Stainless Steel Tanks Use and Maintenance Manual

TANK P.E.D. (BEER)

Carefully read this use and maintenance manual in its entirety before proceeding to use.

SUMMARY

1 - ACKNOWLEDGMENTS

SM INOX SRL Lathanks you for purchasing a product of its range and invites you to read this manual. Inside the manual you can find all the information necessary for the correct use of the tank purchased. Therefore, the user is requested to carefully follow the warnings contained and read this manual in its entirety. Furthermore, the user is invited to keep the manual in a suitable place to keep it unaltered. La SM INOX Srlreserves the right to modify the contents of this manual without notice or further obligations, in order to include changes and improvements to units already sent.

The reproduction or translation of any part of this manual without the written permission of the owner is prohibited. During the entire warranty period, la SM INOXit is responsible for any manufacturing defect, which it will eliminate as soon as possible.

2 - FERMENTERS

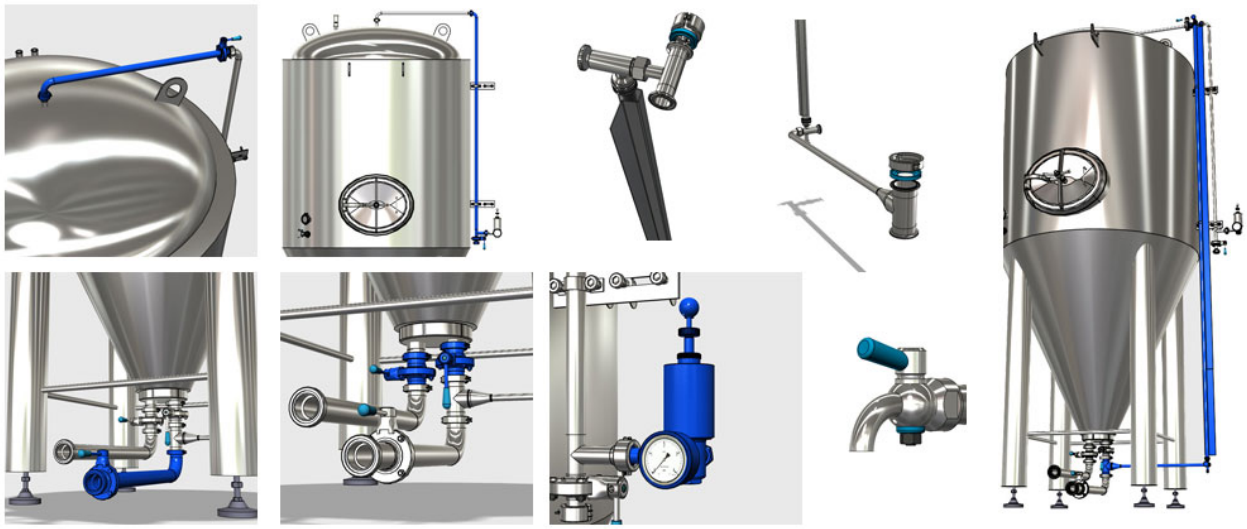
2.1 - DESCRIPTION OF THE EQUIPMENT

Insulated beer fermenters made entirely of AISI 304 stainless steel on legs, with conical bottom at 60 ° and rounded lid, complete with N ° 01 refrigeration pocket on the plating and N ° 01 refrigeration pocket at the bottom of the conical trunk.

They will be of the cylindrical type with vertical axis, made entirely of first choice AISI 304 stainless steel, with internal GLOSSY - BA finish, external SATIN finish (SCOT CH BRITE) (insulation), resting on legs also in AISI 304 stainless steel .

The welds will be carried out with an automatic TIG process in an inert gas atmosphere, then pickled and satin-finished.

The bottoms will be of the truncated cone type, the lids will be of the rounded "TOROSPHERIC" type.



- ✓ 01 DECENTRALIZED upper manhole cover diam. 400mm, made of AISI 304 stainless steel, complete with hermetically sealed lid with 05 handwheels suitable and withstanding a maximum pressure of 2.5 bar;
- ✓ No. 01 sleeve diam. 3/8 ”in AISI 304 stainless steel for connection of the safety valve;
- ✓ N ° 01 tap for taking samples DIN DN 20 with curve, made of AISI 304 stainless steel;
- ✓ No. 01 butterfly valve made of AISI 304 DN 40 stainless steel suitable for the total discharge of the fermenter;
- ✓ No. 01 butterfly valve made of AISI 304 DN 40 stainless steel suitable for the partial discharge of the fermenter;
- ✓ N ° 01 level rod made of AISI 304 stainless steel diam. 16/20 mm, complete with Plexiglas straw, lower level tap and upper level tap both in AISI 304 stainless steel; automatically excludable and washable during the CIP of the fermenter
- ✓ 01 DN 25 washing pipe made of AISI 304 stainless steel, complete with ball and final butterfly valve made of AISI 304 DN 25 stainless steel;
- ✓ 01 digital electronic thermometer with relative well made of AISI 304 stainless steel;
- ✓ No. 01 probe holder made of AISI 304 stainless steel;
- ✓ No. 01 butterfly valve made of AISI 304 stainless steel DN 25 suitable for bubbler connection;

