

# ADVANCE

Easy Moving 

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## ASSEMBLY, USE AND MAINTENANCE MANUAL

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Underground storage tank

### TERRATANK







- Type: Underground storage tank
- Model: TERRA TANK
- Revision 1.0.3

# UNDERGROUND STORAGE TANK TERRA TANK

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## 1 INTRODUCTION

Dear customer,  
the manufacturer would firstly like to thank you for the choice you made in buying an our 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 Warnings

- Do not use the product for improper uses.
- This product must not be used by children or persons without the appropriate knowledge.
- Only use original spare parts.
- In order to be able to operate the product easily, it must be installed leaving a space around it completely free of any obstructions.
- This product can be installed on pneumatic conveying systems for granular fuels derived from biomass for other uses ask your seller for advice.
- Before first ignition, check that it is carefully installed.
- Never use the structure of the product as a supporting or fixing element for any other support or equipment.
- It is essential to ventilate the room where the product is installed when loading fuel into the tank.
- Remove the inspection doors only to carry out repairs and maintenance after disconnecting the power supply.
- The manufacturer disclaims all liability or warranty if the purchaser or anyone on his behalf makes any changes or adjustments, however slight, to the product purchased.

### 2.1 Installer's responsibilities

To ensure proper operation of the product, follow these guidelines:

- Only perform the activities described in these instructions
- Perform all activities in accordance with applicable regulations
- Explain to the user the operation and use of the product
- Explain to the user how to maintain the product
- Report to the user the potential dangers related to the use of the product

### 3 CONSTRUCTION FEATURES

Vertical tank made of S235JR steel sheet, with adjustable top well (200 mm. and 10°max) and a galvanised cover with medium traffic resistance, fixed well with outside fibreglass coating and cover. Anti-corrosion outside fibreglass coating, appr. thickness 2.5 mm, with cathode protection up to 15,000 volts; the minimum burying depth is 460 mm.

The storage unit is tested to ensure that there is no condensate formation and is watertight; this guarantees that pellets are always dry. The tank can be loaded with a tanker, pumping the pellets into the tank through Storz A110 couplings (only in this case shall the volume capacity be assured), or manually, through a 500 mm stainless steel quick loading hatch. The special shape ensures that all pellets (other than a residual amount of about 15 kg) are collected through the bottom suction nozzle, which is connected to boiler suction unit and ensures a regular conveyance (always check with the boiler manufacturer the distance and slope limits). The hose connectors are located on the tank sides, to allow the most favourable direction to be chosen and the tank to be rotated by 360°; the loading well lies on the outer circumference, to ensure that the tank can be installed close to the building, for example in the sidewalks surrounding the houses, always remaining at ground level. The well can be installed in a medium traffic resistance area (motor vehicles up to 3.5 T) with no protrusions.

#### 3.1 Correct use

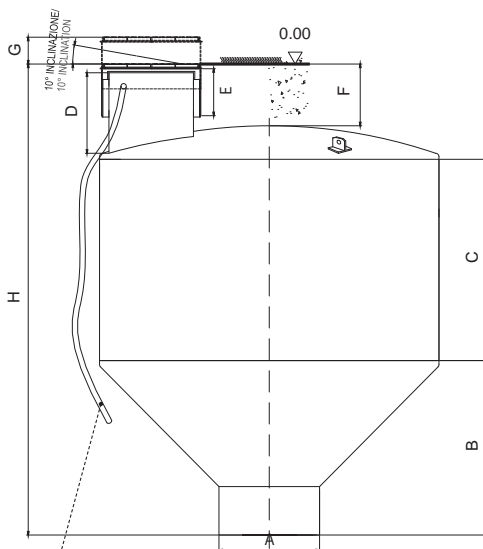
These stock tanks are designed to be installed in a pneumatic transport system for wood pellets and may not contain any other fuels.

