

PIUSI

*Fluid Handling
Innovation*

CUBE MC



**MADE
IN
ITALY**

Installation, use and maintenance manual **EN**

BULLETIN MO104 F EN_00

ENGLISH



BULLETIN MO1O4 F

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2 FACSIMILE COPY OF EU DECLARATION OF CONFORMITY

The undersigned: PIUSI S.p.A.

Via Pacinotti 16/A z.i. Rangavino - 46029 Suzzara - Mantova - Italy

HEREBY STATES under its own responsibility that the equipment described below:

Description: **DIESEL FUEL DISPENSER**

Model: **CUBE 70 MC**

Serial number: refer to Lot Number shown on CE plate affixed to product

Year of manufacture: refer to the year of production shown on the CE plate affixed to the product
complies with the following legislation:

- **Machine Regulations**
- **Electromagnetic Compatibility**
- **ROHS II Regulations**

The technical file is at the disposal of the competent authority following motivated request at PIUSI S.p.A. or following request sent to the e-mail address: doc_tec@piusi.com.

THE ORIGINAL DECLARATION OF CONFORMITY IS PROVIDED SEPARATELY WITH THE PRODUCT

3 GENERAL WARNINGS

Important precautions

Symbols used in the manual



To ensure operator safety and to protect the pump from potential damage, workers must be fully acquainted with this instruction manual before performing any operation.

The following symbols will be used throughout the manual to highlight safety information and precautions of particular importance:

ATTENTION

This symbol indicates safe working practices for operators and/or potentially exposed persons.



WARNING

This symbol indicates that there is risk of damage to the equipment and/or its components.



NOTE

This symbol indicates useful information.

Manual preservation

This manual should be complete and legible throughout. It should remain available to end users and specialist installation and maintenance technicians for consultation at any time.

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4 SAFETY INSTRUCTIONS

Mains - preliminary checks before installation



ATTENTION

You must avoid any contact between the electrical power supply and the fluid that needs to be FILTERED.

Maintenance control

Before any checks or maintenance work are carried out, disconnect the power source.

FIRE AND EXPLOSION



To help prevent fire and explosion:

Use equipment only in well ventilated area.

When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode.



Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.

Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.

Ground all equipment in the work area.

Stop operation immediately if static sparking occurs or if you feel a shock. Do not use equipment until you identify and correct the problem.

Keep a working fire extinguisher in the work area.

ELECTRIC SHOCK



This equipment must be grounded. Improper grounding, setup or usage of the system can cause electric shock.

Turn off and disconnect power cord before servicing equipment.

Connect only to a grounded electrical outlets.

Electrocution or death



Use only 3 wire extension cords in accordance with local electrical codes. Extension cords should have a ground lead.

Ensure ground prongs are intact on power and extension cords.

Do not expose to rain. Store indoors.

Never touch the electric plug of socket with wet hands.

Do not turn the dispensing system on if the power connection cord or other important parts of the apparatus are damaged, such as the inlet outlet plumbing, dispensing nozzle or safety devices. Replace damaged components before operation.

Before each use check that the power connection cord and power plug are not damaged. If damaged, have power connection cord replaced before use by a qualified electrician.

The electrical connection between the plug and socket must be kept well away from water.

Unsuitable extension leads can be hazardous, in accordance with current regulations. Only extension cords that are labelled for outdoor use and have a sufficient conduction path should be used outdoors.

For safety reasons, we recommend that, in principle, the equipment be used only with a earth-leakage circuit breaker (max 30 mA).

Electrical connections must use ground fault circuit interrupter (GFCI).

Installation operations are carried out with the box open and accessible electrical contacts. All these operations have to be done with the unit isolated from the power supply to prevent electrical shock!

NE

EQUIPMENT MISUSE

Misuse can cause death or serious injury



Do not operate the unit when fatigued or under the influence of drugs or alcohol.
 Do not leave the work area while equipment is energized or under pressure.
 Turn off all equipment when equipment is not in use.
 Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
 Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
 Do not kink or over bend hoses or use hoses to pull equipment.
 Keep children and animals away from work area.
 Comply with all applicable safety regulations.
 Do not exceed the maximum operating pressure or the temperature of the part with lower nominal value of the system. See Technical Data in all equipment manuals.
 Use fluids and solvents that are compatible with the wetted part of the system. See Technical Data in all equipment manuals. Read the manufacturer's instructions of the fluids and solvents. For more information on the material, request the safety data sheet (MSDS) from the distributor or dealer.
 Check the equipment every day. Immediately repair or replace worn or damaged parts only with original spare parts of the manufacturer.
 Make sure the equipment is classified and approved compliant with the standards of the environment where it is used.
 Use the equipment only for the intended use. Contact your distributor for more information.
 Keep hoses and cables far from traffic areas, sharp edges, moving parts and hot surfaces.
 Do not bend or overbend the hoses or use the hose to pull the equipment.

BURN HAZARD

Equipment surfaces and fluid that is heated can become very hot during operation



TOXIC FLUID OR FUMES HAZARD



Read MSDS's to know the specific hazards of the fluids you are using.
 Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
 Prolonged contact with the treated product may cause skin irritation: always wear protective gloves during dispensing.

5 FIRST AID RULES

Electrocution

disconnect the unit from the mains, or use a dry insulator as protection while moving the electrocuted person far from any conductor. Do not touch the electrocuted person with bare hands until he/she is far from any conductor. Ask qualified and trained people for help immediately

SMOKING PROHIBITED



When operating the dispensing system and in particular during refuelling, do not smoke and do not use open flame.

6 GENERAL SAFETY RULES

Essential protective equipment characteristics

Personal protective equipment that must be worn



- Wear protective equipment that is:
- suited to the operations that need to be performed;
 - resistant to cleaning products.



Safety shoes;



Close-fitting clothing;



Protective gloves;

Safety goggles;

Other Equipment



Instruction manual

7 TRANSPORT, HANDLING AND UNPACKING

CUBE MC is shipped in a cardboard packaging that cannot be stacked.

During storage follow the directions shown on the packaging with graphic patterns about the handling side. If the machine is lifted, check if the capacity of the lifting means and of the accessories (such as the bands) is correct. The use of mechanical means for handling and lifting must be solely entrusted to authorised and suitably trained staff.

During machine inactivity, both packed or unpacked, it should be stored in an area protected against weather agents (rain, moisture, sun, etc...) and dust.