- ✓ N ° 01 cooling pocket h = 940mm placed on the cylindrical plating, made with AISI 304 stainless steel sheet with channels, which allow the forced circulation of the glycol, where speed and turbulence guarantee a high and guaranteed heat exchange coefficient, all complete with 1 "diam. logs for glycol inlet and outlet;
- ✓ N ° 01 refrigeration pocket h = 450mm placed on the truncated cone, made with AISI 304 stainless steel embossed sheet, which allow the circulation of glycol, where speed and turbulence guarantee a high and guaranteed heat exchange coefficient, all complete with 1 "diam. logs for glycol inlet and outlet;

Total insulation of the fermenter (excluding lid) with a thickness of 50mm, made with injected polyurethane foam, with high insulating power (density 40 Kg / m3), with final coating in AISI 304 stainless steel sheet, all hermetically welded to the tank;

- ✓ N ° 04 support legs in AISI 304 stainless steel with EU TIG tube diam. 101.6 x 2.0 th .;
- ✓ N ° 04 adjustable feet with M30 threaded ring nuts, in AISI 304 stainless steel;

Central washing ball positioned to wash the upper hatch and with separate CO2 outlet.

3 - SPECIFIC TERMS OF THE USE AND MAINTENANCE MANUAL

To make this manual easier to understand, you can find a short dictionary of terminology below.

USER

The person who uses the Tank.

OPERATOR DRIVER

Person in charge of filling, operating, adjusting, performing routine maintenance and cleaning the tank.

QUALIFIED TECHNICIAN OR TRAINED PERSON

Specialized person, specially trained and authorized to carry out the installation of the tank, extraordinary maintenance or repairs that require particular knowledge of the tank, its operation and the method of intervention.

RESERVOIR

Stainless steel container.

PUMP GROUP AND LITER COUNTER SENSOR

Device that dispenses and measures the product sold.

RESIDUAL HAZARDS

Residual dangers are those that could be caused by incorrect handling of the tank.

4 - TECHNICAL ASSISTANCE

Requests for Specialized Technical Personnel must be addressed directly to the Technical Assistance Service of SM INOX SRL

Requests for intervention must be sent by e-mail, fax or telephone, carefully specifying the reasons justifying the request (electrical, mechanical, electronic reasons, etc.).

4.1 - SPARE PARTS

Only and exclusively original SM INOX spare parts must be used which guarantee, in addition to perfect interchangeability, also guarantees of functionality and duration. Any exception to this requirement must be authorized by the Assistance Office with written communication specifying the alternatives studied and therefore admitted.

4.2 - UNAUTHORIZED MODIFICATIONS

No modifications can be made to the tank or its components without the written authorization of SM INOX. Unauthorized modifications may change the design parameters regarding the original performance of the tank, voiding any form of warranty and any civil and / or criminal liability regarding accidents or injuries, as well as administrative and / or fiscal liability caused by the incorrect operation or modification of the delivery system.

4.3 - PERMITTED USES

The tank described in this manual is expressly designed to contain food products such as wine, oil and water (see specific product data plate).

4.4 - ATTENTION

The user must check the administrative regulations relating to the product being sold (for example, whether or not it must come from a single production company).

4.5 - IMPROPER OR NOT PERMITTED USES

Improper or unauthorized use means:

- Use in unsuitable environments, however not falling within the specified conditions.
- The use of machines for dispensing food liquids that were previously used for non-food liquids (eg from detergent to oil).
- Maintenance by people not instructed and trained by the manufacturer.

5 - GENERAL INFORMATION

SAFETY RULES

The tank described has been designed and built taking into consideration the European Community directives on safety.

To avoid accidents and injuries, before using the tank or starting maintenance operations, read, understand and follow all the precautions and warnings contained in this manual and those reported on the plates applied on the tank.

The following words and symbols have been used to identify the safety messages included in this manual.

DEFINITION OF " DANGER"

The word “danger” is used in the safety messages in this manual and in the plates placed on the tank for dangers which, if not avoided, can cause moderate damage / injury to the tank or to people. These safety messages describe the normal precautions to avoid danger.

