

**RED**  
HEATING

# ASSEMBLY, USE AND MAINTENANCE MANUAL

## EXTRACTOR TURTLE RED







RED Line

# Turtle RED EXTRACTOR INDEX

## INSTRUCTION MANUAL

- Type: feeding system for solid fuel boilers
- Model: Turtle RED extractor
- Revision 1.0.3

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## 1 INTRODUCTION

Dear customer,  
the manufacturer would firstly like to thank you for the choice you made in buying an RED product, whose technical features will certainly meet Your needs.

Our products have been designed and manufactured in total compliance with the current regulations, by choosing the best materials to obtain durability and ease of use of the product.

We ask you, therefore, to read this manual carefully and completely, following strictly the instructions contained herein.

### 1.1 Use of this manual

The instruction manual is a document drawn up by the manufacturer and is part of the product: it integrates the specific rules of application and general rules for people, animals and objects safety. In the event that the product is resold, handed over, rented or sold to others, it must always be accompanied by this manual; therefore, it is recommended to use and keep it with care for the entire operative life of the product.

The main objective of this manual is to make known the proper and safe way to use the equipment.

No part of this manual may be reproduced, copied, or shared in any way, without the written permission of the manufacturer.

The manufacturer reserves the right to make improvements or modifications to this manual and to the equipment at any time, without obligation to advise third parties.

## 2 SAFETY FEATURES

2006-42-CE

2014-35-UE (VLD)

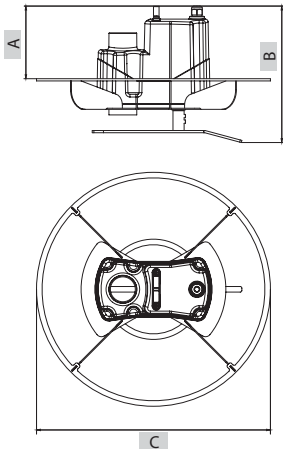
2014-30-UE (EMC)

### 2.1 Warnings

- Do not use the machine for any improper use.
- Do not let children near the machine.
- This unit must not be used by people (including children) with reduced physical, sensory or mental capabilities, or with lack of experience and knowledge, unless they are supervised or instructed in the use of the unit by a person responsible for their safety.
- Use only original spare parts.
- Do not put parts of the body into contact with the machine before having removed the electrical power.
- Disconnect the power supply when a long period of inactivity is expected.

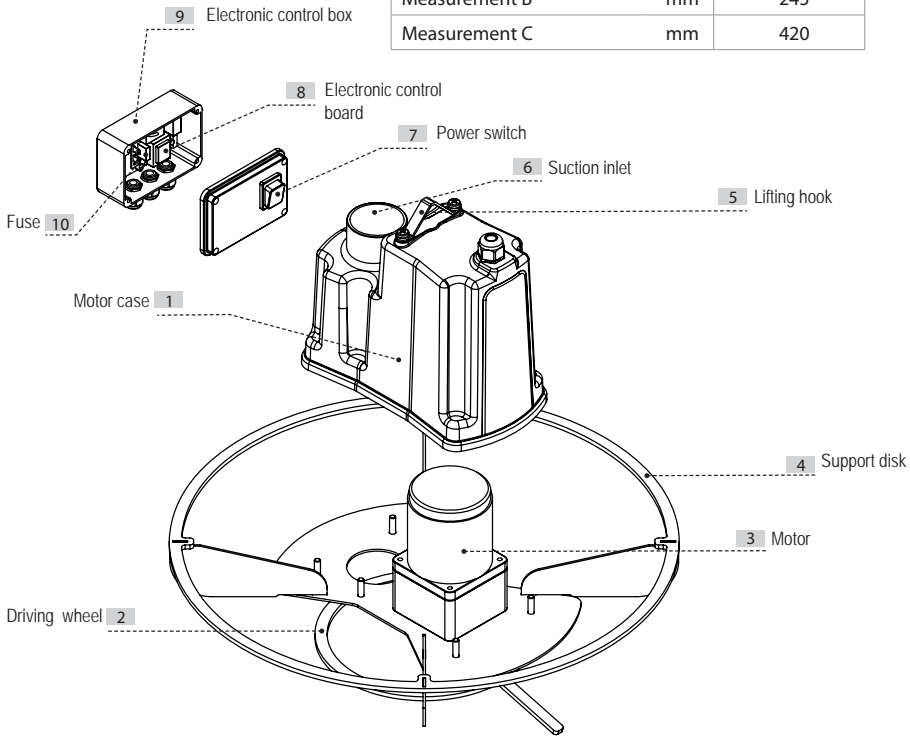
The manufacturer declines any liability or guarantee, if the buyer or anyone makes changes or even minor modifications to the purchased product.