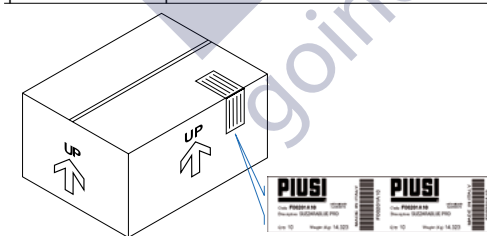
To open the cardboard packaging, use scissors or a cutter, taking care not to damage the system.

With the help of a second operator, fully open the packaging and grasp the CUBE MC putting it vertical, so that it can be positioned afterwards.

Once removed from the packaging, the station should always be kept vertical. The packaging elements (cardboard, wood, cellophane, polystyrene, etc...) must be placed in the suitable containers and not left in the environment or within children easy reach as they are potentially harmful. Disposal should be performed in compliance with the standards in force in the utilisation country.

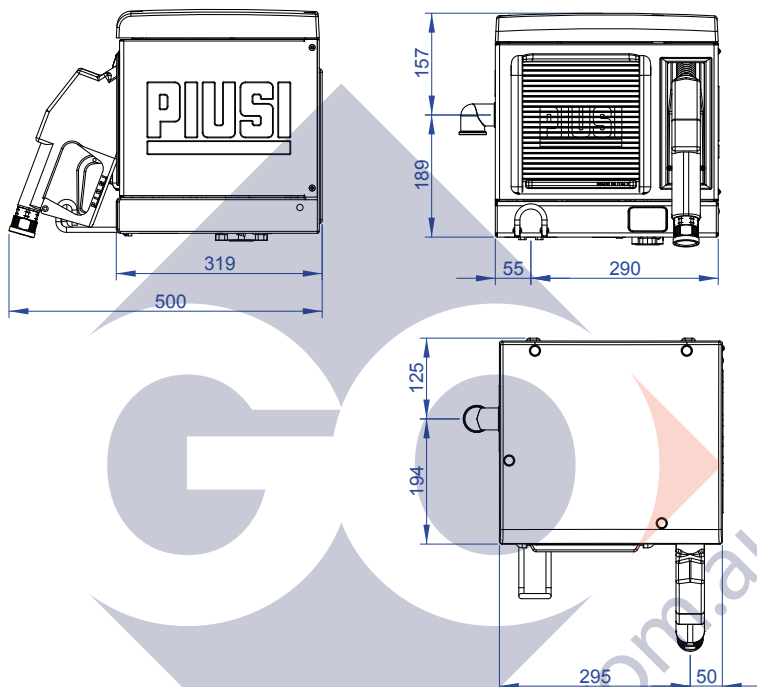
The following indications are specified on the package:

- an arrow indicating the TOP side;
- a label containing all the information relating to the equipment (model, weight, etc.).



7.1 DIMENSIONS AND WEIGHTS

MODEL	WEIGHT (Kg)	PACKAGE DIMENSIONS (mm)
CUBE MC	25	400 x 400 x 460
PEDESTAL KIT	15	-



7.2 PACKAGE CONTENTS/PRE-INSPECTION

Foreword

Before assembly, make sure the machine is integer controlling all parts for possible damage that could hinder safety and functionality.

In case of doubt, do not start up and contact the manufacturer's technical service.

Control if the accessory set is complete.

At the end of the control, assemble CUBE MC:

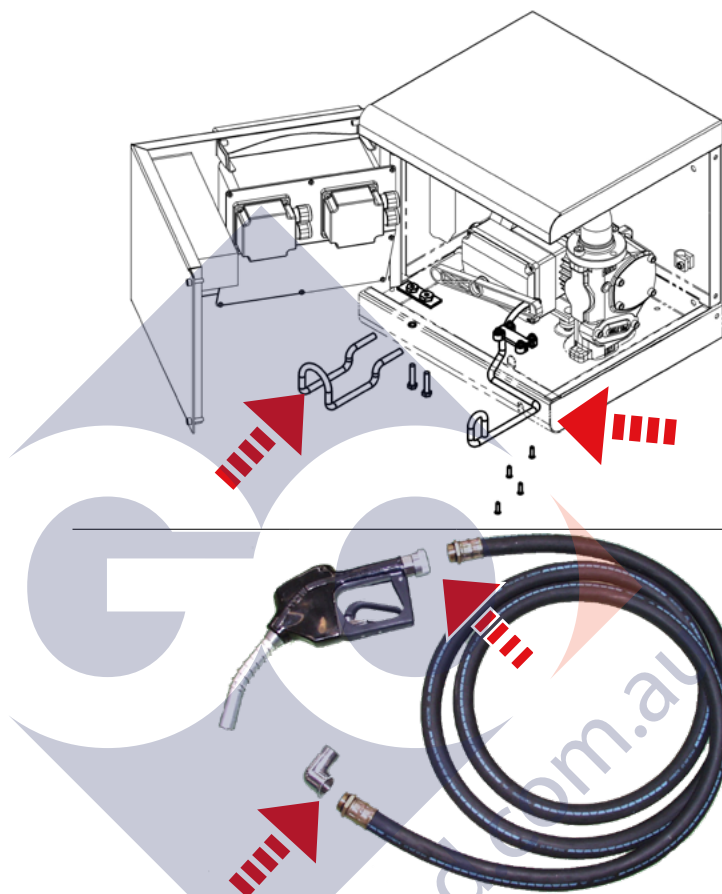
1 FIT THE HOSE SUPPORT HOOK



2 FIT THE EQUALISER OPERATING LEVER



MOUNTING EXAMPLE



3
APPLY THREAD
SEALER AT
THE POINTS
SHOWN IN THE
PHOTO, BEFORE
PROCEEDING
WITH FINAL AS-
SEMBLY

8 MACHINE AND MANUFACTURER IDENTIFICATION

The SELF SERVICE stations feature an identification plate that is attached to the shell showing

- Model
- Serial number / Year of manufacture
- Technical data
- EC mark
- Instruction manual code

ATTENTION



Before installing the unit, check that the model is right and suitable for currently available supply voltage and frequency

8.1 PLATES POSITIONS

The dispensing system is equipped with decals and/or plates to provide operators with the necessary important information. Make sure that these do not deteriorate or become detached over time.

NOTE



Should this situation arise, please contact our support department and arrange to have the damaged or missing plates sent back and replaced where necessary.

The decals present are as follows:



- Pump activation plate



3 - CE plate with technical data



4 - "ATTENTION" plate applied to the seal of the station door, with indications of reading of the instructions for use before use.



