USE AND MAINTEINANCE INSTRUCTIONS MANUAL

1192

CO_2 pump for the loading of CO_2 FIRE EXTINGUISHERS

Read this manual carefully before using the machine

Failure to observe the instructions may impair the function and quality of the product

or even cause damage to people, animals, objects or the environment.

INDEX

1.0 FOREWORD

The machine user will be required to train personnel on the risks of accidents, the devices for the operator safety, the risks deriving from noise emission and on the general accident prevention regulations provided by the international law in force.

Before starting the operational activities for which the machine is designed, the operator must be fully informed on the functioning of the machine, the position of each control and on the technical characteristics and the purpose of its use.

The machine must only be used by operators who have fully read and understood the instructions contained in this manual.

Any unauthorized tampering/replacement of parts of the machine, the use of non-original spare parts and the use of consumable materials failing to meet the specifications listed below, may represent a serious risk of injury and relieve the manufacturer of any civil and criminal liability.

ALL IMAGES IN THE MANUAL ARE PROVIDED ONLY AS A GUIDE, THE MANUFACTURER RESERVES THE RIGHT TO MAKE CHANGES TO THE MACHINES WITHOUT THE IMAGES BEING UPDATED.

1.1 Importance of the manual

1) Consider the instructions manual as part of the product.
2) Store the manual for the entire lifespan of the machine.
3) Hand over the manual to any other user of the machine.
4) The electric and pneumatic diagrams are attached to this manual.

1.2 Preservation of the manual

1) Use the manual making sure not to damage all or part of its content.
2) Do not remove, tear off or write on parts of the manual for any reason.
3) Store the manual in protected areas.

1.3 Content of the manual

This manual is defined by specific sections with directions and descriptions that can be traced through the index of the specific topics.

It includes annexes showing pneumatic and electric diagrams and some drawings.

1.4 Use of the manual

This manual is an integral part of the supply.

It is forbidden to make any alteration or variation or integration to the machine without the authorization of the manufacturer.

In case of sale, hire, granting of the use of or leasing of the machine, instructions must be attached thereto.

The technical features therein are not binding on the manufacturer and, without notice, they may be changed on future supplies.

Despite having been drawn up with the utmost care, this manual can not fully replace the experience of the user, which must therefore be appropriate to the operations to carry out.

The instructions in this manual do not replace, integrate or amend any of the rules, laws and/or decrees in force at the place where the equipment is used.

1.5 "CE" marking

To ensure the compliance of the equipment with the requirements of Directive 06/42/EC (New Machinery Directive), as per Annex III thereof, the CE plate is affixed in close proximity of the name of the manufacturer and using the same technique.

Never remove the plate from the original location chosen by the manufacturer.

Do not alter or falsify the technical data listed thereon.

Do not clean the plate with any blunt objects (e.g.: wire brushes), to avoid damaging the data mentioned thereon.

If the plate deteriorates with use or is no longer legible, even in only one of its data, a new plate shall be requested to the manufacturer, reporting the data included in this document.

1.6 Graphic symbols

	**DANGER SYMBOLS**		
	**GENERIC WARNING SYMBOL**		**SHOCK HAZARD**
	**RISK OF CRUSHING**		**RISK OF CRUSHING**
	**CAUTION: ELEMENTS UNDER PRESSURE**		**CAUTION: MOVING PARTS**
	**CAUTION: SUSPENDED LOADS**		
	**PROHIBITION SYMBOLS**		
	**DO NOT REMOVE PROTECTIONS**		**MOVING PARTS – DO NOT LUBRICATE**
	**DO NOT EXTINGUISH WITH WATER**		
	**OBLIGATION SYMBOLS**		
	**WEAR SUITABLE CLOTHING**		**USE HEAD PROTECTION EQUIPMENT**
	**WEAR HANDS PROTECTIONS**		**WEAR SUITABLE SHOES**
	**USE HEARING PROTECTION EQUIPMENT**		

2.0 MACHINE IDENTIFICATION

Designation	**CO_2 pump for the loading of CO_2 FIRE EXTINGUISHERS**
Model	1192
Typology	-
Serial No.	005/2018
Year of manufacture	2018

3.0 REFERENCES

Normative references

- Directive 06/42/EC (New Machinery Directive)
- Legislative Decree of January 27th, 2010 No. 17, which implements the 2006/42/EC
- Directive 2004/108/EC on "Electromagnetic Compatibility" and Legislative Decree No. 194/07 of 6/11/2007, which replace Directive 89/336/EEC and the Legislative Decree 615 of 12/11/1996
- Directive 73/23/EEC on Low Voltage and ordinary law of the Parliament No. 791 of 10.18.1977, replaced by Directive 2006/95/EC
- Directive 2003/10/EEC on noise exposure and Decree No. 195/2006 of April 10th, 2006
- UNI EN 292/1, 292/2, 294, 349, 60204-1
- Consolidated law on health and safety at work, Legislative Decree No. 81, of April 9th, 2008, integrated with Legislative Decree No. 106/2009

Support Centre Unique and at the headquarters of the manufacturer

Manual 01/11/11

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4.0 IDENTIFICATION AND POSITIONING

4.1 Identification plate

The machine is identified by a plate made as required by the Directive 06/42/EC, placed on the right hand side of the control panel as in Figure 1.