3 TECHNICAL DATA, EXPLODED VIEW DRAWINGS AND DIMENSIONS



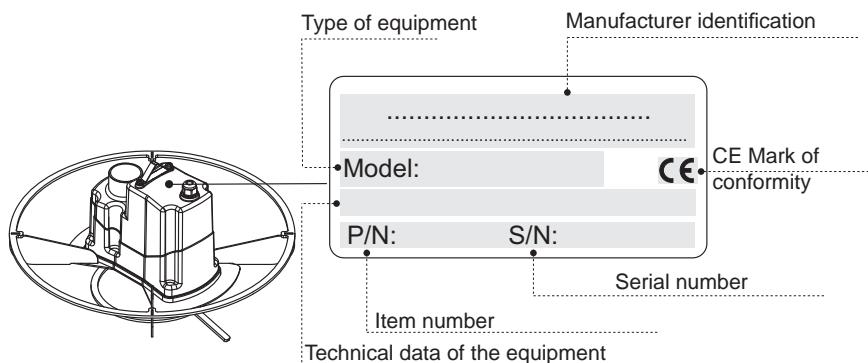
Article		40A17014
Suction inlet	Ø mm	50 M
IP protection degree	IP	44
Operating temperature min/max	°C	0 ÷ 40
Degree of humidity min/max	%	30 ÷ 95
Power supply	V ac	230
Frequency	Hz	50/60
Absorbed power	W	25
Max absorption	A	0,24
Fuse		5x20 T2A
Insulation class		1
Revolutions per minute	RPM	12
Weight	Kg	17
Max capacity (pellet)	Kg/h	120
Misura A	mm	130
Measurement B	mm	245
Measurement C	mm	420

English



### 3.1 Identification plate

Do not remove or damage the identification plate.



### 3.2 Safety symbols



#### **DANGER OF VOLTAGE OR ELECTRICAL CURRENT**

**Danger of serious personal injuries.**

During maintenance operations, always disconnect the power supply and make sure that it cannot be restored.



#### **DANGER OF CUTTING**

**Danger of serious personal injuries.**

During maintenance operations, always disconnect the power supply and make sure that it cannot be restored.



#### **DANGER OF AUTOMATIC STARTING**

**Danger of serious personal injuries.**

During maintenance operations, always disconnect the power supply and make sure that it cannot be restored.