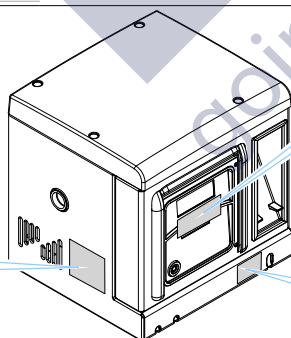
Code F0059400D
Description CUBE MC

LINE NUMBER
1234567

Q ty QTA Weight (Kg)



5 corner label to be applied on the box



9 DESCRIPTION OF MAIN COMPONENTS

9.1 BODY

CUBE MC dispensers are designed for the transfer of diesel fuel for private use. Characterized by maximum safety and simplicity of use, CUBE dispensers are dependable, high-performance equipment that is quickly installed and ready for use. Equipment and features are:

1 - Blade type rotating self-priming pump with incorporated by-pass valve.

2 - Motor with degree of protection IP55 and heat protection, 230 V AC single phase.

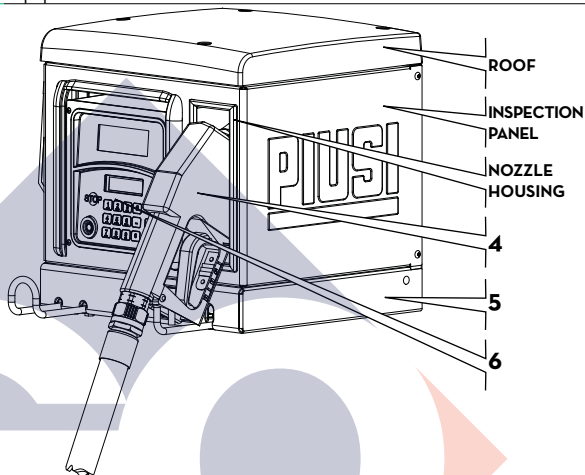
3 - Four meters of anti-static rubber tube for fuel.

4 - Automatic type dispenser nozzle with ON/OFF switch integrated in the nozzle support.

5 - Steel body with anti-corrosion treatment and paint finish. Control system.

6 - System management

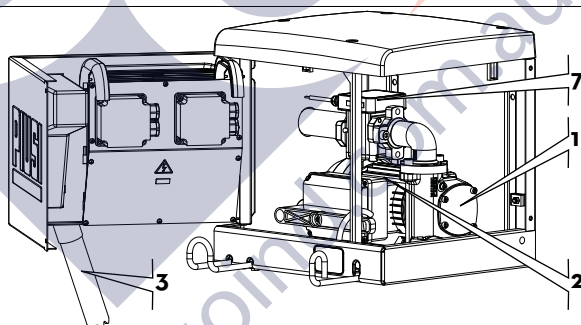
7 - Meter



Z

9.2 PUMPING UNIT

Unit with blade type self-priming electric pump, featuring bypass valve. Such a valve allows functioning for brief periods of time even with the dispensing nozzle closed. The motor, which is directly coupled to the pump body, is asynchronous, of the closed type (degree of protection IP 55 according to EN60034-5-86 standard) self-ventilated, single phase. For further details, refer to the single components manuals.



9.3 PULSER METER

The K600/3 Pulser meter features a measurement system with high-precision oval gears designed for accurate fuel metering. These have a sturdy die-cast aluminium structure and are complete with inlet suction filter. They are easy to service and reliable. For further details, see the dedicated manual.

9.4 CONTROL SYSTEM

The electronic control system -MC- ensures the dispenser can only be used by authorised personnel. All the data relating to each dispensing operation are stored and can be transferred to a PC (optional). For further details, see the dedicated manual.

9.5 NOZZLE

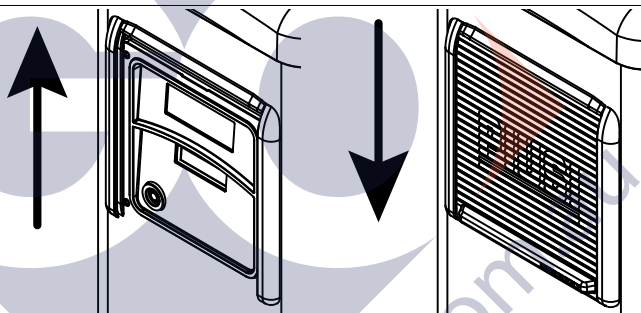
SELF SERVICE is supplied with automatic nozzle, with delivery shutoff device operating when the tank is full.

9.6 LEVEL INDICATOR (OPTIONAL)

The efficient electronic indicator "OCIO" is integrated in the management system to check and measure fuel level in tanks. Further information can be found in the corresponding manual,

9.7 DISPLAY COVER

To ensure adequate protection and the correct visibility of the CUBE MC display units, including in very strong light conditions, a pull-out display unit cover has been integrated in the structure. This can be lowered in case of need. In very strong light conditions, we advise always keeping the display cover lowered when not in use.



10 TECHNICAL SPECIFICATIONS

10.1 TECHNICAL DATA

MODEL	Voltage	Frequency	Power	Absorption	Max Flow Rate
CUBE MC70 MC	230 V	50 HZ	900 W	4,2 A	70 l/min
CUBE MC70 MC	110 V	60 HZ	550 W	5,5 A	69 l/min

ZE

10.2 POWER CONSUMPTION

NOTE



The CUBE MC stations must be powered by a power line with the same RATED VOLTAGE /FREQUENCY as that indicated on the identification plate. The following max. variations can be accepted:

- VOLTAGE +/- 5%
- FREQUENCY +/- 2%

ATTENTION



Power supply from lines with values that do not fall within the indicated limits could cause damage to the electrical components.

The IDENTIFICATION PLATE shows maximum ABSORBED POWER (in Am-pères), with respect to which, the power protection appliances required by applicable standards (not supplied with the station) must be sized. The maximum absorbed power refers to intended-use operation - DISPENSING OF DIESEL FUEL - with power supply within the above-mentioned limits.

11 INTENDED USE

WARNING

Flammable liquids and explosive atmosphere



The system was not designed for dispensing of diesel, petrol, flammable liquids with flash point <55°C/131°F, or for operation in environments with potentially explosive atmosphere. The use in the above mentioned conditions is forbidden.

ATTENTION

Environmental conditions



The use of the system for purposes different from those specified in section «Intended use» is strictly forbidden. Do not operate the system for any purpose other than the purpose described within this manual; all other use is considered «IMPROPER» and will result in Piusi S.p.A. disclaiming any responsibility for damage to property, people, animals or to the system itself.

- DIESEL FUEL at a VISCOSITY from 2 to 5,35 cSt (at a temperature of 37,8° / 100°F C). Minimum Flash Point (PM): 55°C / 131°F (In accordance with the EN590)

Fluid Permitted

- Paraffinic HVO/XTL: EN 15940

ATTENTION

Environmental conditions



TEMPERATURE: min. -20° C / max +60° C

RELATIVE HUMIDITY: max. 90%

The temperature limits shown apply to the pump components and must be respected to avoid possible damage or malfunction.