Ignoring these indications can also cause serious damage to the tank or to people.

DEFINITION OF “IMPORTANT! "

The word “important” is used for the precautions that must be taken to avoid operations that could compromise the durability of the tank or its components.

DEFINITION OF "NOTE"

The word “note” is used for phrases that provide useful information regarding the current operation.

6 - SYMBOLS

Below is a brief legend with an indication of the symbols used.

	**DANGER:** draws attention to situations or problems that can jeopardize the safety of people due to injury or risk of death.
	**ATTENTION:** draws attention to situations and problems connected with efficiency of the tank which do not jeopardize the safety of people.

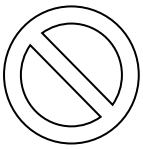
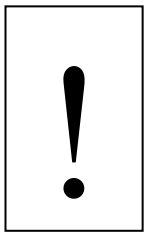
	**PROHIBITION:** do not carry out the operations indicated as this will affect the efficiency of the tank.
	**IMPORTANT:** draws attention to important information of a general nature which does not compromise personal safety or the proper functioning of the tank.
	**CORRECT EXECUTION** : indicates that the procedures for executing the operations are correct.
	**INCORRECT EXECUTION:** indicates that the procedures for carrying out the operations are incorrect.

Table 1: Symbology.

6.1 - DESCRIPTION OF DANGER

For clarity of information, some illustrations in this manual show the tank without protective panels or fixed guards.

Do not by-pass the safety devices and do not use the tank when the protections have been removed during ordinary or extraordinary checks.

Do not switch on voltage when performing routine maintenance (unless otherwise specified) and when the guards and protections have been removed.

DANGER

It is strictly forbidden to make changes or alter the design performance or operating conditions: la SM INOX SRLit is not responsible for damage to persons or property due to the tampered tank.

ATTENTION

The safety information has been divided (for ease of reference) into several sections which are not mutually exclusive, but which must be integrated in order to act with safety.

6.2 - RESIDUES AND ENVIRONMENTAL CONTAMINATION

The tank does not release dust, gases or vapors into the environment which are considered harmful by the regulations in force.

6.3 - BASIC SAFETY PRECAUTIONS

The tank must only be managed by trained operators. The operators in charge must be able to read and speak the language of the country in which they are carrying out the work.

Before using the tank, the operators who will be responsible for its operation and routine maintenance must:

1. Having read this publication in its entirety;
2. Having fully understood the function of the components of the tank.

   Operators must fully comply with the general accident prevention warnings contained in this manual.

The work area and the immediate vicinity must never be occupied by unauthorized personnel during la manutenzione. Lthe occupation of these areas, it can prevent the operator from moving quickly and easily in an emergency.

Always keep the work area clean, free from objects (paper, rags, etc.) and dry to avoid tripping and slipping hazards.

For maintenance, use only quality equipment; discard worn or damaged, poor quality or improvised tools that can cause personal injury.

Do not remove or modify any covers, doors, guards and sensors installed for active or passive safety devices, without first obtaining the written permission of the Manufacturer.

Do not place tools or parts on the tank and do not forget them inside the operating area or inside the refrigerated area.

If the tank has not been used for a long period of time, before using it, carry out at least one complete wash cycle and thoroughly clean the dispensing area.

6.4 - CLOTHES AND PERSONAL PROTECTION MEANS

The clothing of the Operator or of the qualified technician carrying out the maintenance must comply with the essential safety and hygiene requirements in force in their country.

Operators must always wear non-slip shoes and hypoallergenic disposable gloves that ensure a good grip; the same precaution must be used for general tank cleaning.

6.5 - PRECAUTIONS AND RULES FOR MAINTENANCE

All maintenance operations must be carried out in total absence of electricity unless otherwise expressly indicated during the description of the operation.

For this reason:

1. Operate the differential switch of the tank in the “OFF” position, if the tank is equipped with an electrical panel;
2. Conspicuously place one or more signs clearly indicating that the tank is undergoing maintenance.

When cleaning the work area, use all individual protective equipment and dry the product residues with paper rags.

After carrying out maintenance, carefully clean the used tools; check that no tools have been forgotten in the operating areas. Always draw up a report or minutes on the interventions performed and, if possible, on the causes that led to the intervention.

These maintenance reports must be carefully kept to check for any repetition of anomalies and therefore identify the reasons.

7- STANDARD FEATURES OF THE TANK

The data concerning the standard characteristics of our tanks are however always reported in the drawings sent to the customer for acceptance by the customer. If they are not indicated or for any doubt concerning the characteristics of the tanks, contact the tecnico SM INOXSRL office.