#### **DANGER FOR THE HAND WHEN THE SCREW CONVEYOR IS IN OPERATION**

**Danger of serious personal injuries.**

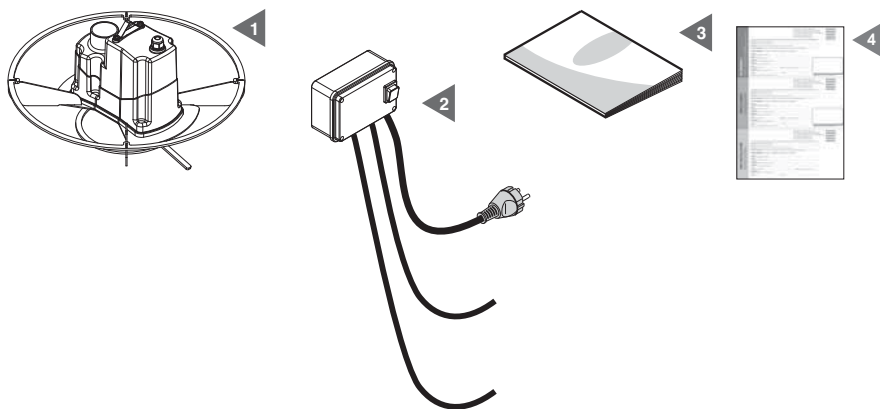
During maintenance operations, always disconnect the power supply and make sure that it cannot be restored.

It is recommended to pay full attention to pictograms and warnings of danger and prohibition in the present different parts of the equipment: if not respected, hazardous situations may occur.

#### 4 PACKAGING CONTENT

After opening the packaging, make sure that the material contained in the package conforms to the following list:

- 1) N°1 Turtle RED
- 2) N°1 control panel
- 3) N°1 use and maintenance manual
- 4) N°1 warranty form



Check that the product correspond to the one ordered and that no transportation damage is evident.

Should this not be the case, please contact immediately the seller.

## 5 PROPER USE OF THE PRODUCT

The Turtle RED has been designed to be installed for the pneumatic transport of pellets or other biomass fuels with a medium-fine size; it has the task of taking the fuel out of the summit of the heap contained in a tank of limited size.

**This product is suitable for the extraction of biomass fuel such as pellets, olive pomace, wood chips, crushed shells of dried fruit, corn, but it cannot work with fuels having a very fine size, or having excessive dimensions and, in any case, having lengths over 40 mm or diameter greater than 15 mm.**

**It is recommended to use only ENplus A1 certified pellet.**

In order to collect the fuel, the Turtle RED must be driven by a remote control (supplied) located outside the fuel tank, which in turn must be managed by a system that optimizes the operation of the entire pneumatic transport system.

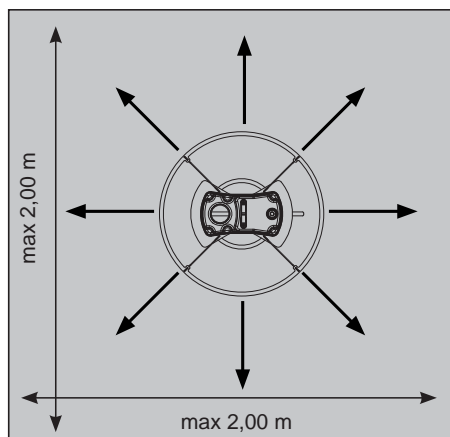
Once installed and connected, the Turtle RED must be placed on top of the fuel heap from where, through the driving wheel, it collects fuel until the tank is almost completely empty.

### 5.1 Placing the Turtle RED in the storage tank

In order to allow the correct functioning of the Turtle RED extraction system, the following requirements must be met:

- Maximum working area diameter 2 m
- Maximum anchor height 2.2 m
- Square or circular storage tank

In the case of irregular shape of the base of the tank, with sides exceeding 2 m, it is advisable to use a hopper supports with an inclination of 45° to limit the Turtle RED working area.