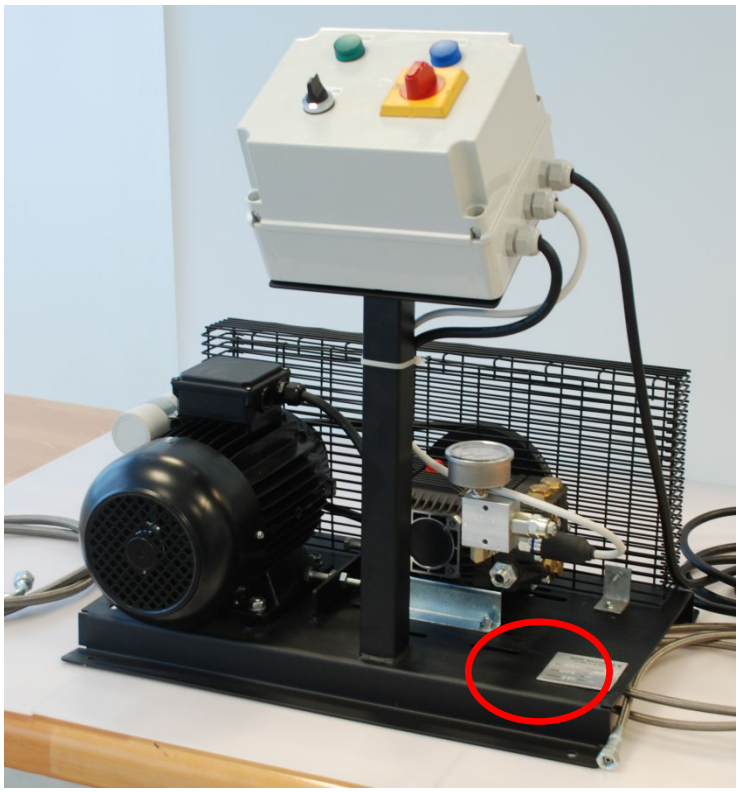

Figure 1 - Overall view of the machine

WARNING

Never remove the plate from the original location chosen by the manufacturer.

Do not alter or falsify the technical data listed thereon.

Do not clean the plate with any blunt objects (e.g.: wire brushes), to avoid damaging the data mentioned above.

If the plate deteriorates with use or is no longer legible, even in only one of its data, a new plate should be requested to the manufacturer, reporting the data included in this document.

4.2 Operator position

Figure 2 shows the operators' working positions during the machine operation.

NOTE: Please note that the machine in question can be installed either on a workbench or on the ground and that the operator will perform his tasks in correspondence with the end of the flexible hose provided. The actual position of the operator will therefore vary from installation to installation.

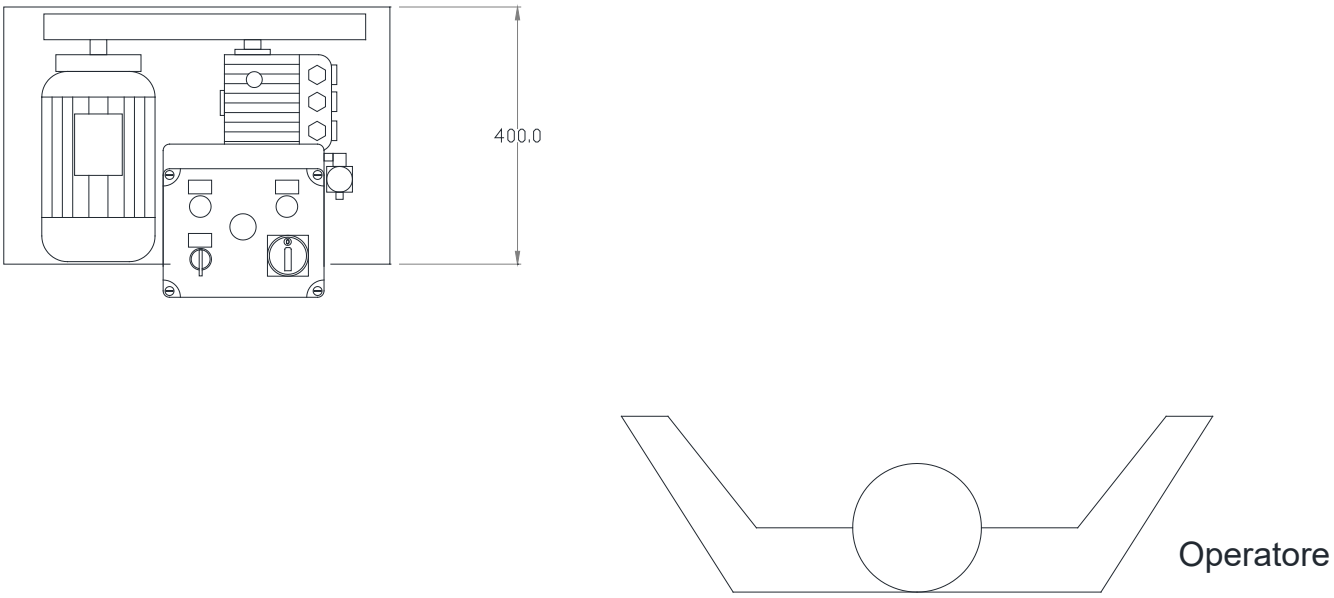

Figure 2 - Possible position of the operator

5.0 PRESENTATION AND DESCRIPTION OF THE MACHINE

5.1 Use

The *PC2* machine, hereinafter also named system or equipment, is intended to be used by the purchaser for the loading of CO_2 Fire Extinguishers or cylinders.