Feature description	Value / class	Unit of measure
Minimum quantity (QMM)	50	L
Maximum quantity (QMM)	350000	L
Maximum Error Allowed	5	%
Maximum error admitted on the measures on drawing	20	%
Minimum viscosity	0.59	mPa s
Maximum viscosity	20.0	mPa s
Minimum density (pmin)	1000	g / dm ^{3}
Maximum density (pmax)	3020	g / dm ^{3}
Max working pressure with nitrogen valve	0.35	mbar

Place of use	Closed / Internal (**)	
Climatic environment class	-10 ÷ +40	° C
Humidity	Not Condensed	
Designed for seismic areas	NO	
Electromagnetic environment class	E1	

Table 2: Standard tank characteristics.

7.1 - CONTROL PANEL TECHNICAL SPECIFICATIONS

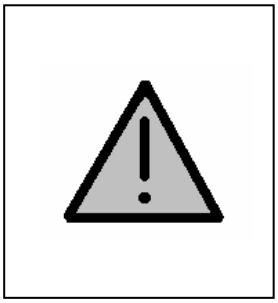
Feature description	Value / class	Unit of measure
Power supply (50-60 Hz)	230/380 + 15 - 10%	Vac
Maximum consumption	ELECTRICAL PANEL FROM ETCHETTA	W
Noisiness	<70	dB
Degree of protection	IP 21S	
Mass	ELECTRICAL PANEL FROM ETCHETTA	kg
Dimensions	ELECTRICAL PANEL FROM ETCHETTA	mm

Table 3: Control panel technical specifications.

7. 2 - REFRIGERATION BANDS TECHNICAL SPECIFICATIONS

Feature description	Value / class	Unit of measure
Test Pressure (At Outlet)	3	Bar
Max Working Pressure (At Outlet)	2	Bar
Optimal Pressure (At Outlet)	1.5	Bar
Useful Section of Passage		SQM
Recommended Fluid Speed	0.2-0.4	m^3 / h
Scope Required	1.5-3	m^3 / h
Average pressure drop per square meter. Surface with a 20% solution of poured water with a flow rate of 2.0 m3 / h	0.02	Bar / sqm
Agitated liquid heat exchange coefficient	349	W / (m^2 * K) = 296.65 fr / h
Fermo liquid heat exchange coefficient	174	W / (m^2 * K) = 296.65 fr / h
Glycol water inlet / outlet connections	1	Inches
Sheet Thickness Exchange Band	1	mm
Welding	Rollers	

Table 4: Technical specifications of refrigeration bands.



ATTENTION
The correspondence of the data of the tank must be verified before placing it in correspondence with the project data, if uncertain, request them from the technical office SM INOX SRL
It is strictly forbidden to NOT COMPLY with the over-exposed safety requirements that can cause serious damage to the health of workers.

8 - INTRODUCTION

1) This manual provides the operator and the qualified technicians with technical information regarding the stainless steel tank intended to contain Birra SM INOX Srl (hereinafter referred to as the Manufacturer).
2) In this manual the assigned operator can find:
    - The information necessary to know the procedures and hygiene rules to ensure correct use of the product;
    - Information to know the fundamental accident prevention procedures and standards to be adopted to avoid dangers and damage to people, the tank and the environment;

- The technical and functional description of the groups that make up the tank and of the main optional groups that can be installed on it;
- Instructions for proper installation;
- Information about the checks and preliminary maintenance to be carried out during the set-up and initial start-up phase;
- The indications concerning ordinary maintenance as well as checks and any extraordinary maintenance interventions.

3) This manual is an integral part of the tank and must also be followed in any changes in ownership, up to final dismantling.
4) This manual and all publications attached to it must be carefully stored in an easily accessible place, known by the operator and by the qualified technicians authorized for maintenance interventions; they must carefully read what is described before starting work or carrying out the required adjustments or maintenance. If the manual is lost, damaged or becomes illegible, request a copy from SM INOX Srl, indicating the type of tank, the serial number and the year of construction. (as indicated on the CE plate).