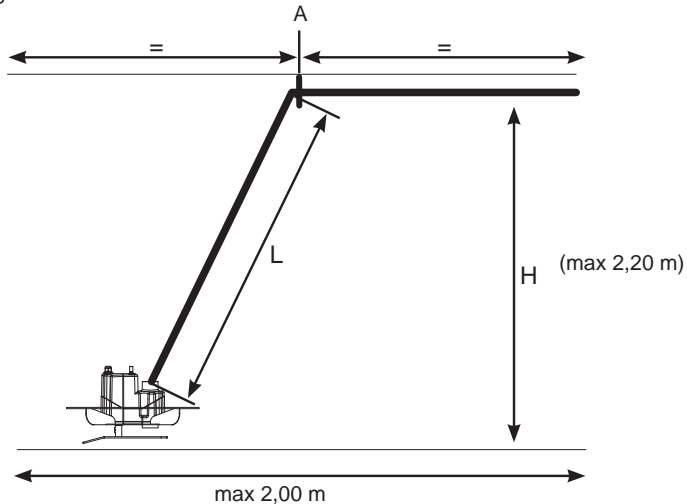
The loading inlet in the pressure filling tanks (through tanker) must be offset by at least 30 centimeters from the flexible hose anchorage point which connects the Turtle RED, so that it does not create damages during pressure filling. It is also advisable to provide a front bumper to the loading inlet.

**Leave an area of about 30 cm below the ceiling of the tank to allow the Turtle RED to be lifted during the filling phase.**

For Turtle RED lifting is available a special kit art. 40A17025.

To allow the correct operation of Turtle RED extraction system, it is necessary to adjust the height of the ceiling suspension in function of the height of the room according to the following indications:

- Fix the ceiling suspension at the center of the useful area for fuel extraction;
- Measure the length of the flexible hose as follows:



A - Anchorage point			
H - Height of anchorage to ceiling (cm)	180	200	220
L - Length of flexible hose (cm)	180 - 210	200 - 220	220 - 240

For storage tanks with a side smaller than 180 cm, always use the specified size for a room height of 180 cm.

For circular tanks, the maximum allowable diameter is 2.20 m and the maximum anchorage height is 2.50 m.

For large tanks with rectangular or irregular bases, contact our technical offices for feasibility checks.

## 6 INSTRUCTIONS FOR THE INSTALLATION OF SYSTEMS

Robust, long lasting pipes with diameter of 50 mm have been designed for RED systems installation, realized in galvanized steel, in flexible antistatic PU and also in rigid PVC. All of them are equipped with all the fittings and accessories needed.

During the installation of the transport systems, the pipelines carrying the fuel shall be constructed taking into account the following precautions:

- the maximum length must not exceed 25 m
- closes successions of curves or curves with a radius of curvature lower than 0,3 m must be avoid, particularly at the base of vertical sections
- avoid positive and negative siphons
- avoid out of level conditions in horizontal sections
- the maximum permitted height difference must not exceed 7 meters overall
- avoid vertical sections higher than 3,5 m each.
- Every change of direction is equivalent to a reduction of the maximum available length of 0,3 m
- Every meter of vertical pipe is equivalent to a reduction of the maximum available length of 2 m
- All the junctions and fittings must be sealed to ensure the maximum performance of the system
- Use only antistatic steel pipes or PU hoses with copper wire, taking care to connect them to a grounding point, in order to avoid the accumulation of static charges
- All pipes must be carefully fixed to walls or solid supports

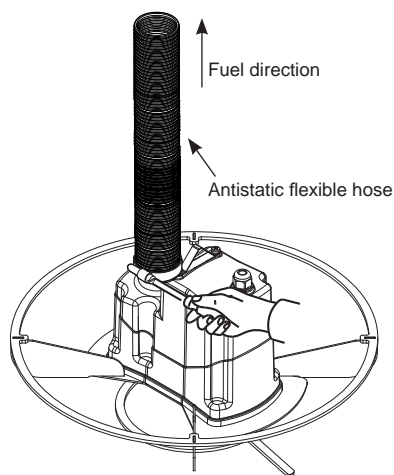
It is recommended to use only pipes, junctions and accessories present in the RED catalogue, as they have been researched, designed and built expressly for this equipment.

Before installing and putting into service the RED equipment, a careful reading of the supplied instructions is recommended. In any case of doubt, please refer to qualified personnel.

## 6.1 Connection to the piping network

To connect the Turtle RED to the fuel transport hose, use a  $\varnothing$  50 mm antistatic hose of a suitable length to allow the Turtle RED to move inside of the tank.