The machine in question is a CO_2 Pump the use of which provides for a suitable clamping device of the cylinder (not covered by this supply) and for a suitable system for measuring the weight of the injected CO_2 (also not covered by this supply).

The main operational phases of the machine can be summarized as follows:

1) Tightening of the extinguisher on suitable device
2) Connection of the extinguisher to the CO_2 Pump
3) Loading the CO_2 until reaching the required weight
4) Removal of loaded extinguisher from clamping device

5.2 Subgroups description

The machine is composed of the following main subgroups (see Figure 1 and Figure 2):

1. CO_2 Pump
2. Electric motor
3. Base plate
4. Electrical control panel

The **CO_2 Pump** has the task of transferring the CO_2 from a reserve tank into the extinguisher to be filled.

The CO_2 Pump is actuated by the **Electric motor** by means of a properly-protected belt.

The pump and the motor are mounted on a **Base Plate** which also supports the **Electrical control panel**. Located on the Panel, are the main switch, the start/stop pump selector switch, the light indicators as well as the emergency mushroom button.

6.0 LIST OF COMPONENTS

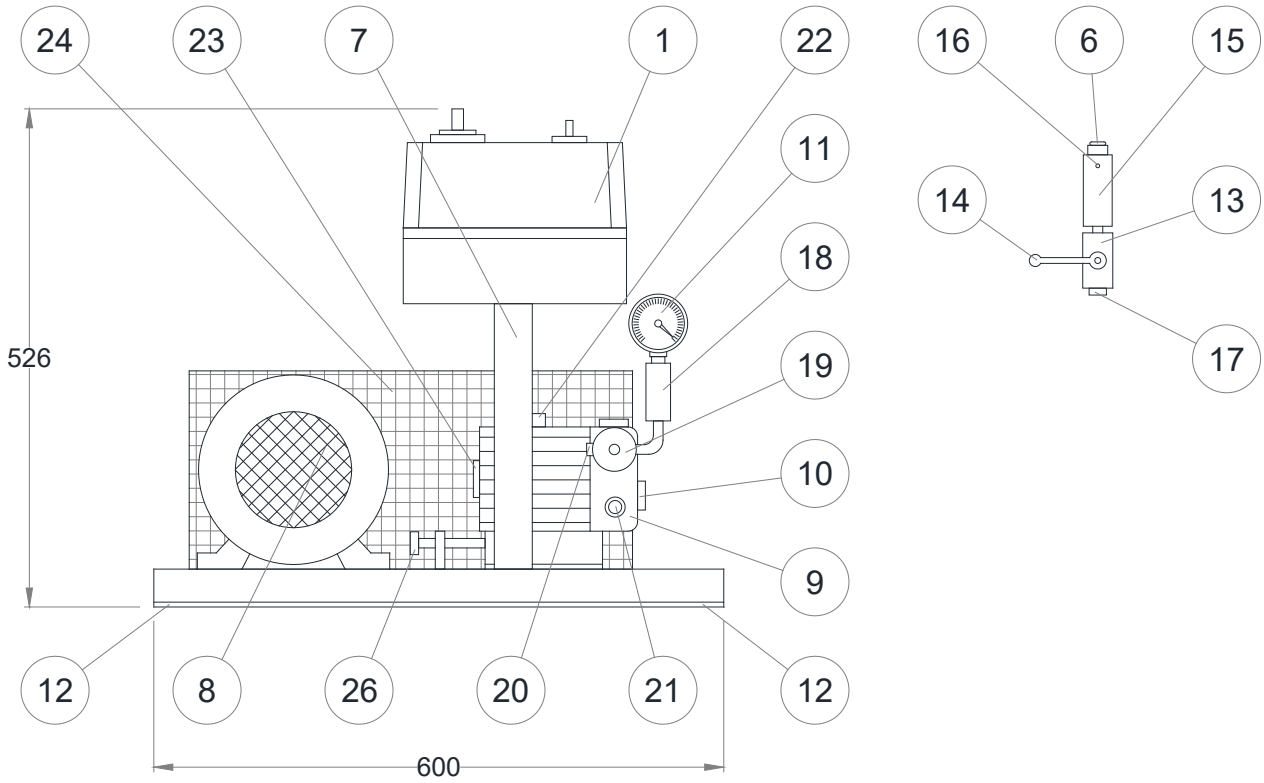

Figure 3 - System scheme – CO_2 Pump detail

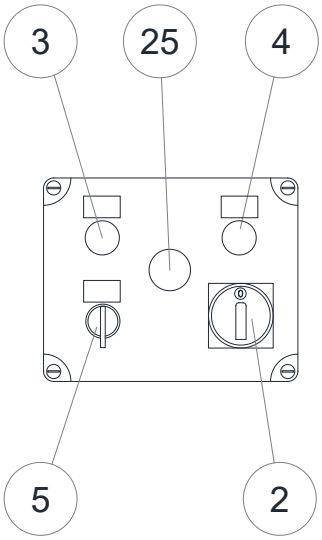

Figure 4 - System scheme – Control Panel detail

Below the legend of controls and equipment in Figure 3 and Figure 4:

1. Electrical panel;
2. General electric switch;
3. Light indicator detecting presence of electric voltage;
4. CO_2 pump operation light indicator;
5. Start/stop CO_2 pump selector switch;
6. OR seals for CO_2 loading;
7. Stove-enamelled metallic support;
8. Electric motor (220 V – 1400 revs/m – 3,0 Hp);
9. CO_2 pump;
10. CO_2 pump check valves inlet nuts;
11. Pressure gauge for the visual control of both input and output CO_2 pressure;
12. Holes for floor or workbench mounting;
13. A.P. ball valve;
14. Lever control;
15. Quick coupling for fire extinguishers;
16. Vent hole;
17. Flexible hose connection – ¼" M;
18. Adjustable pre-calibrated safety valve;
19. Adjustable pressure switch;
20. CO_2 Outlet – ¼" M;
21. CO_2 Inlet – $^3/_8$" M;
22. Inspection cap for checking oil level and oil insertion for CO_2 pump;
23. Oil level visual indicator;
24. Pulleys closure net and pump motor connecting belt.
25. Emergency button.
26. Screws for tension-adjustment of motor-pump transmission belt.

7.0 INSTALLATION AND WORK ENVIRONMENT.

NOTA: The installation or displacement to a different location shall be carried out by the personnel of the company "EMME ANTINCENDIO" or in strict accordance with the following instructions.

Before starting the installation of the machine, the operator must make sure to have all the adequate equipment at his disposal.
It is necessary to ensure a correct placement of the machine in order to guarantee the operation of both the mechanical and the pneumatic section.
The machine and the related electrical equipment are designed and built to be installed in an environment with industrial characteristics and to be used only indoors where they can not be subject to atmospheric agents.

	PLACE	Indoor (1)
	ROOM TEMPERATURE	From 0° C to 25° C (2)
	MAX ALTITUDE	1000 meters above sea-level
	MAX EXTERNAL HUMIDITY	50% R.H. at 25 ° C (3)

Figure 5 - Environmental operating conditions

1. The machine must be placed in environments which are not directly exposed to atmospheric agents.
2. Different temperatures may be permitted for short periods and in any case not during operation.
3. Different humidity may be permitted for short periods and in any case not during operation.
4. Different temperatures may be admitted only by replacing certain machine parts.

Unless otherwise specified in the contract, it is intended that the machine can only operate regularly at the environmental conditions specified in the following paragraphs. Environmental conditions other than those described may cause malfunctions or failures with consequent hazardous situations for the health of the operator and of the exposed persons.

7.1 Lighting

For the installation environment, it is necessary to adhere to the lighting criteria set forth in the standard (ISO 89953.89). The working area must be well lit so that the operator has no difficulty in operating and that devices of monitoring, command, control and emergency are always visible.
In case of poor lighting of the workplace, resort to portable lighting devices: do not connect auxiliary lighting devices to the electrical panel of the machine.

7.2 Acoustics

It is necessary to adhere to the acoustic criteria set forth in the standard so that the sound level produced by the machine does not exceed the acceptable value (80dB) in case of installation in special conditions. The machine meets the acoustic emissions values of the standard.
The tests carried out showed the following values of sound pressure, measured at their respective work positions:

Table 1 - Noise measurement positions

MEASUREMENT POSITION	LpA dB[A]
P1	62
P2	65

P1: Measurement carried out at OPERATOR POSITION, at a height of 1.55 m ± 0.075 m from floor level.
P2: Measurement carried out at the NOISIER LOCATION of the ideal perimeter of the machine, traced at 1 meter of distance from the machine itself at a height of 1.55 m ± 0.075 m from floor level.
L_{pA} dB[A]: Sound pressure level emitted, corrected, A-weighed, time-averaged.

The test was carried out in conditions of normal operation of the machine with automatic cycle, in an industrial building with Class-1 equipment (IEC804).

7.3 Danger of explosion or fire

As reported in the risk analysis the machine does not present fire hazards, however, it must be analysed on the basis of on the environment and of the rules governing such application. The machine shall in no case work in areas subject to danger of explosions.

7.4 Space and obstructions

For installation, adapt spaces in order to leave easy access to the people in charge of the work and maintenance. In addition, prior to installation it is necessary to check the availability of sufficient space for undisturbed manoeuvring. The installation area must be clear of obstructions.
Also consider adequate ventilation around the machine.