**We recommend the use only ENplus A1-certified pellets.**

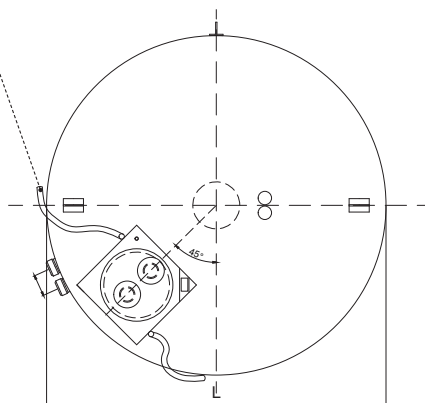
### 4 WEIGHTS AND MEASURES TABLE

Art.	Net capacity m <sup>3</sup>	Net vol. l	Size A mm	Size B mm	Size C mm	Size D mm	Size E mm	Size F mm	Size G mm	Size H mm	Size L mm
AP3440.02.20	2	2080	750	625	750	600	350	480	200	2000	1560
AP3440.04.23	4	4100	750	810	900	600	350	400	200	2300	2010
AP3440.06.28	6	6650	750	1300	750	600	350	460	200	2760	2550
AP3440.08.32	8	8650	750	1300	1130	600	350	460	200	3140	2550
AP3440.10.35	10	10650	750	1300	1500	600	350	460	200	3510	2550

Weights	
Art.	Kg
AP3440.02.20	370
AP3440.04.23	530
AP3440.06.28	870
AP3440.08.32	980
AP3440.10.35	1090

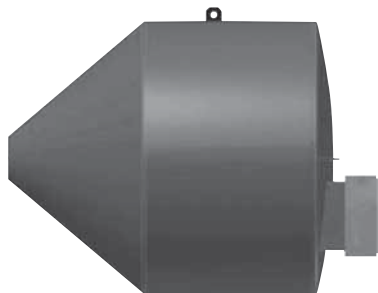


40 mm corrugated hose for draining water sump



## 5 TRANSPORT

The tank is transported by crane vehicles to permit unload operations, leaning on the loading bad on rubber-covered supports to protect the outer fiberglass lining. The tank will be unloaded with cranes in a flat area in horizontal position, secured with wedges to prevent rolling away. On site, the tank must be protected from any accidental damage caused by operators or handling machinery.



## 6 DIGGING AND LAYING

Prepare the digging with suitable means and in compliance with the standards on safety at work; check the dimensions and the position of the outlets for the connection to the heating source.

The tank does not require special reinforcements or concrete castings: its steel structure makes it suitable for underground installation, directly in contact with the round gravel that will drain the water. In the case of a groundwater, the tank requires a reinforced concrete base and anchorage to the upper hooks with lined steel ropes in order not to ruin the outer lining.

Prepare a 50 mm layer with sand under the tip of the cone as can be seen in the drawings. The tank can be installed in a green area or in a vehicle accessible area (max. 3.5 T). To reach the desired height, the adjustable sump pit has a 200 mm range and an inclination of about 10° to reach the soil level.

Green area



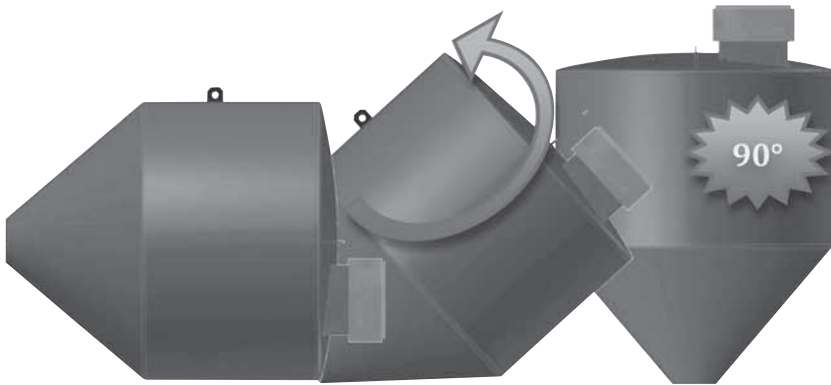
Driveway area



## 7 ROTATION IN VERTICAL POSITION

After preparing the digging with a 50 mm bed of sand under the cone and the eventual lower reinforced concrete base for anchorage, it is necessary to proceed with the 90° rotation to bring the tank in vertical position, ready to be positioned into the digging.

The tank is equipped with a central eyebolt for horizontal lifting and two eyebolts on the top to position it vertically: during this phase, the lower part of the cone must be protected throughout its length by soft materials (sand bed, bituminous sheath, polystyrene etc...); it is strictly forbidden to rotate the tank without such protections as it would cause damages to the outer lining.