Fix an end of the hose to the Turtle RED with a steel hose clamp, then a piece of copper wire inside the hose should be stripped and put in contact with a grounding network to avoid static current in the system.



The other end of the hose must be connected to the rest of the fuel transport system, which can be made with antistatic hose or steel pipes, also present in the RED catalog.

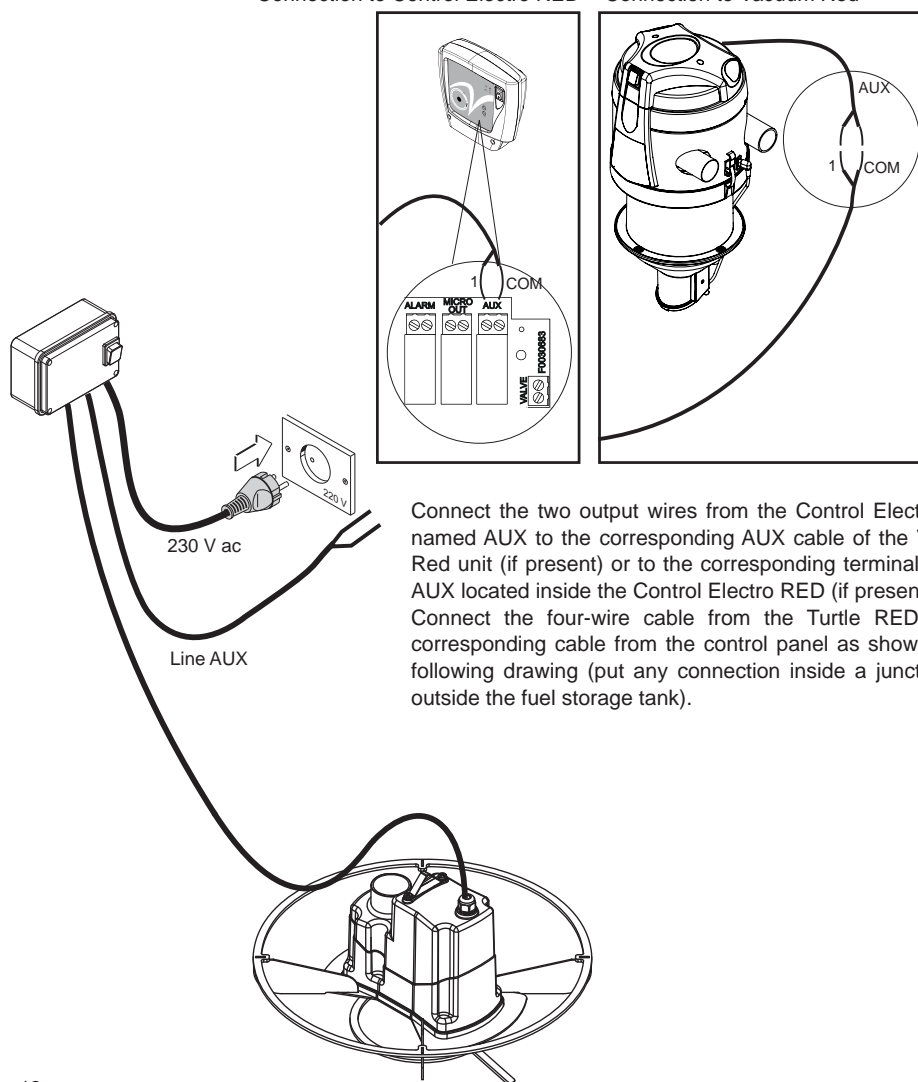
## 6.2 Electrical Connection

**Before making the electrical connection, check that the supply voltage corresponds to the one required and that the electrical system to which the product is connected is done in compliance with current regulations.**

Firmly fix Turtle RED output cable to the flexible hose till the exit of the tank, position and fix the control panel out of and near the tank on a fixed and sturdy support (wall), then connect the Control Electro RED as highlighted in the following drawing.