12 INSTALLATION

WARNING Authorised installation personnel



CUBE MC can be installed outside. Nevertheless, it is advisable to locate it under the shelter of a roof to ensure the dispenser's longevity and provide greater comfort during refuelling in the event of bad weather. The installation of the dispenser must be carried out by skilled personnel and performed according to the instructions provided in this chapter. Whenever CUBE MC is not installed under cover, a "display cover" is provided to protect the display and keyboard.

All installations must be carried out by authorised and competent personnel only. Authorised persons must

- install the system in dry and well-ventilated place;
- ensure the correct installation of equipment required for the correct functioning of the pump;
- only use accessories that have been supplied with the system.

ATTENTION



The use of accessories that are unsuitable and were not provided with the system is strictly prohibited. Piusi S.p.A. accepts no responsibility for damage to persons, property or the environment caused by failure to comply with this requirement.

THE DISPENSING SYSTEM IS FOR PROFESSIONAL USE ONLY.

As per the current legislation, the dispensing system must be used in premises that are sufficiently well-lit.

The dispensing system has been specifically designed for use in a dry place. If installed outside, an adequate protective covering must be provided.

Motors are not explosion-proof. DO NOT install SELF SERVICE in places with danger of explosion.

12.1 POSITIONING

The positioning of the SELF SERVICE must be such that it is possible to:- Easily remove the panels to access the inner components when necessary.- Observe the distances and maximum differences in level between the station and the tank.- Securely fasten the casing to the ground on a horizontal surface. Station positioning determines the following parameters, which distinguish each installation:

Hp: Priming height

Ls: Total length of the suction pipe - from the foot valve to the station (expressed in metres)

To ensure correct station operation, the following limitations must always be kept to:

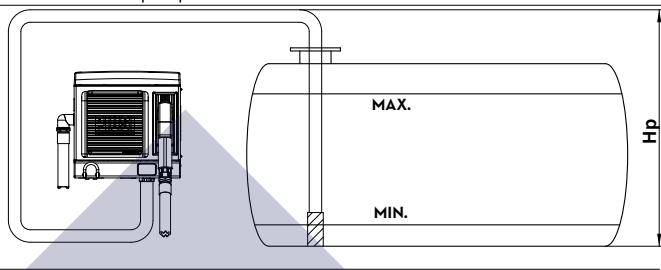
Hp max: not over 3 metres

LS max: not over 15 metres

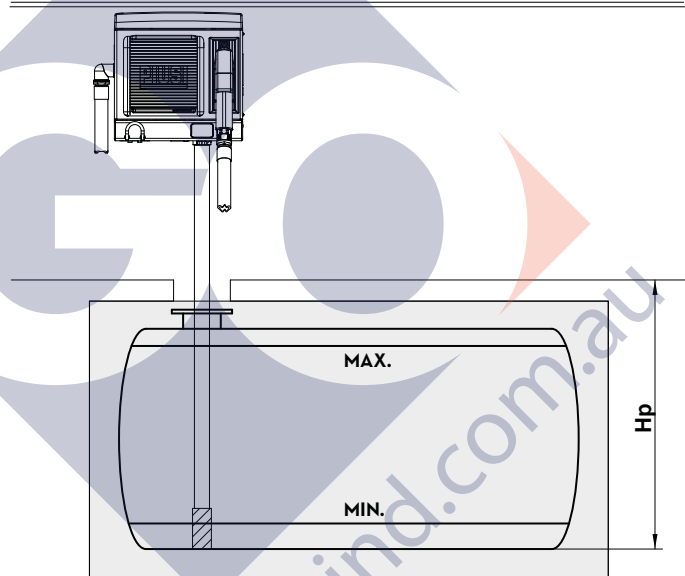
12.2 FIXING

Before starting installation, make sure no packaging materials are trapped in the pipes. Prepare suitable stilts or fixing brackets depending on the fixing position of the CUBE MC. The tube coming from the tank must be aligned to the threaded inlet of the pump filter which is located under the CUBE MC.

ABOVE-GROUND TANK



UNDERGROUND TANK



12.3 HYDRAULIC CONNECTIONS

ATTENTION



The use of accessories that are unsuitable and were not provided with the system is strictly prohibited. Piusi S.p.A. accepts no responsibility for damage to persons, property or the environment caused by failure to comply with this requirement.

Always follow the below-listed instructions:

- Use pipes and joints suitable for operation in vacuum conditions.
- Use pipes and accessories suitable for treated fluid. Unsuitable materials can result in serious damage to the pump; they can also cause pollution.
- Do not use conical threaded connectors that could cause damage to the threaded connector on the pump filter if tightened excessively
- Use wide-radius bends so that pressure losses are reduced to minimum levels.
- Check that suction pipe is perfectly clean and free from scales.
- Install a FOOT VALVE equipped with FILTER at suction pipe end. Place the foot valve on tank bottom. Foot valve and pipe must have the SAME DIAMETER.
- Before starting installation, make sure that no packing material has been left in the pipes.

SUCTION LINE

The diameter of the "Ds" suction line must be selected according to the station model and the position of the station with respect to the tank. With reference to the "Hp" and "Ls" values indicated at point H2, the following MINIMUM DIAMETERS of the suction pipe must always be ensured.

MAXIMUM LENGTH OF THE SUCTION PIPES

The maximum length of the tubing, the diameter of the tubing, the difference in height, are parameters that are tightly linked to creating suction conditions. The latter must not be such as to create back pressure greater than 0.6 bar. It follows as a consequence that, after respecting the minimum diameter of the tubing specified in the "Recommendations and Warnings" below, the length of the tubing decreases as the difference in height that the diesel fuel must overcome increases and vice versa: in fact, the back pressure progressively increases by 0.08 bar for every meter increase in the static height of the pump with respect to the level of the diesel fuel in the tank.

RECOMMENDATIONS AND WARNINGS

- The suction pipe must resist a pressure of at least 10 bar and must be of a diameter NOT LOWER THAN 1" 1/4.
- The tubing must be suitable to functioning under back-pressure.
- Use tubing and accessories suitable for use with diesel fuel. Materials that are not suitable for use with diesel fuel can cause damage to the pump, harm people and cause pollution.
- Any curves in the suction pipes must be of the widest radius possible to limit the loss of head.
- Make sure that the suction pipe is clean and free of scum.