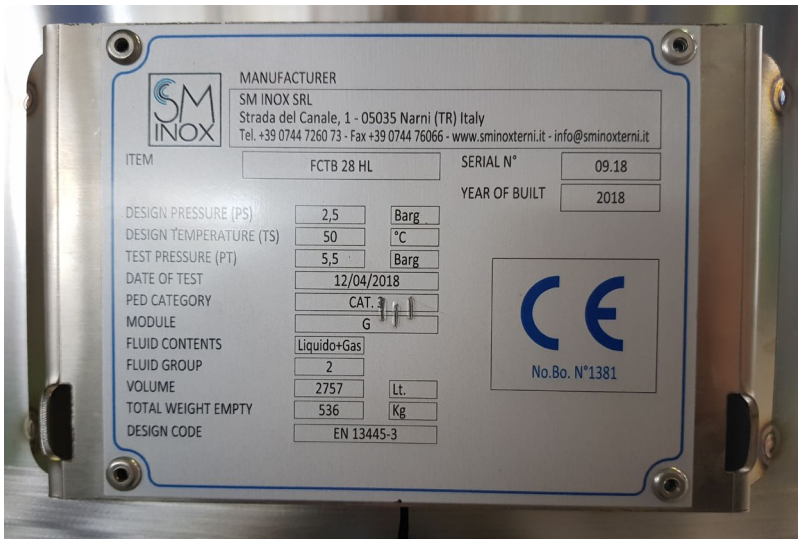


Figure 1: CE plate in stainless steel

5) The equipment that compose or are optional to the tank are subject to updates aimed at its improvement. This manual summarizes all the information regarding the state of the art at the time of supply. La SM INOX S.r.L. reserves the right to update production

and manuals, without the obligation to update the manuals of previous editions, except in exceptional cases of fundamental additions regarding operation and safety. For any subsequent changes to be made to the tank in any of its components, contact la SM INOX S.r.l.

6) On each tank produced by SM INOX Srl there are stickers summarizing the main rules of use and maintenance of the tank itself, which you can find in full form in this manual.

ATTENTION

Improper use and incorrect maintenance operations can cause serious damage to people and to the tank.

The operator and qualified technicians must be familiar with all the rules contained in this manual and in any attachments before using the tank or carrying out maintenance operations.

The procedures contained in this manual are intended to be applied to tanks only if used for the permitted uses and with all safety systems mounted and functioning.

If the tank is used for other purposes or in different safety conditions, the customer becomes directly responsible for the lack of safety of the people possibly involved in accidents or injuries and for abnormal wear of the tank.

9 - GENERAL INTRODUCTION INFORMATION

9.1 - LIMITS OF LIABILITY

This Installation, Start-up and Maintenance manual has been compiled to be as complete and up-to-date as possible. It covers the installation, start-up and maintenance procedures for steel tanks.

SM INOX Srl reserves the right to update this manual and other information on the product concerning installation, start-up and maintenance, at any time without the obligation of notifying the changes to the owners of the product. SM INOX SRL is not responsible for the accuracy of specifications, procedures and / or the content of other product documents supplied by other manufacturers of components used on SM INOX SRL tanks (such as: valves, pressure switches, pressure gauges, etc. .). SM INOX SRL uses only quality components in the construction of SM INOX SRL tanks. Only in the case of complete supply will SM INOX Srl be responsible for the total system. Otherwise SM INOX SRL assumes only the responsibility of the parts supplied as it has no direct control over the other manufacturers and their level of quality. SM INOX SRL is not responsible for accidents to persons or damage to the product due to improper installation, start-up and / or maintenance interventions on the SM INOX SRL tanks. All installation, start-up and maintenance procedures must be carried out by expert and authorized personnel. The personnel who will perform these activities must carefully and completely read and understand all the manuals of the products supplied before starting any activity described in the procedures. All personnel must pay close attention to all Notes, Precautions and Warnings contained in the procedures described in this manual. If SM INOX SRL only supplies the tank without the control accessories, this manual applies only to the tank part. In this case the responsibility for the integrated components, their respective manuals, as well as for the entire system, lies with the integrator of the entire unit.

Note: in this manual the "warnings" are highlighted by the symbol Δ

9.2 - GENERAL INFORMATION

This Installation, Maintenance and Start-up manual has been conceived as a procedural guide for all SM INOX SRL tanks This manual refers to:

• Horizontal steel tanks

• Vertical steel tanks

9.3 - CONSTRUCTION

All steel tanks are built with superior materials and use only the highest quality materials. Each tank is built in accordance with the latest version of the VSR calculation code and built in accordance with directive 97/23 / EC (PED) and accompanied by the applicable certificates. Each tank is constructed using quality pressure vessel plates and welded by skilled welders.

9.4 - GENERAL NOTES AND WARNINGS

• This Installation, Start-up and Maintenance manual has been conceived as a procedural guide for SM INOX SRL tanks. Since each unit is built according to customer specifications, the instructions may, at times, seem general. If this manual does not meet specific installation and / or maintenance

needs or the procedures contained therein are not clearly understood, please contact SM INOX SRL for clarification.

• All procedures must be performed only by experienced, trained and qualified personnel. Personnel must be trained in methods and procedures for making electrical connections and pressurized circuits, and should be experienced in working on pressurized systems.