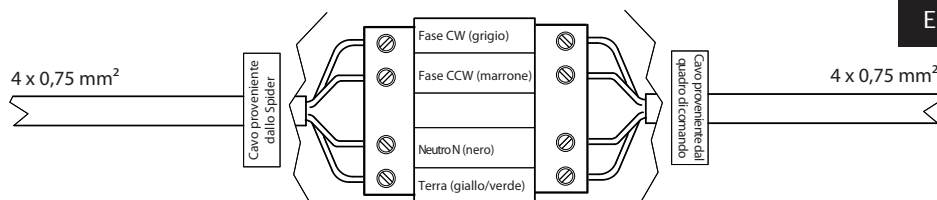
Connection to Control Electro RED

Connection to Vacuum Red



Connect the two output wires from the Control Electro RED named AUX to the corresponding AUX cable of the Vacuum Red unit (if present) or to the corresponding terminals called AUX located inside the Control Electro RED (if present). Connect the four-wire cable from the Turtle RED to the corresponding cable from the control panel as shown in the following drawing (put any connection inside a junction box outside the fuel storage tank).

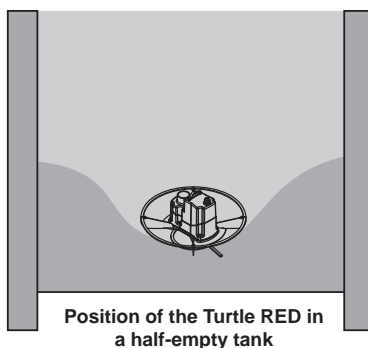
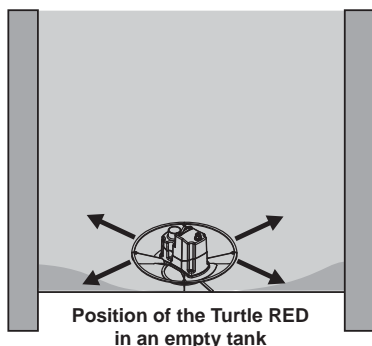
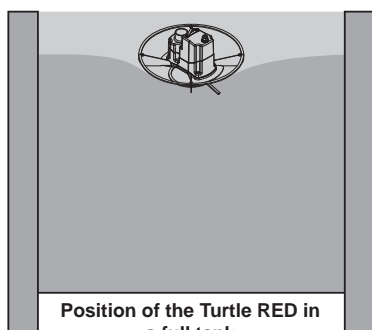
Turtle RED-control panel connection.



## 7 START UP AND USE

The Turtle RED start is controlled by the pneumatic transport control system in the Vacuum Red units or in the Control Electro RED: it usually happens with a delay of 3 seconds from the start of the system itself to allow the emptying of eventual fuel remaining in the pipes.

Thanks to the rotating system of the driving wheel, the Turtle RED moves the fuel in front of the suction inlet and, with the same system, once it reaches the bottom of the tank, it can go looking for fuel still present.



The rotating system of the driving wheel is determined by a timer allowing its sense inversion: this rotation time can be changed by positioning the microswitches in the control panel as shown in the following drawing.

The rotation time of the driving wheel should be adjusted depending on the fuel density: correct adjustment allows the Turtle RED not to immerse excessively in the heap and to prevent the hose from excessively winding up.

To make any change to the standard revolution time, proceed as shown in figure 1 and in the table below, not before removing the power supply from the control Electro RED.