12.4 ELECTRIC CONNECTIONS

ATTENTION



The installation operations are performed with door open and power contacts accessible. All these operations must be performed with the appliance isolated from the power mains to avoid any risk of electric shocks!

All the installation operations must be performed by qualified electro-technical or electronic staff.

The sections of the cables must be appropriate to the current rates of the device

Electric connections shall be carried out by specialized personnel in a professional way. Full compliance with the regulations in force in the country where the unit is installed and with the wiring diagrams contained in this manual is required

ATTENTION



The CUBE MC dispenser does not feature overload cutouts and, consequently, as switch board must be fitted upstream of the CUBE MC complete with residual current circuit breaker suitable for the type of CUBE MC to be installed.

CUBE MC features a terminal board cover. Inside this cover are the terminals which the installer must connect up to:

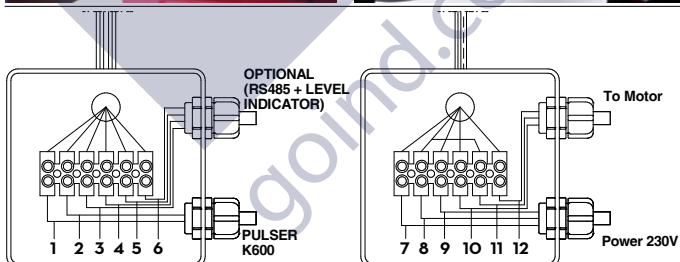
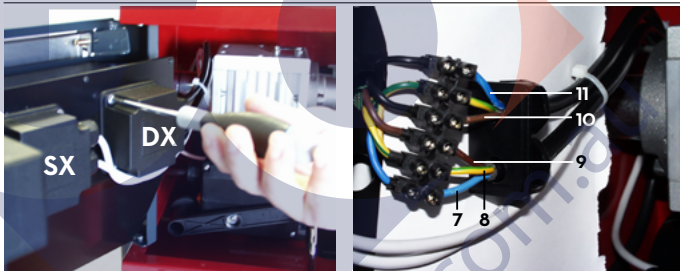
- The mains power line
- The RS 485 data line to the PC + level indicator (optional).

NOTE



The connector block, accessible through the front panel opening, is already wired up to the CUBE MC components, according to the block diagram shown below.

- 1- Remove the right terminal board cover.
- 2- Connect the cables as shown in the diagram.
- 3- Close the terminal board cover box again.



NOTE



The parts indicated in the diagram are the only connections to be made by the customer:

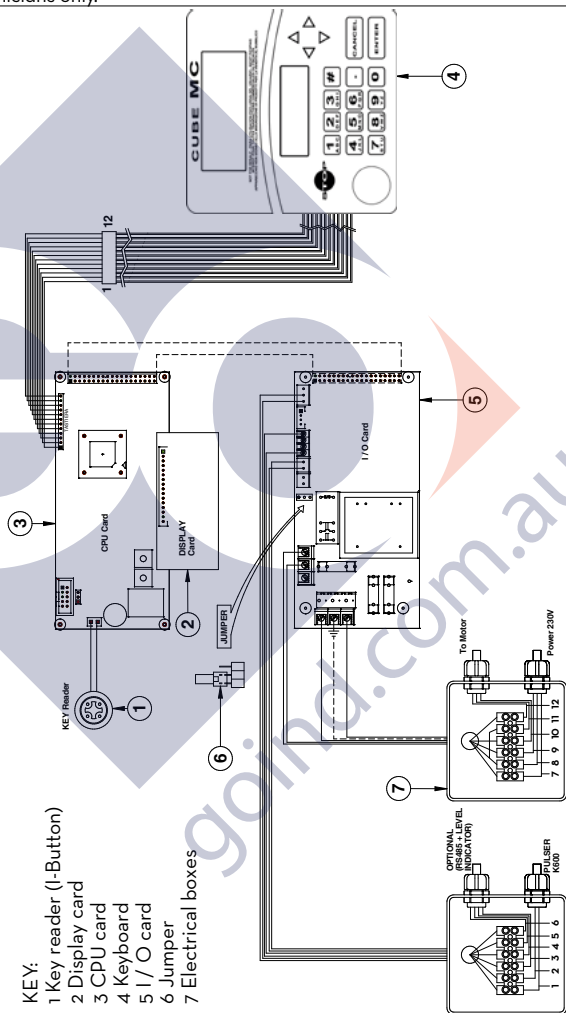
- Connection to power mains.
- RS485 output to PC (OPTIONAL).

ATTENTION



For CUBE MC commissioning, no further power connections are required. All the electronic components housed in the MC BOX are already wired up and factory tested. It is therefore **NEVER** necessary for the installer or station manager to open the MC BOX **except to replace the protection fuses housed on the I/O card (see photo below).** The installer should carry out a plug/socket connection for a quick sectioning of the electric system in case of failures.

Below are the main connections and the fuses to be replaced by skilled service technicians only.



13 STARTING

FOREWORD

To correctly commission the CUBE MC the sequence of operations indicated below must be followed and the MC control system functions must be known (see attached manual).

ELECTRICAL POWER SUPPLY

Once the power connections have been made, the CUBE MC can be energised by means of the master switch to be fitted by the installer on the upstream line. Switching on of the MC system will be indicated by the lighting up of the two backlit LCDs fitted on the front. Even when the nozzle is taken out of its seat, the pump WILL NOT start as it has not been enabled by the MC system.

WETTING THE PUMP

CUBE MC features a self-priming pump that makes first startup easier. To start the application, the suction pipe need not therefore be completely full of diesel fuel. For quick priming, especially in the case of installations distinguished by a considerable difference in level between the pump and the tank, it is however important for the pump to be "wetted", meaning that there must be a small quantity of diesel fuel inside the impeller chamber. The pump is supplied adequately "wetted" and ready for use. If however the installer considers the pump to be totally dry, perhaps due to prolonged storage, he will have to wet it as he thinks best.

STATION CONFIGURATION ATTENTION

Every CUBE MC station can be adapted to the specific requirements of the station manager. To do this the MC control system must be CONFIGURED.



MC configuration is crucial and must be done by skilled personnel. To perform this operation, the MC manual must be carefully and thoroughly read.