• SM INOX Srl has no control of the system where the pressurized tank can be integrated and depending on how the installation is carried out, dangerous conditions can be determined for the personnel if the system does not allow adequate maintenance to be carried out. If one or more of the following elements are present in the system, take all necessary precautions before proceeding with maintenance operations.

1. steam
2. high temperature water
3. connections of the power supply lines
4. electrical connections
5. systems under pressure
6. a combination of the above points.

Tanks are designed for indoor installation unless otherwise specified above.

Each unit requires at least one meter of light around and above.

The unit should be installed on a flat surface capable of supporting the total weight of the unit when filled with water.

The tank must be installed on the floor in accordance with local building regulations and according to the system specifications.

In areas subject to possible seismic activity, floor mounting must be carried out in accordance with specific local regulations, in order to minimize potential damage deriving from an earthquake.

• Inspection, troubleshooting and periodic maintenance procedures, and related intervals, are detailed in this manual.

• Tanks are available in a wide range of capacities and operating pressures. For the specific data of each model, refer to the project specifications and technical documentation supplied with the appliance and shown on the data plate.

• If any evidence of damage is detected that could affect the operational safety of the unit, SM INOX SRL, or an authorized commercial representative, must be contacted to provide information on the damage and receive instructions on how to proceed.

Δ Note: For all piping connections, the use and / or type of sealant or seals of the couplings must be chosen according to local rules, accepted by common practice, or according to the installer's specifications.

It is advisable to install a safety valve calibrated at a pressure not exceeding the maximum pressure of the tank.

9.5 - WARNINGS

- The use of the tank is allowed only indoors as its structure has not been designed to support the snow / wind load.
- The tank must not be installed in areas with a high seismic risk
- The insertion of inert gases from outside is not allowed
- The operating temperature must be between -1 and +50 C °

Any product or system under pressure, as well as electricity, represents a potential danger of serious injury to people if the installation, start-up and maintenance procedures are not followed carefully .

Listed below are various points with specific warnings regarding SM INOX SRL tanks. In addition, the "warnings" are repeated in the manual when the procedures refer to areas of potential danger. All warnings must be read carefully and understood. All precautions contained in the warnings must be carefully followed to reduce the risk of injury. All documentation for each of the major components is attached to the system. It is strongly recommended that each document is studied before any installation, start-up and maintenance operations. The documentation of each of the main components may contain warnings and precautions indicated by the manufacturer of each component. These warnings and precautions may be specific to the particular component and not included in this general installation, start-up and maintenance manual. They must be carefully studied before starting any installation, start-up and maintenance operations.

9.6 - AREAS OF POTENTIAL DANGER

1. all fluid inlet and outlet lines, couplings, and valves.
2. all pressure regulators.
3. all connections and electrical cables.
4. all lines of energy
5. all air supply lines and joints for pneumatic tools

Before starting any installation, start-up and maintenance on the unit:

1. make sure the supply line has been shut off by closing the manual valve.
2. if the tank was in operation, allow it to cool adequately (as well as the supply and outlet lines) before starting the intervention.
3. make sure the power has been removed before starting any operation.
4. make sure that all shut-off valves on the inlet, outlet and drain lines are closed.

5. make sure that the instrument supply is closed and the air pressure has been cut off.

Δ If the tank is used to contain hot or superheated water, very dangerous situations can arise, due to the fact that they are fluids under pressure and at very high temperatures. To avoid possible accidents, even deaths, use common sense and follow all normally accepted and recommended procedures when beginning installation, start-up and maintenance operations. The simultaneous presence of water and electricity can lead to very dangerous situations. Make sure that the power is disconnected before starting any installation or maintenance operations .

10 - INSTALLATION

10.1 - TRANSPORT AND UNPACKING

Most of the SM INOX SRL tanks are not packed. The larger units are equipped with special eyelets for lifting and handling.

Δ The unit must be lifted using the clearly marked lifting lugs.

Δ Improper lifting methods can damage the unit.

10.2 - REQUIREMENTS FOR PLACEMENT

The SM INOX SRL tanks are designed for indoor installation only, unless otherwise specified by the customer. The unit must be placed on a flat surface (no more than 2 ° slope) capable of supporting the total weight of the unit filled with water. The tank must be installed on the floor in accordance with local building regulations and according to the system specifications. If the unit is shipped with packaging after the unit is placed it must be carefully unpacked.