At all stages of rotation, the tank must remain anchored with appropriate chains secured with safety hooks to prevent accidental unhooking.

the tank cannot be stored vertically so the installer will position it this way only after preparing the digging and the appropriate base depending on the type of soil.



## 8 CONNECTIONS AND PIPING

The tank is predisposed for connection with two 110 mm dn connectors with O-ring, where the installer will connect the heating source to the tank. The two dn 50 mm suction hoses in PU antistatic material with copper wire must be inserted inside the piping. The 1"1/2 sleeve for fire prevention, which must be connected to the heating source, must be plugged if not used.

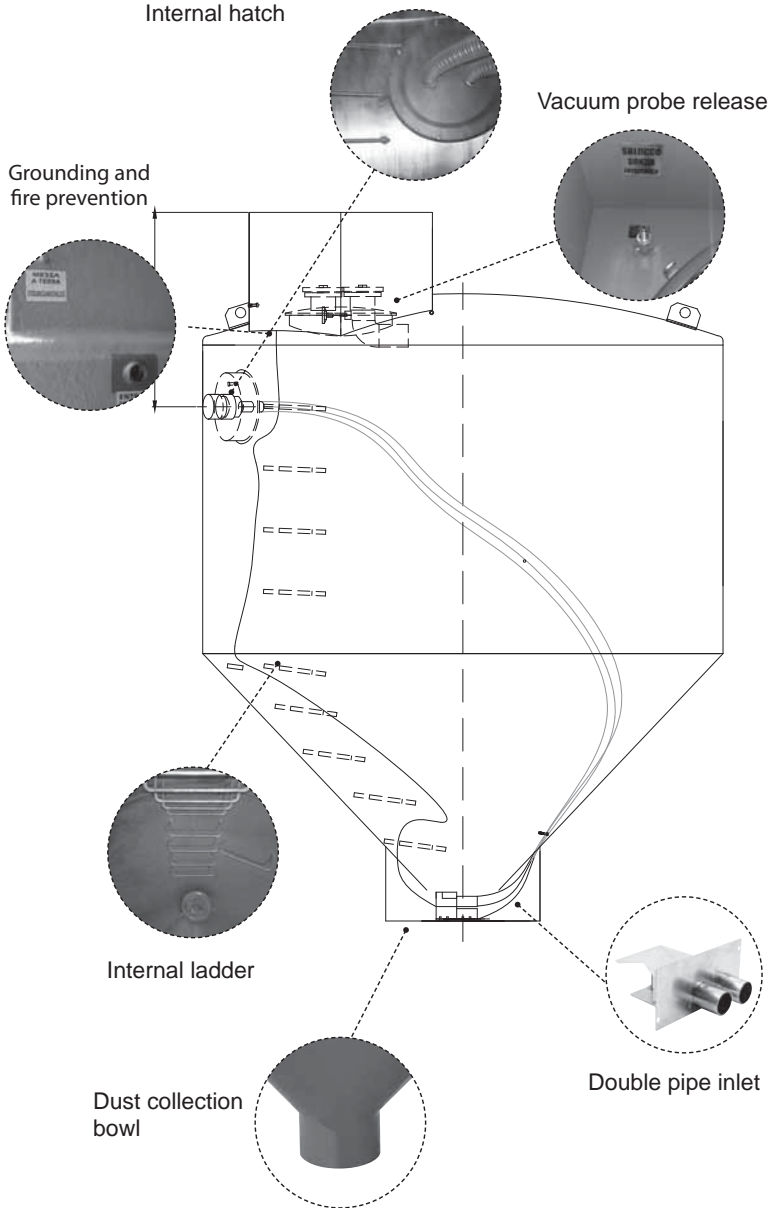
The two 50 mm suction pipes that connect the tank to the boiler room must be protected in the underground routes, therefore they must be inserted inside resistant cable ducts of at least 80 mm in diameter each, taking care to make elbows with a radius not less than 500 mm and that can be replaced if they wear out.

Inside the tank there is a sealed hatch, complete with bolts and gasket. Connect the rubber pipes to the inlets welded on the hatch plate by inserting the gasket first. The left hose that comes to the hatch is the one used for the suction of the pellets, while the right one is used for the return of the air from the vacuum unit to maintain the correct internal pressure inside the tank (for proper operation the air must circulate in a closed loop). Connect the grounding to the bolt located above the two inlets. Tighten the clamps (supplied) and reassemble the plate by screwing the bolts evenly (a torque wrench is recommended). Now the tank is ready to be filled.