DISENGAGING THE "MC" SYSTEM

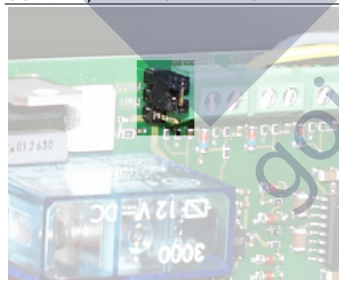
After completing configuration, user PIN CODES can be assigned to the persons charged with using CUBE MC, in accordance with the detailed information in the MC manual

All the CUBE MC functions are controlled by the MC control system. The MC system can never the less be disengaged for any startup or maintenance activities requiring repeated pump starting. In these case, it is often convenient to simplify pump startup by not having to enter any code and record any dispensing data. To do this, a JUMPER has been fitted on the card that permits switching from AUTOMATIC mode (code request to access dispensing) to MANUAL mode (no code request).

ATTENTION



The jumper is only accessible by opening the front panel and is positioned as shown in the photo. In this operating mode, MC does not record any data relating to performed dispensing operations. BEFORE ACCESSING THIS JUMPER, ALWAYS INTERRUPT THE POWER SUPPLY



In MANUAL mode:

- The MC LCDs could be off or continue to display whatever was showing at the time of switch over from AUTO to MAN.
- To start the pump, no PIN CODE is required; the pump will start as soon as the nozzle is taken off its seat and will stop when the nozzle is put back.
- The quantity dispensed by CUBE MC is not indicated in any way.

13.1 INITIAL PRIMING

To prime the pump:

- Take the nozzle off its seat
- Enter the previously assigned PIN CODE (if the jumper is on)
- Lift the control lever
- The pump will start immediately and will continue running indefinitely until the control lever is moved to OFF position.



Operate the lever of the automatic nozzle, keeping the spout inside an adequate container or the same suction tank. Air will first of all come out of the nozzle and then DIESEL FUEL will gradually begin to flow.

ATTENTION



The first priming of the pump must be done by skilled personnel who must monitor all the various stages involved. If only air continues to come out after more than two minutes, STOP THE PUMP and make sure:

- This is not working dry, but is at least “wetted” with diesel fuel.
- The suction pipe prevents any air from infiltrating and that this is completely submerged.
- The filters are not blocked.
- The suction and/or supply lines are not blocked.
- Installation (level difference, diameter and pipe length) is within the limits indicated at chapter “HYDRAULIC CONNECTIONS”.
- The disconnection valve is closed.

Continue dispensing until the flow is regular and air free. Position the control lever in OFF position: The pump stops. Place the nozzle back in its seat.

14 METER CALIBRATION

Before using the CUBE MC station, check the METER ACCURACY.

For this purpose, proceed as follows:

- Enter a previously enabled USER PIN code.
- Run the fuel into a calibrated container.
- Compare the quantity of dispensed diesel fuel using a calibrated container.

ATTENTION



To correctly check accuracy, always keep to the following instructions:

- Use a precision sample container, featuring a graduated scale, with a capacity of at least 20 litres.
- Before making the check, always make sure you have eliminated all the air from the system and then run the fuel until a full and regular flow is achieved.
- Dispense continuously at CUBE MC maximum flow rate
- Stop the flow by quickly closing the nozzle.
- Reach the graduated area of the sample container, avoiding prolonged dispensing at low flow rate, but rather performing short dispensing operations at maximum flow rate.
- Compare the reading provided by the container, with that provided by CUBE MC, after waiting for all the froth to disappear.

Should accuracy NOT be satisfactory, CALIBRATE the FUEL METER following the instructions supplied in specific manual.

ATTENTION



Differences of up to 1/10 of a litre affecting the dispensing of 20 litres of fluid fall within the guaranteed accuracy of +/- 0.5%.

ATTENTION



For dispensing equal to or less than 2 liters, the manufacturer does not guarantee the same precision of counting.

15 DAILY USE

Thanks to the MC control system, all the CUBE MC models provide access to authorised users only. MC acknowledges User authorisation by means of two alternative systems: The entering of a 4- figure SECRET CODE (PIN CODE).- The fitting of an electronic key (OPTIONAL).

ATTENTION



All the users to whom a PIN CODE is assigned must be adequately instructed and be at least acquainted with the contents of this chapter.

The configuration of the MC system permits requiring the User to enter further optional data (vehicle licence plate, mileage, quantity to be dispensed). See MC manual for details. If these options are not set, MC recognises an authorised PIN CODE and immediately enables the pump to dispense fuel.

ATTENTION



Such enabling does not result in immediate pump startup. The pump is in fact controlled by a switch (positioned in the nozzle seat) operated by the user.

The pump will start (if previously enabled) just as soon as the control lever is moved to ON position, while it switches off as soon as the control lever is moved to OFF position. No further manual operation is required to start or stop the pump.

15.1 FUEL DISPENSING

ATTENTION



Fuel shall be ABSOLUTELY dispensed under the User's strict supervision.

In case of simple configuration (no optional data to be entered), dispensing takes place as follows:

1

Enter PIN CODE

If the management system identifies an enabled pin code, the following messages are displayed and the pump is enabled.

ENTER PIN CODE

GOOD MORNING USER

2

Uncoil the hose from the hook and take the nozzle out of its seat. The management system starts the pump.

ATTENTION



Never operate nozzle lever before putting the nozzle in the container to be filled.

3

Operate nozzle lever to start dispensing fuel.

The management system displays quantity supplied.

ATTENTION



Dispensing can be stopped when desired. In case of prolonged break (break time can be set by the Manager at Configuration stage), the pump is stopped and disabled. Repeat operations from point 1. to resume dispensing.

4

After dispensing, coil the hose on the hook and put the nozzle back in its seat. The management system stops the pump

ATTENTION



If there is a power cut or the pump stops, the operator has to put the nozzle back in the unit seat. Remember that the nozzle can be opened only when the spout is in the tank.

16 MAINTENANCE

16.1 ROUTINE MAINTENANCE

CUBE MC has been designed so as to require minimum maintenance. For utmost station efficiency and safety, the following inspection and ROUTINE maintenance operations should however be regularly performed.

Safety instructions

The dispensing system was designed and built to require a minimal amount of maintenance. Before carrying out any maintenance work, disconnect the dispensing system from any electrical and hydraulic power source. During maintenance, the use of personal protective equipment (PPE) is compulsory. In any case always bear in mind the following basic recommendations for a good functioning of the dispensing system

Authorised maintenance personnel ATTENTION



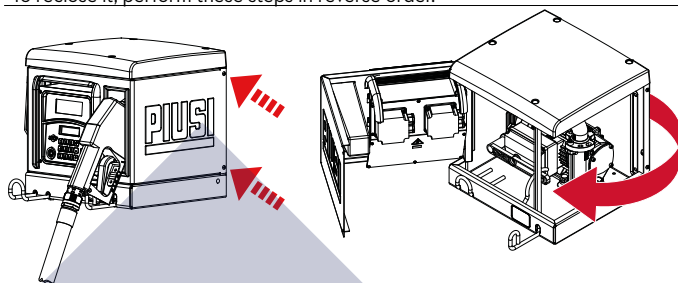
The maintenance of the electrical parts can be done only by qualified installer electrical or electronic.