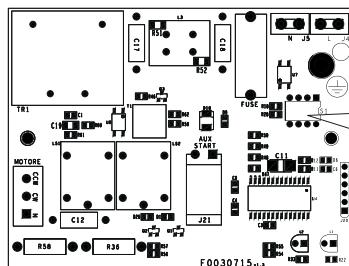
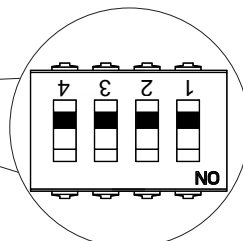


Figure 1



Serial adjustment  
45 seconds

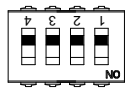
TABLE 1



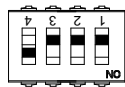
Clockwise / anti-clockwise rotation time = 15 seconds



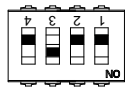
Clockwise / anti-clockwise rotation time = 30 seconds



Clockwise / anti-clockwise rotation time = 45 seconds \*



Clockwise / anti-clockwise rotation time = 60 seconds



Clockwise / anti-clockwise rotation time = 75 seconds



Clockwise / anti-clockwise rotation time = 120 seconds



Clockwise / anti-clockwise rotation time = 150 seconds

\* The factory set time is 45" for each direction of rotation.

## 7.1 Switching on and use

Before commissioning the Turtle RED make sure that:

- The hose allows the Turtle RED to reach every part of the bottom of the tank
- the hose is correctly and securely fixed over the center of the tank bottom
- electrical connections have been carried out according to law, as well as the electrical system to which the Turtle RED has been connected
- The driving wheel is well secured and free to move in both directions of rotation
- There are no foreign bodies inside the storage tank

**At first ignition it is advisable to enter only a small amount of fuel in the storage tank to test the system.**

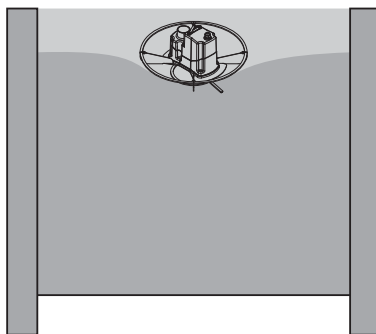
Before filling the tank with fuel, the Turtle RED should be raised over maximum level of filling: for this purpose, the RED catalog offers the lift system art. 40A17025.

Once the tank is filled with the fuel, the Turtle RED should be positioned at the center of the heap in a small cavity, see figure 1.

Figure 1

When filling the storage tank, level the fuel and place in the center of the tank a depth of about 30 cm.

Place the Turtle RED in the cavity.



After reading also the manuals of all the components of the system you can position the control panel switch on 1 and start using the fuel transport system by doing the adjustment operations described in the manual of control Electro RED or in the manual of Vaccum RED unit.

When the system is not operating it is recommended to position the control panel lighted switch on 0.

## 8 MAINTENANCE AND END-OF-LIFE

**Before carrying out any maintenance operation, it is obligatory to disconnect the power supply cable from the main socket and to aerate the premises in which it is installed for at least 15 minutes. Complex or long maintenance operations must be done out of fuel storage and heating unit premises. Any maintenance and repair operation must be carried out by experienced personnel and authorized by the manufacturer.**

In the absence of a specific maintenance plan, a complete product inspection is recommended for each filling of the storage tank or at least yearly .

The checks to be carried out at least yearly are:

- Check the antistatic pipe grounding conditions and the electrical system conditions
- Check the electrical wiring conditions
- Check the flexible hose conditions
- Check system anchorage conditions above the warehouse
- Verify that Turtle RED driving wheel is free to rotate in both directions
- Check the tightening of the driving wheel fixing screws on the Turtle RED crankshaft
- open the plastic housing and remove any traces of dust inside

It is also advisable to thoroughly clean the fuel storage tank at least annually, in order to avoid dust accumulation and presence of foreign bodies.

### 8.1 End-of-life

The disposal of packaging, accessories and machine must be executed in accordance with applicable laws, ensuring the recycling of any of the core components.





### SAFETY REQUIREMENTS for pellet storage tanks with capacity up to 10 t



Keep the doors closed. Access is permitted only to authorized personnel under the supervision of a person outside



Do not smoke and approach flames or other sources of ignition.