10.3 - VERIFICATION OF THE UNIT

After placing the unit and possibly unpacking it should be carefully examined to ensure that the main unit and each component have not been damaged in transit. If any evidence of damage is found that could affect the operational safety of the unit, SM INOX SRL or an authorized sales representative should be contacted to provide information on the damage and receive instructions on how to proceed. After the unit and all components have been inspected for damage, it is recommended that all pressure and control components are checked to ensure they are in accordance with and meet design specifications.

10.4 - ASSEMBLING THE UNIT

The unit should be fixed to the floor, following the applicable local regulatory requirements or standards for the installation of the tank unit. In areas at risk of seismic activity, it is recommended that the unit be mounted on the floor, in accordance with the procedures recommended for the site, so that it is less susceptible to seismic damage.

10.5 - CONNECTION OF THE SAFETY VALVE

Each tank is built to customer specifications. For safety reasons, a PED approved safety valve must be fitted to each tank. The setting of the valve must not be higher than the maximum pressure of the tank. Note: The maximum pressure of the tank is shown on the project drawings and on the data plate of the tank.

Δ The installation of a safety valve calibrated at a pressure higher than the maximum pressure of the tank can determine a condition of serious danger. The safety valve setting pressure must not exceed the tank operating pressure and should be installed following all accepted and recommended procedures to avoid possible injury or death.

10.6 - CONNECTION OF THE VARIOUS COMPONENTS TO THE TANK

• You must be very careful when connecting the various components to the tank. Each component must be mounted to its own terminal and properly aligned before being tightened.

• After filling the tank, check that there are no leaks at the connection points. Any leaks reduce the life of the tank

Δ Note: for all piping connections, the use and / or type of sealant or gasket of the couplings must be chosen according to local rules, accepted by common practice, or according to the installer's specifications.

10.7 - INSPECTIONS

The table below summarizes the three recommended inspections and their recommended frequency.

Ispezioni raccomandate

Aree da ispezionare	Ogni mese	Ogni 3 anni
Incrostazioni	√	
Perdite dai collegamenti	√	
Interno serbatoio		√

Se si rileva un problema durante l'ispezione far riferimento alla sezione manutenzione.

1 1 - MAINTENANCE

CONNECTION LOSS REPAIR

If a leak is detected on the tank connections proceed as follows:

1. Isolate the tank from the system where it is inserted.

2. If the tank is under pressure, drain it until it reaches atmospheric pressure.

3. If the system operates at high temperature or with steam, wait to operate until the system has completely cooled down.

4. After fulfilling points 1 to 3, open the drain valve located on the bottom of the tank. 5. Bring the tank level below the point where the leak occurred.

6. Open the connection.

7. Inspect both the tank side and the connecting pipe side and check for any damage to the threads or other. If there is damage replace the damaged part.

8. If the damage does not exist, clean all connections and threads.

9. Restrict the connection.

Δ Note: for all pneumatic connections, the use and / or type of sealant or gasket of the couplings must be chosen according to local rules, accepted by common practice, or according to the installer's specifications.

10. Close the drain and fill the reservoir. Check if there are no further leaks and if positive put the system back into service.

11. At full capacity re-inspect the system for leaks.

11.1 - INTERNAL INSPECTION

It is recommended to inspect the inside of the tank every 3 years. The larger tanks are equipped with a manhole for inspection. To carry out the inspection proceed as follows:

1. Isolate the tank from the system where it is inserted.

2. If the tank is under pressure, drain it until it reaches atmospheric pressure.

3. If the system operates at high temperature or with steam, wait to operate until the system has completely cooled down.

4. After fulfilling points 1 to 3, open the drain valve located on the bottom of the tank. 5. Drain the tank completely.

6. Unscrew the manhole knobs

7. Remove nuts and bolts from manhole and mounting flanges.

8. Inspect the inside of the tank.

If there is any damage or corrosion, contact SM INOX Srl for a possible repair in the field.

If there is no damage proceed as follows:

9. Clean the mounting surfaces of both the manhole and the mounting flanges.

10. Install new gaskets.

Note: The gaskets for all tanks can be requested from SM INOX Srl

11. make sure that the manhole is aligned first, tighten with a torque of about 25 Kg / m.

12. Fill the tank and check that it does not leak from the manhole.

11.2 - REQUIREMENTS FOR THE COMMISSIONING OF EQUIPMENT UNDER PRESSURE ON THE ITALIAN TERRITORY

In Italy, the commissioning of pressure equipment to which this document refers is regulated by the Decree of the Ministry of Productive Activities no. 329 of 1 December 2004.

This decree provides for fulfilments in the commissioning phase and subsequent periodic fulfilments.

In particular, the procedure for commissioning is as follows:

A) Mandatory check of first installation or commissioning

• Verification by Inail or a Notified Body of correct installation and issue of the relative certification, carried out at the request of the user.