7.5 Electrical panels

The electrical equipment of the machine was designed and built by referring to harmonized standard EN 60204-1, 1998 edition and it is suitable for use in the surrounding environment and at the operating conditions specified below:

Ambient air temperature: between +0°C and +25°C
Humidity: 50% at a maximum temperature of +25°C
Max altitude: 1000 m above sea-level
Contaminating agents: The electrical equipment is adequately protected against the penetration of solid and liquid matter to the extent provided by the allowed use of the machine and of the environment of use thereof. Unless otherwise specified in the contract, the electrical equipment has no special protection against contaminants such as powders, acids, corrosive gases, salt etc.
Ionizing and non-ionizing radiation: The electrical equipment does not present any additional measures against radiation such as microwaves, ultraviolet rays, lasers, X-rays. In the event that the electrical equipment of the machine comes in contact with such radiation, additional measures must be adopted in order to prevent the malfunction of the equipment itself and the accelerated deterioration of the insulation.
Vibrations and shocks: The machine and the electrical equipment must be installed on surfaces that do not transmit vibrations and in environments where there is no danger of impacts with other mechanical sets.

7.6 Indications concerning transportation

WARNING:

Before carrying out the transport of the various parts, it is necessary that states of conservation of each instrument are controlled. Only use appropriate tools, meeting the current safety standards with regard to work equipment.

During load handling, operators must pay the utmost attention to avoid dangerous movements for themselves or others. Use slings and hoisting means which are adequate to the weight of the machine to be positioned and lift the machine as indicated in the figure for its lifting.

During the handling phase the properly trained personnel shall **follow** these guidelines:

1. Before removing the machine, make sure that it is fixed to the transport structure.
2. To transport the machine, the manufacturer has provided that some parts need to be disassembled and they will be thus delivered to assemble.
3. Mount on anchored pallets or transport by crane or bridge cranes taking care to firmly tie the component.
4. During transportation on road handling equipment secure the machine with ropes and anything else necessary to keep it stable.
5. The width of the passages should be sufficient to enable the passage of the necessary means of transport (trolleys, lifting appliances, etc.) and still allow a minimum clearance of 1500 mm around the machine.
6. The machine must be positioned on a floor capable of supporting the weight of the machine at full load and must have a slope not exceeding 2°.

7.7 Machine installation

NOTA: The installation or displacement to a different location shall be carried out by the personnel of the company "EMME ANTINCENDIO" or in strict accordance with the following instructions.

WARNING: The CO_2 reserve cylinders must be equipped with dip pipes so as to ensure the use of CO_2 in the liquid phase.

Refer to Figure 3 and Figure 4 for the items described in the following points.

- Fasten the machine to the ground or onto a workbench using appropriate screws or dowels through the 4 holes designated in the figure by the number **12**;
- **Check the tension of the motor-pump transmission belt and if necessary adjust it with the screws 26** (see chapter 11);
- Connect the large flexible hose supplied to the inlet **21** and to the spare CO2 cylinder using a ½" sealing disc;
- Connect the small flexible hose supplied to the outlet **20** and to the connection **17** of the ball valve **13**;
- **Replace the red cap for transportation with the yellow/black cap supplied designated in the figure by the number 22;**

- Verify the presence of oil in the pump through the visual indicator **23**;
- Insert the black O-ring seal supplied **6** at the end of the quick coupling **15**;

7.8 Electrical Installation

Electrical installation should be carried out by skilled and qualified personnel.
All operations described in this paragraph shall be performed with the network not carrying any voltage.
Check that the values of voltage and frequency are consistent with those indicated in the specific section of the technical characteristics mentioned above.
The user must install an adequate electric line disconnecting switch upstream of the machine, as well as effective means of protection against overcurrents, direct and indirect contacts.

- Connect the pump plug to a 220 V - 16A power socket.

Please note that the live parts were placed inside a panel with IP 44 protection and that the control circuits have been made at low voltage.

The panel, in compliance with the standards, is equipped with self-locking disconnecting switch.

7.9 Pneumatic fitting

All operations described in this paragraph must be performed with network without pressure.

- The machine in question does not provide for fitting to the pneumatic system.

Use appropriate accessories, assembled according to the manufacturer's instructions, and according to the rules of good practice.
Use filtered and dehumidified air and at 0.8 Mpa (about 8 bar).

7.10 Disposal

The national and EU regulations impose precise procedures for the disposal of industrial waste with the Legislative Decree. No. 22 of 05/02/1997 (repealed and replaced by Legislative Decree No. 152/06 Part IV) transposing the Directives 91/156/EEC on waste, 91/689/EEC on hazardous waste and 94/62/EEC on packaging and waste thereof.

Please note that, at the end of its working life, the machine must be disposed of as industrial waste and the collection, sorting, transport, treatment and deposit of waste on land must be carried out according to current regulations referred to in Directive 75/442/EEC and its subsequent amendments.

Oils (oils and/or lubricating greases etc.) used during the work cycle of the machine and/or for its maintenance must be disposed of following the Directive 75/439/EEC imposing to any enterprise disposing of waste oils to notify competent Authorities any information concerning the disposal or deposit of waste oils and their residues. Please note that

according to the Presidential Decree No. 691 of 23/08/1982 it is mandatory to contact the consortium of waste oils.