Before performing any maintenance make sure to unplug the device from the power supply to turn it off and isolate it from the mains.

If the device is sold without cable to provide periodic verification of the circuit grounding in accordance with current regulations

OPENING AND CLOSING THE CUBE MC

- Lower the display cover
- Loosen the 2 screws on the right side (marked by the arrows)
- Open the inspection side of the CUBE MC
- To reclose it, perform these steps in reverse order.

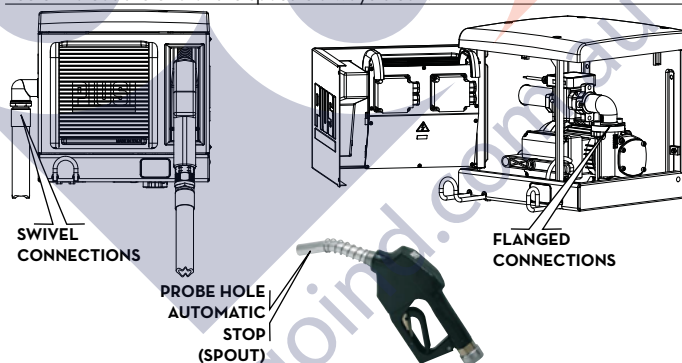


PUMP AND PIPES

Check the pump, the pipes and other internal components of the station and keep them clean. Make sure there are no leaks in the flanged or threaded connections and that the hoses are in perfect condition (not damaged) - refer to the pump and meter manuals.

DISPENSER PIPE AND NOZZLE

- Keep the dispenser pipe and nozzle clean and make sure especially that:
- The pipe is in perfect condition and has not been damaged by vehicle transit.
 - The threaded connections are tight and not leaking.
 - The swivel connections (at dispenser exit and on the nozzle) are turning freely and do not show leaks.
 - Keep the dispensing tube and nozzle clean and check that the automatic stop feeler hole at the end of the spout is always clean.



“MC” CONTROL SYSTEM FILTERS

The MC system is maintenance free. To control it however, refer to the dedicated manual provided.

CUBE MC features a number of filters having different functions. The inspection and cleaning (or replacement) of each filter is crucial to ensure:

- The protection of the various station components (pulsar, pump, nozzle).
- Station performance remains high over the years (maximum flow rate).
- Protection of the engines using the dispensed diesel fuel.

ATTENTION

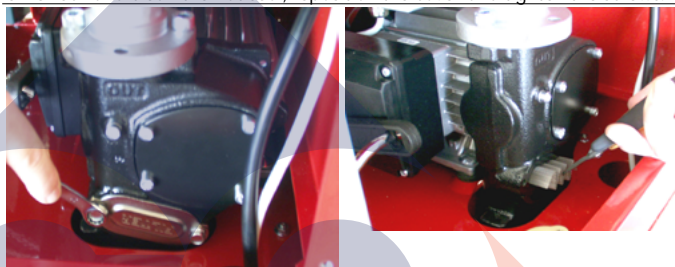
**PUMP FILTER
(ONLY AC
VERSIONS))**

Dirty or partially blocked filters can increase flow resistance and cause a considerable reduction in the maximum flow rate of the pump. Dirty or blocked pump suction filters also cause a big increase in vacuum during suction and this in turn can make the pump particularly noisy.

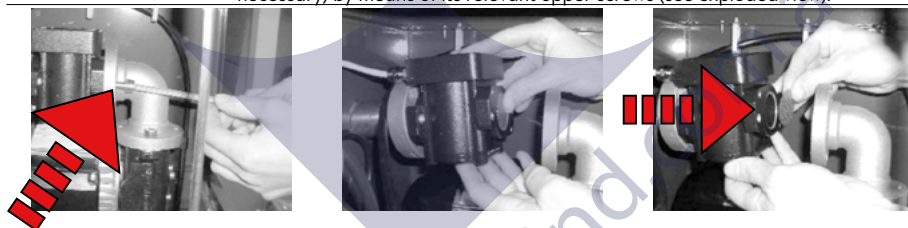
This is fitted in the pump body, as a standard PANTHER pump fitting.

To inspect and clean it:

- 1 - Loosen the two filter cover screws and take the cover off.
- 2 - Take out the mesh filter with the aid of a pair of pliers.
- 3 - If the filter needs cleaning, wash and blow it.
- 4 - Put the filter carefully back in its housing in the pump body, making sure it does not protrude from the cover housing.
- 5 - Check and clean the flat seal, reposition the cover and tighten the screws.


**PULSER
FILTER**

The pulser filter represents a further protection against the risk of foreign bodies entering the oval-gear pulser. Because this filter is fitted downstream of the pump suction filter, it does not require regular inspection and cleaning. Should the need arise however and/or in case of special maintenance, it can be cleaned as described in the PULSER MANUAL, after removing the roof of CUBE MC (if necessary) by means of its relevant upper screws (see exploded view).


PULSER

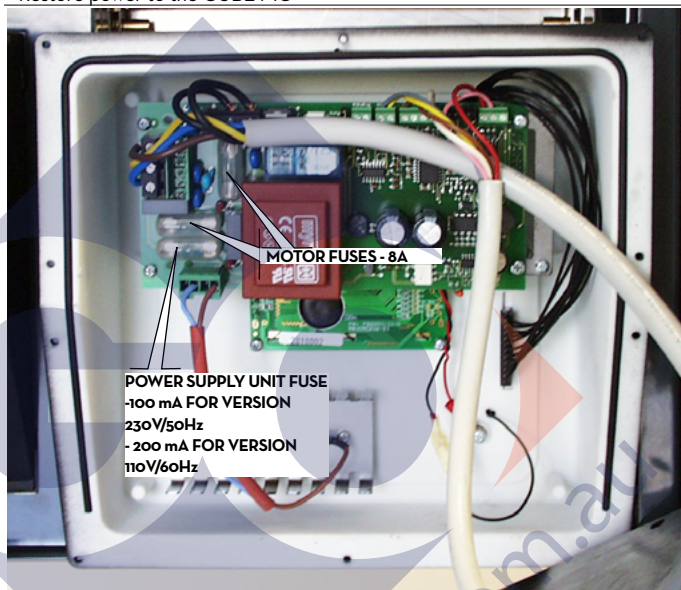
The meter / pulser is a carefully-made and assembled high-precision measuring instrument. It normally requires no routine maintenance.

