, that is:
   a. Separate the various parts which could be a source of pollution;
   b. Carry out a selection of the materials with the purpose to benefit the separate collection and recycling of these waste materials.

NOTE: *for further details on the disposal of components not made by the Manufacturer and integrated in the machine, consult the relative Use and Maintenance Manual.*

3. Dispose of the casing, that is:
   a. Having finished the removal and storage of the polluting elements, refer to specialized companies for the disposal of the metal casing.

ATTENTION: *Before scrapping the machine,* ***make obsolete*** *the identification plate of the machine and the relative technical documentation. It is the Duty of the Purchaser to return such elements to the Technical Office of the Manufacturer who will undertake to destroy them. The mere keeping of the above mentioned elements in an inaccessible place is not allowed. At the end of these operations* ***communicate*** *to the Technical Office of the Manufacturer the completed dismantling and scrapping of the machine.*

Chapter 9
Failure search

9.1 Failures and malfunctions

In case the operator is not able to solve the problem as described in chapter 7.4, all faults and inconveniences have to be reported to the assistance service who, in order to proceed in the best way and best time, should be informed on any possible causes by means of a simple description of of what happened, referring the information reported by the PLC and by the appropriate flashing light on the panel (see anomalies and alarms in chapter 6.2.2).

The user is not required to have a specific instruction on a failure search.

Chapter 10
List of spare parts

10.1 Procedure for ordering spare parts

To contact the Technical Service of the Manufacturer, please refer to:

ECOFAST ITALIA TECHNICAL DEPARTMENT

Piazza Franco Martelli, 5

20162 Milano (MI) – ITALY

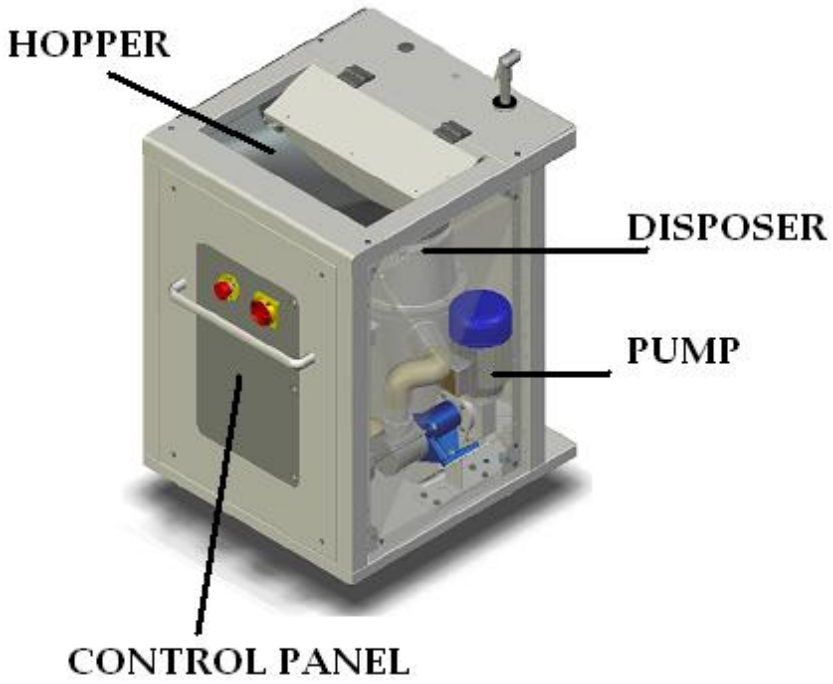
Phone: (+39) 02 66111618

Fax: (+39) 02 66112000

Email: INFO@ECOFAST.EU

It is recommended to specify the name and the model of the machine in service.

10.2 machine's main parts picture



Chapter 11
Mechanical drawings

All mechanical drawings are available at the manufacturer's offices.

To contact the Technical Service of the Manufacturer, please refer to:

ECOFAST ITALIA TECHNICAL DEPARTMENT

Piazza Franco Martelli, 5

20162 Milano (MI) – ITALY

Phone: (+39) 02 66111618

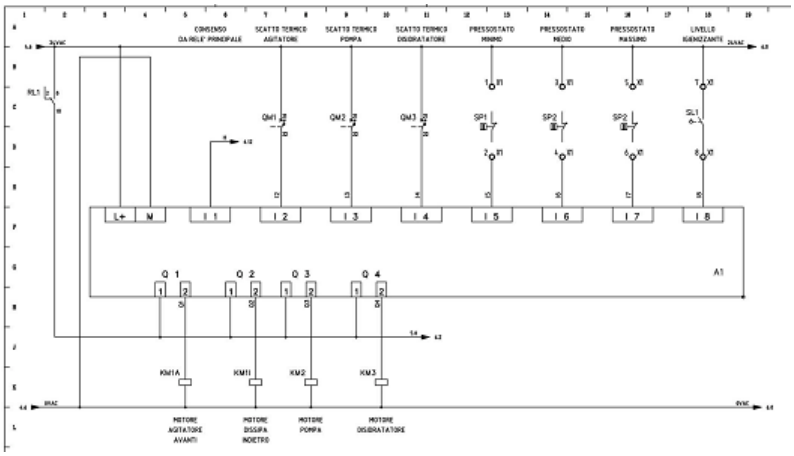
Fax: (+39) 02 66112000

Email: INFO@ECOFAST.EU

It is recommended to specify the name and the model of the machine in service.

Chapter 12
Electrical drawings

The electrical diagram is inserted in the control panel of the machine.



Chapter 13
Technical Documentation useful for maintenance

To contact the Technical Service of the Manufacturer, please refer to:

ECOFAST ITALIA SERVICE DEPARTMENT

Piazza Franco Martelli, 5

20162 Milano (MI) – ITALY

Phone: (+39) 02 66111618

Fax: (+39) 02 66112000

Email: INFO@ECOFAST.EU

It is recommended to specify the name and the model of the machine in service.