The material used for packaging entails no special environmental risks being composed of:

- Polyethylene - External coating film protecting against atmospheric agents and bubble cushioning sheet for impact protection.
- Plastic - Different parts of the packaging used for impact protection.
- Wood - Fixing blocks of mechanical parts and containment casing.

WARNING: Differentiation of the materials is advised in order to ease the procedure of storage and of recovery processes.

8.0 MACHINE OPERATORS

Generic operator:
Machining function and actuation of the machine for the phases of start-up and shut-down, efficiency control.

Qualified operator:
Monitoring function, periodic checking of the degree of efficiency of the machine, definition of possible replacements, verification of the correct operating parameters and of the degree of lubrication, verification of the parts subject to wear.

Electrical and mechanical qualified operator:
Assembly of the parts to be replaced, installation, electrical connection, preliminary setup operations, extraordinary maintenance with the possibility of replacing spare parts.

Supervisor in charge
Monitoring function, responsible for checking that the operator always works in compliance with the expected safety devices and standards.
Specific monitoring tasks:
• The correct positioning of safety devices;
• Compliance with personal safety standards;
• The integrity and functionality of the machine parts;
Verifies that the processing cycle always meets the specifications of the machine.

8.1 Personal protective equipment

For operators in charge of the machine assembly:

	Suitable clothing		Protective helmet
	Protective gloves		Protective shoes

For operators in charge of the machine operation:

	Suitable clothing		Protective shoes
	Ear protection (Optional but recommended)[1]		Protective gloves

For operators in charge of the machine maintenance:

	Suitable clothing		Protective helmet
	Protective gloves		Protective shoes

In order to ensure the safety of the operator this list is not exhaustive.

The operator will have to integrate the systems of personal protection required (plant) and prescribed by the employer.

[1] The machine does not exceed the noise level established by law, beyond which the use of ear protection is required; it is nevertheless possible to use such PPE. In this case, it is emphasized that the operator must pay even more attention as one of the senses of perception of danger (hearing) is temporarily lacking.

9.0 OPERATION AND USE

Refer to Figure 3 and Figure 4 for the items described in the following paragraphs

9.1 Preliminary operations

9.1.1 CO_2 preparation

Close the ball valve No. **13** by moving the lever **14** counterclockwise.

Open the valve of the CO_2 reserve cylinder.

WARNING: The CO_2 reserve cylinders must be equipped with dip pipes so as to ensure the use of CO_2 in the liquid phase.

IMPORTANT: It is absolutely forbidden to work without the protection net of the belt 24.

9.1.2 Preparation of scale and extinguisher clamping device (not included in the supply)

Before starting the work cycle, make sure to have a suitable device for measuring the injected CO_2 and a clamping system of the extinguishers' tanks.

NOTE: The cylinder to be filled must be fitted with a valve with M21,7 DIN connection.

9.2 Work cycle

Once the extinguisher to be loaded has been tightened above the CO_2 weight measuring device, connect the cylinder valve to the fitting **15** making sure that it remains open during the work cycle (e.g. by means of a rubber band).

Open the valve **13** by moving the lever **14** clockwise.

Rotate the main switch **2** to the right and activate the pump with the selector switch No. **5**.

Once the fire extinguisher is loaded, act on the selector switch No. **5** stopping the pump, close the extinguisher valve and the valve **13** by moving the lever **14** counter clockwise.

Unscrew the fitting **15** by venting the excess CO_2 through the hole **16** and seal the already-loaded extinguisher.

WARNING: If during loading the measured weight does not rise (the pump does not load), turn off the engine after maximum 10 seconds and replace the reserve cylinder, to avoid damaging the internal seals of the pump and cause it to malfunction.

	For the operation of replacement of the CO_2 reserve cylinder, the system must be completely vented.

WARNING: Avoid loading cylinders when the outside temperature is above 25° C. In summer work exclusively in the early hours of the day.

NOTE: If during loading the pump does not start or comes off in advance, the cut-off pressure of the pressure switch **19** must be increased by acting clockwise with an Allen wrench.

It is advisable to charge the CO_2 extinguishers by keeping the dip pipe in a horizontal position and **mandatorily** using a scale.

The pressure switch must be kept as an additional security as small masses of gas can cause the pressure to increase considerably (e.g. 200 extra grams of CO_2 may cause the pressure to rise up to 20 bar).

9.3 Voluntary termination of work cycle

At the end of the work cycle, close the CO_2 reserve cylinder valve and vent the system by opening the valve **13** by gradually moving the lever **14** counterclockwise and paying attention to the kickback.

Switch off the electrical panel by using the switch **2**.

	Before switching off the machine always make sure that the CO_2 system is not under pressure

9.4 Termination of work cycle for alarms

	**WARNING: Anyone detecting a danger to the safety relating to the operation of the machine in question is allowed to press the emergency mushroom button that stops the machine immediately. He will also have to raise the alarm by following the procedures for emergency management established by the purchaser.**

If the machine has stopped due to an alarm, verify the nature of the problem and intervene accordingly before continuing the work cycle.