CALIBRATION, normally done during station installation, can be repeated whenever accuracy checks, to be performed every 3/6 months, show the need. CALIBRATION is done electronically by means of the MC control system, and does not require any adjustments to be made to the pulser. For all details, refer to the K600 meter manual.

16.2 SPECIAL MAINTENANCE

In order to change the fuses inside the electronic board panel, we suggest proceeding as follows:

- Interrupt power to the CUBE MC
- Remove the cover of the MC BOX panel
- Replace the burnt out fuses
- Close the panel again
- Restore power to the CUBE MC



17 TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
MOTOR NOT TURNING	No electric power	Turn the pump ON/OFF switch to the ON position. Recock the external residual current circuit breaker. Check the electrical connections.
	Fuses burned out	Replace the fuses in the electric panel
	Problems with the motor	If the rotor is jammed, dismount and check for damage and obstructions then remount. Contact the service Department
MOTOR WIN'T START WITH NOZZLE CLOSED	Electric Voltage too low	Check the voltage is not more than 5% below the nominal voltage.
LOW OR NO FLOW	Excessive suction pressure	Lower the Self Service with respect to the tank or increase the diameter of the tubing.
	High loss of head	Use shorting tubing or ofd greater diameter
	Suction tube resting on the bottom of the tank	Raise the suction tube
	Low level in the suction tank	Fill the tank
	Air entering the suction tube or in the pump	Check the seals connection in the tubing and the level of diesel fuel in the tank
	Low rotation speed	Check the voltage at the motor Regulate the voltage of the motor and/or use the larger diameter cables.
	Check valve blocked	Clean or replace
	Tank filter clogged	Clean the filter
	Pump filter clogged	Clean the filter
	Fluid Leaking	Check the connection seals and the condition of the rubber tubes
	Meter chamber obstructed	Clean the Meter chamber
METER NOT ACCURATE ENOUGH	Air in the suction line	Clean the meter measuring chamber
	Insufficient calibration	Calibrate the meter (see MOO33)
THE NOZZLE SHUT OFF TOO OFTEN	Probe hole automatic stop is obstructed	Clean probe hole of automatic stop spout

18 DEMOLITION AND DISPOSAL

Foreword

If the system needs to be disposed, the parts which make it up must be delivered to companies that specialize in the recycling and disposal of industrial waste and, in particular:

Disposing of packing materials

The packaging consists of biodegradable cardboard which can be delivered to companies for normal recycling of cellulose.

Metal Parts Disposal

Metal parts, whether paint-finished or in stainless steel, can be consigned to scrap metal collectors.

Disposal of electric and electronic components

These must be disposed of by companies that specialize in the disposal of electronic components, in accordance with the indications of directive 2012/19/UE (see text of directive below).

Information regarding the environment for clients residing within the European Union



European Directive 2012/19/UE requires that all equipment marked with this symbol on the product and/or packaging not be disposed of together with non-differentiated urban waste. The symbol indicates that this product must not be disposed of together with normal household waste. It is the responsibility of the owner to dispose of these products as well as other electric or electronic equipment by means of the specific refuse collection structures indicated by the government or the local governing authorities.

Disposing of RAEE equipment as household wastes is strictly forbidden. Such wastes must be disposed of separately.

Any hazardous substances in the electrical and electronic appliances and/or the misuse of such appliances can have potentially serious consequences for the environment and human health.

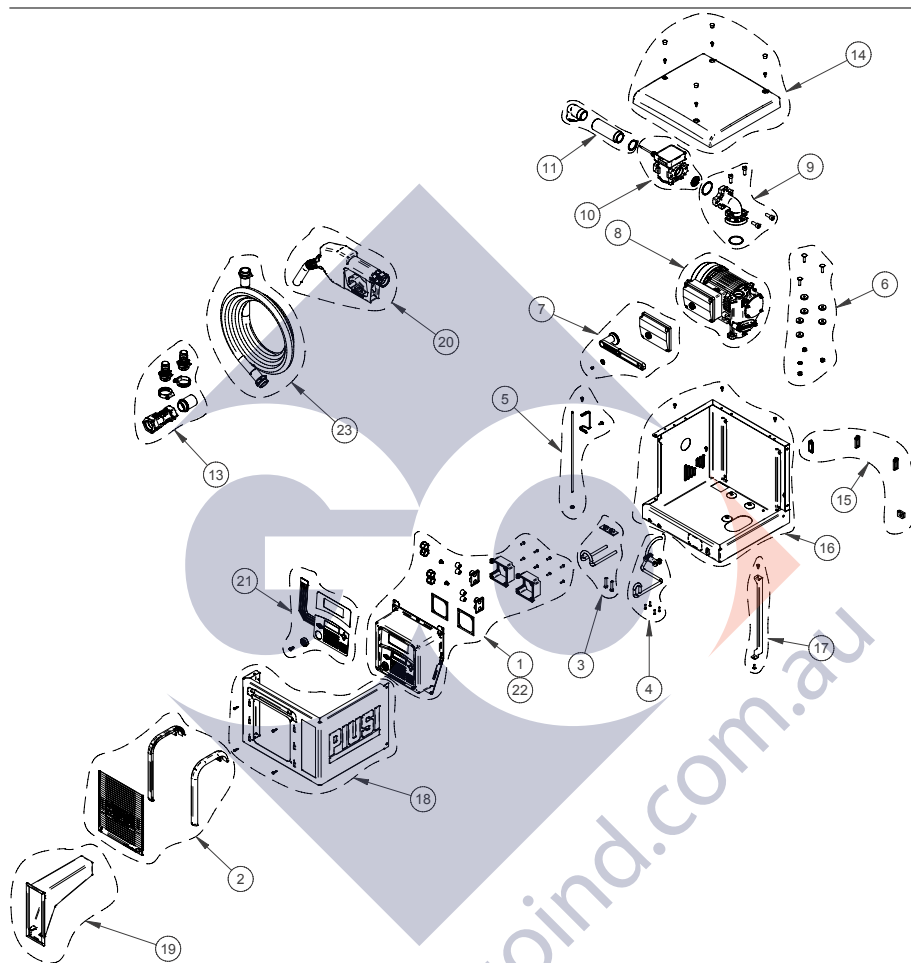
In case of the unlawful disposal of said wastes, fines will be applicable as defined by the laws in force.

Miscellaneous parts disposal

Other components, such as pipes, rubber gaskets, plastic parts and wires, must be disposed of by companies specialising in the disposal of industrial waste.

NE

19 EXPLODED VIEWS











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