Danger of death due to high concentrations of carbon monoxide (CO) and lack of oxygen.



In the 4 weeks after the fuel filling, enter only with a CO detector.



Aerate the storage room for at least 15 minutes before entering and keep the door open during your permanence.



Ensure an adequate and permanent aeration of the storage room through vent covers, openings or fans.



Wounding risk for moving systems



Turn off the boiler at least one hour before the pellet is delivered.



Proceed to the filling according to the requirements of the boiler manufacturer and the pellet supplier.



Protect pellets from humidity



In case of fire suspect keep the front door and any other opening of the storage room close and call the firemen.

## 10 WARRANTY

### PRODUCT LIMITED WARRANTY CONDITIONS

The Manufacturer guarantees to the original purchaser the absence of defects in material and workmanship of the product for the period stated, from the date of purchase. Except as prohibited by applicable law, this warranty is non transferable and it is limited to the original purchaser. The present warranty gives the buyer specific legal rights and the possibility to claim rights which can vary under local laws.

Read all warnings and instructions before using the product purchased.

The entire liability of the manufacturer and your exclusive remedy for any breach of warranty will be at the discretion of the Manufacturer:

(1) To repair or replace the product, or (2) refund the purchase price, provided that the product has been returned to the point of purchase, or such other place as may be specified by the manufacturer, with a copy of the sales receipt or detailed and dated receipt. The shipping and handling are not free of charge, except in cases where this is prohibited by applicable law.

To repair and replace the product, the manufacturer may, at their own discretion, use new, refurbished or used parts in good working condition. Any replacement product will be warranted for the remaining time of the original warranty period, or for any period of time that complies with the provisions of the current law.

This warranty does not cover problems or damage resulting from (1) accident, abuse, misapplication, repair, alteration or unauthorized disassembly; (2) maintenance operation, use which is not in accordance with the product instructions or connection to an improper voltage supply; or (3) use of consumables and spare parts which are not supplied by the manufacturer or authorized service center.

Valid warranty claims are generally processed through the point of purchase of the product.

Please agree this detail with the retailer where you purchased the product.

The Warranty claims that cannot be processed through the point of purchase, as well as any other product related questions, should be addressed directly to the manufacturer.

Except as stated by relevant laws in force, any implied warranty or condition of merchantability or suitability for a particular purpose relating to this product is limited to the duration of the Limited Warranty period for the specific product purchased.

Some jurisdictions do not allow limitations on the duration of implied warranties or the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may have other rights that vary from state to state, or from jurisdiction to jurisdiction.

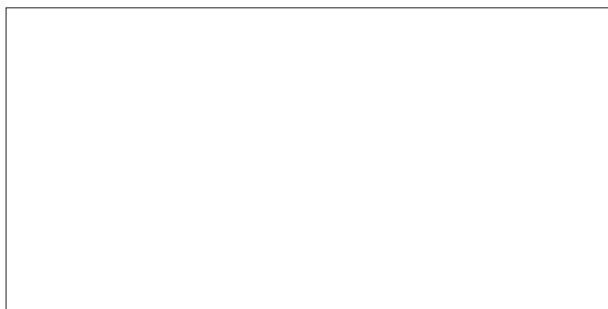
Consumers have legal rights under applicable national legislation governing the sale of consumer products. Such rights are not affected by the warranties in this Limited Warranty.

No dealer, agent, or employee of the manufacturer is authorized to make any modification, extension or addition to this warranty.

**Declaration of absence of harmful substances**

The manufacturer declares that their products and equipment are made with materials compliant with the current regulations regarding protection of health and the environment and does not contain substances classified as SVHC (Substance of Very High Concern) in accordance with Regulation EC 1907/2006 (REACH, or registration, evaluation, authorization and restriction of chemical substances).

Although in the working cycles of raw materials and our products such substances are not used, their presence in the size of p.p.m. (parts per million) cannot be excluded due to micro-pollution of raw materials.



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