10.0 TECHNICAL SPECIFICATIONS

MACHINE CHARACTERISTICS	
Equipment type	Electromechanical
Noise level (see chapter 7.2 for full details)	65 dB[A]
Emission of powders, gases, radiations	None
Electromagnetic emissions	None
Explosive atmosphere	Use forbidden
OVERALL DIMENSIONS	
Height	600 mm
Width	600 mm
Depth	400 mm
MASS OF MACHINE PARTS	
Unladen system	45 kg
CHARACTERISTICS OF ELECTRICAL SYSTEM	
Power supply type	Alternated
Supply voltage	220 V
Maximum current absorption	16A
Frequency	Hz 50
System	Three-phase + T
Degree of protection of equipment	IP 44
CO_2 Pump Engine Power	2,2 KW
CO_2 Pump Engine Revolutions	1400 g/min
ADMITTED FLUCTUATIONS OF GIVEN SIZES	
ELECTRICAL	
Voltage	± 10%
Frequency	± 2%

Other data:

CO_2 Pump Flow rate	8 Lt/min

11.0 MAINTENANCE

Routine operations and checks

- Machine cleaning - suck with suitable means (such as portable suction units) any accumulation of processing residues
- Checking lubricating oil levels and, if necessary, proceed to replenish
- Constantly check the presence of oil in the pump through the indicator **23**. Change the oil every 1000 operating hours or once a year by discharging it through the plug located under the booster pump and inserting it through the cap **22** by controlling the level thereof through the indicator **23**. In any case, follow the instructions in the pump booklet attached.

NOTE: ONLY add to the pump the oil of the type specified in the booklet attached.

- Periodically replace the seals supplied;
- Clean, at least once a month, the check valves located inside the machine and reachable by disassembling the screws **10**. Lack of cleaning may affect the fluidity and the capacity of pumping;
- **Check at least once a week the tension of the connection belt inside the net 24:** to stretch the belt loosen the nuts securing the booster pump, tighten the dedicated drawing screws placed between the motor and the booster pump (until reaching an acceptable voltage) and tighten again the screws tightening the pump.

Operations and checks

- Check functionality of emergency stop buttons
- Check tightening of frame structure bolts
- Check tightening of ground connections
- Check signalling lamps

	The flap of panel **1** can be removed only after having disconnected the electricity.

Important : The operations described above must be performed with machine in standstill and with open disconnecting switch, that is with machine powered-off.

12.0 PROTECTION COMPONENTS

Electrical parts

a) Main switch lockable with padlock
b) Minimum voltage relay to prevent automatic restart following interruptions
c) Emergency red mushroom buttons with stable position
d) Indicator lights to indicate that the machine is under tension

Other devices employed

- Emergency stop buttons on each control position;

13.0 SPECIFIC SAFETY INDICATIONS

- **Do not remove any safety devices and do not try to disable their action of prevention and safety.**
- **Do not use any mechanical element to disable the protections of interlocking devices.**
- **Keep the machine in efficiency and in good state of repair.**
- **Before performing any maintenance operations it is mandatory to:**
  - **Exclude power supplies by opening the line circuit-breakers.**
  - **Verify that the mushroom switches are activated and blocked.**
- **Before operating the machine, check that the electrical power supply system has the necessary line protections, that the disconnecting switches with protective equipotential bonding are installed, and that the conductors are in the adequate section and degree of insulation.**
- **All the personnel who will be using, maintaining and installing the machine should be aware of the safety rules and be in perfect psychophysical conditions.**
- **Access to the machine shall be denied to all personnel not expressly authorised to the use thereof.**
- **The operator must only use personal protective equipment (PPE) in accordance with the Legislative Decree No. 81 of April 9th, 2008, integrated with the Legislative Decree No. 106/2009. PPE must be used during work, in accordance with the methods of use specified in such standards.**

13.1 Illicit, improper or not-allowed use

The manufacturer declines all responsibility in case of improper use of the machine, other than the purposes for which it was designed and built.

The safety regulations and the instructions provided in this manual must always be followed scrupulously. In particular, it is essential to observe the operating limits indicated in this manual.

Unauthorized personnel must be forbidden to approach the equipment.

Operation, maintenance and repairs are only permitted to adequately prepared and trained operators, equipped with their safety equipment.

The manufacturer is also exempt from any liability in the event of:

- incorrect installation
- inadequate maintenance
- tampering
- use of non-original spare parts
- failure to follow given directions
- exceptional events.

It is forbidden to use the machine:

- in civil, private-use or public-access environments;
- in environments at risk of explosion or fire;
- in environments where there are contaminating agents such as powders, acids, corrosive gases, etc.;
- in environments where there is a possibility of exposure to radiation.

13.2 Liability of the User Company

It is the responsibility of the User Company to verify that all persons in charge of the various tasks:

- meet the requirements listed below;
- read and understand the instructions for use and maintenance;
- receive appropriate education and training for the tasks assigned, in order to follow them safely;
- receive specific training for the correct use of the machine;
- have received appropriate personal protective equipment;
- are physically and mentally fit (not subject however to the effect of alcohol, medications or drugs).

14.0 WARRANTY

The warranty period is 12 months from the date of delivery of the machine.

During the warranty period, travel expenses and subsistence of personnel involved in the maintenance will be provided by the purchaser.