The tank is connected to the thermal power plant by two Ø 110 PVC pipes, holding the pellet suction and pressure hoses and the grounding system. Inside the tank, the installer shall connect the pipes to the fittings passing through the inner hatch plate and the grounding system to the relevant button, then close the hatch back with the relevant gasket and tighten the bolts using a torque wrench. This system protects the equipment against possible water seepage due to any breaks of the PVC pipes connecting the tank to the thermal power plant. Hoses can be replaced at any time. When unloading the pellet from the tanker to the tank, the operator will never risk to damage any system components, e.g., by crushing any pipes or electrical cables, as they are not included in the system.



## 9 CONNECTION SCHEME



## 10 PELLET LOADING

**For the first filling, check that there is no water or objects presence at the bottom of the tank.**

Load with tanker truck: the tank is equipped with 4" A110 Storz attachments for pneumatic pumping.

- Open the cap and connect the tube from the tanker truck for pellet load.
- Connect the air exhaust to the hose of the dust vacuum unit equipped with a filter bag.
- Start the filling: the tank will be loaded for about 80% of its volume; once reached this threshold, the pellet flow will be interrupted, but not the air flow, until the tube in the tank is completely free.
- Reverse the pipes and unload the remaining 20%.
- Once the pressure of the tanker truck is removed, open the loading hatch and check the load, close the hatch, disconnect the hoses, and tighten the caps.



Manual load: open the loading hatch and empty the sacks or the big bags. The hatch can only be closed in the exact position, that is, "Pellet Load" cap facing the center of the tank, where at the bottom there is the location of the curve. In the case of wrong assembly, it will not be possible to close the sealing clamp.

## 11 MAINTENANCE AND CLEANING

The tank is equipped with a compressed air unblock system: in the event of an obstruction on the suction inlet, there is an attachment on the air exhaust hose for the connection to a compressor that allows the compressed air to be blown directly into the suction inlet. The complete emptying of the tank, however, entails a pellet residue of about 15 kg.

It is recommended to clean the tank at least once every two years, by qualified personnel, depending on how many loads are carried out.

Contact addresses and information for customer service are available at the our web.

### 11.1 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.



## 12 SAFETY REQUIREMENTS

- Before entering the tank you must always wear a tyvec antistatic suit
- Keep tank access closed and allow the access only to authorized personnel under the supervision of a person outside the tank
- Do not smoke and approach flames and heat sources near the tank
- Danger of death due to high concentrations of carbon monoxide (co) and lack of oxygen may be present inside the tank.
- In the four weeks following the fuel load, it is advisable to enter the tank only with a co detector
- Always aerate the tank for at least 15 minutes before entering and let it open during the permanence of people
- Turn off the boiler at least one hour before tank loading
- Proceed to the filling of the tank according to the requirements prescribed by fuel supplier
- In case of fire suspect, keep the tank closed and call the firemen.

We want to draw your attention to security, asking you to pay close attention to all aspects of it. Also for biomass fuel, as with other energy sources, all the provisions of the law on safety apply, and the use of common sense system management is indispensable.

The systems which are installed and operated by following the appropriate regulation do not pose any risk of danger during operation. In exceptional cases dust or smoke concentrations can be formed and they must be considered as dangerous.

We always advise you to sign a maintenance contract with an authorized service center in order to always have a well-regulated system, which works in a cheap and safe way.

## 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.

## 13 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. Addresses and contact information for customer support can be found at the our internet address.

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.

## 14 CERTIFICATION

### **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.

**NOTES**

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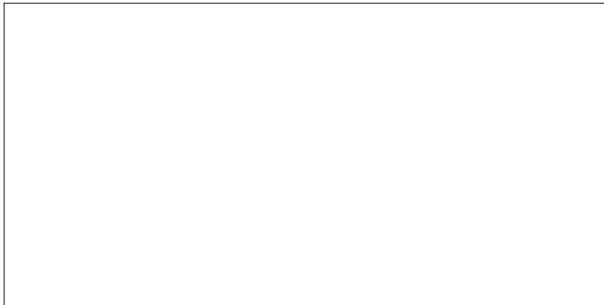
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