The materials of ordinary consumption, such as lubricants and materials necessary for cleaning, materials or parts subject to wear, and those damaged by an incorrect operation of the machine are excluded from warranty.

The manufacturer shall repair or replace any defective parts at its own discretion.

Any replacement item will be warranted for the remaining period of the original warranty and in any case for not less than 30 (thirty) days.

The manufacturer ensures that the software and firmware designed/used with this machine will run the program instructions when properly installed on the machine. The manufacturer does not warrant that the operation of the machine or software, or firmware will be uninterrupted or error-free.

14.1 Warranty limitations

This warranty will not apply to defects resulting from improper or inadequate maintenance, or unauthorized modifications, use outside the specifications indicated for the machine itself.

The warranty is void if changes not expressly authorized by the manufacturer are made on the machine.

Any unauthorized tampering, replacement of parts of the machine, the use of non-original spare parts and the use of consumable materials other than those provided and indicated in the manual, may represent a serious risk of injury and relieve the manufacturer of any civil and criminal liability.

The manufacturer is also not liable for accidents that may occur to operators as a result of operations not provided or advised against by this manual.

<u>The safety valve are excluded from the warranty</u>

Note: No other warranty is expressed or implied.

15.0 SPARE PARTS

Any intervention on the equipment must be performed when the latter is not in use and powered-off.

All replaced parts must be original.

If unable to obtain original spare parts, only components having mechanical characteristics equal or superior to the original must be used instead; such characteristics can be requested from manufacturer.

For any other operation of repair and/or alteration of the equipment it is necessary to contact the manufacturer: possible interventions are allowed only by previous explicit permission of the manufacturer.

 WARNING

When ordering spare parts always specify:

- Machine model and Manufacture No. shown on the plate
- Code, Name and Quantity of the spare part requested

16.0 GLOSSARY

Dangerous areas: Any area within and/or in the proximity of the machine in which the presence of an exposed person represents a risk to the safety and health of such person.

Exposed person: Any person located, entirely or partly, within a dangerous area.

Operator or person in charge: The person/s responsible for installing, operating, adjusting, carrying out maintenance, cleaning, repair, or transporting the machine.

Expert operator or qualified personnel: operator in charge of the development, commissioning, lubrication, greasing, ordinary and extraordinary maintenance functions, expressly authorized by the "System supervisor".

Expert operator or electrical qualified personnel: operator in charge of the development, commissioning, maintenance of the electrical part expressly authorised by the "System safety supervisor".

17.0 DANGERS AND SYMBOLS

17.1 Normal use

The machine has been designed and constructed to minimize dangers of any kind that may be generated during normal use, provided that:

- ✓ installation is performed in the manner and by the methods outlined;
- ✓ the use is in accordance with the instructions provided;
- ✓ the personal protective equipment prescribed is used;
- ✓ the safety procedures described are correctly applied.

17.2 Installation, displacement phase

		During the installation or displacement of the machine crushing hazards may arise, generated by suspended loads

Maintenance phase

	Shock hazard due to the electromechanical and electronic elements installed in the control panels, if used by unqualified and unauthorized personnel
	Danger arising from residual pressures in case the discharge procedure for the maintenance was not properly respected
	Danger of crushing hands in case maintenance is not carried out by qualified personnel and all procedures of maintenance have not been observed

	Danger of crushing hands and feet in case maintenance is not carried out by qualified personnel and all procedures of maintenance or the use of adequate hoisting gear have not been observed

17.3 Danger signs around the machine

	Danger generated by moving mechanical parts
	Do not remove the protective devices. Placed on perimeter protections
	Do not perform any maintenance or adjustments when the machine is in motion. Placed on perimeter protections

17.4 Electrical panel

	Shock hazard
	Do not use water to extinguish fires Use CO_2 fire extinguisher

17.5 Warnings

The Client is required to replace each plate, pictogram and warning and danger signs in case they are ruined, worn and, in any case, not well-readable.

18.0 EXTRAORDINARY MAINTENANCE WORKS

Operations performed:			**Replaced materials:**	
_____ _____ _____ _____ _____			_____ _____ _____ _____ _____	
Date of intervention:	**Expiry:**	**Maintenance:** ☐ **Ord.** ☐ **Extr.**	**Technician:**	**Stamp and signature:**

Operations performed:			**Replaced materials:**	
_____ _____ _____ _____ _____			_____ _____ _____ _____ _____	
Date of intervention:	**Expiry:**	**Maintenance:** ☐ **Ord.** ☐ **Extr.**	**Technician:**	**Stamp and signature:**

Operations performed:			**Replaced materials:**	
_____ _____ _____ _____ _____			_____ _____ _____ _____ _____	
Date of intervention:	**Expiry:**	**Maintenance:** ☐ **Ord.** ☐ **Extr.**	**Technician:**	**Stamp and signature:**

Operations performed:	**Replaced materials:**
_____ _____ _____	_____ _____ _____

_____ _____		_____ _____		
Date of intervention:	**Expiry:**	**Maintenance:** ☐ **Ord.** ☐ **Extr.**	**Technician:**	**Stamp and signature:**