• Sending a Commissioning Declaration containing:

a) the list of individual equipment,

b) technical report with plant design,

c) declaration pursuant to Presidential Decree 403 of 1998 certifying that the installation was carried out in compliance with the instructions for use, d) certification referred to in the previous point.

B) Periodic checks

The users of equipment and sets under pressure put into service are obliged to subject them to periodic checks or periodic requalification which must be carried out by the competent local health authority or by notified bodies. For fluids of group 2 and for containers containing compressed, liquefied and dissolved gases or vapors other than water vapor classified in category III or IV and containers of water vapor and superheated water belonging to categories from I to IV the frequency of inspections must be as follows:

- check operation every 3 years,
- integrity check every 10 years.

12 - REQUIREMENTS AND SUPPLIES TO BE CHARGED BY THE BUYER

Unless otherwise specified in the supply conditions, the user must prepare:

1) Flat, leveled flooring able to withstand the weight of the tank, in a position that respects the minimum spaces necessary for maintenance;
2) Electrical system close to the tank, sized according to IEC standards and complete with:

- N ° 1 single-phase or three-phase disconnectors with protection interlock that allows to completely isolate the tank from the rest of the system for ordinary and extraordinary maintenance;
- Grounding cable sized according to the IEC standards and with the Ohmic characteristics envisaged by the same standards. The manufacturer is fully relieved of any liability for damage to persons and property (including electrical equipment on the tank), deriving from an electrical system that does not comply with CEI 44-5 (EN 60204-1) standards. ELECTRICAL EQUIPMENT FOR INDUSTRIAL MACHINES OR PLANTS WITHOUT CERTIFICATION OR NOT MANUFACTURED IN ACCORDANCE WITH THE REGULATIONS IN FORCE ON THE MATTER;
- General lighting suitable for the use of the tank by the Users, however sufficient to identify the controls and the main switch.

3) The equipment suitable for lifting and transporting the tank to the place of installation;
4) The material necessary for cleaning the tank for the first start-up;
5) The device designed to facilitate the handling of the products to be introduced into the tank;
6) The connections for loading and unloading the product (also used to clean the tank).
7) Everything that is not included in the supply, but is necessary for installation and testing.

12.1 - INSTALLATION REQUIREMENTS

The tank must be installed in compliance with the following provisions:

- The atmosphere of the place of installation must be free of dust, corrosive vapors or gases, high salinity that can damage the tank;
- The environment must be sufficiently spacious to allow easy maintenance and the collection and handling of the product in the tank;
- The tank must be installed indoors with temperatures between -10 ° C and + 40 ° C;
- The tank must be connected to the earth cable, the earth connection must be made with a cable with a section at least equal to 6 mmand with an ohmic resistance ≤ 0.100 Ω.

13 - TRANSPORT AND INSTALLATION

The tank is normally shipped as follows:

1. Lying on wooden or polystyrene saddles and similar.
2. Lying on wooden or polystyrene saddles with wooden structure dedicated to unloading with forklift with long forks.
3. Standing for unloading with eyebolts from above.

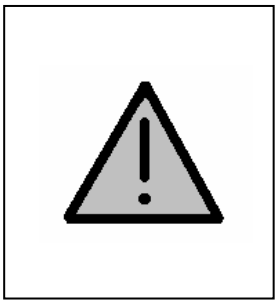
13.1 - CHECKS

Upon delivery of the Tank, it is necessary to check that all parts are intact, have not been tampered with and that the tank is complete with all the removed parts and accessories. If tampering, transport damage or lack of parts is noted, notify the carrier and the SM After-Sales Service INOX SRL conby registered letter as prescribed by the general transport regulations.

13.2 - AT THE TIME OF UNLOADING

When unloading the tanks and taking delivery of the tank, carry out the following checks:

1. Check the material very carefully to verify if it corresponds to the order placed and to the project data, it is also important to immediately report any defects found and / or damage due to transport. A note on the bill or a direct communication to the company (phone call, fax or e-mail) is required;
2. Check that the tank is equipped with all standard documentation (technical data sheets, etc.), with all internal components and, when provided, with an electrical control panel.



WE DO NOT ACCEPT COMPLAINTS OR RESERVES OF ANY KIND OR NATURE IF THEY HAVE BEEN EXCEEDED 5 DAYS. FROM THE DATE OF DELIVERY OF THE MATERIAL.
COMPLAINTS MUST BE MADE IN WRITTEN FORM WITH REGISTERED RETURN WITH RECEIPT OF RETURN TO THE REGISTERED OFFICE SM INOX SRL.

13.3 - RECOMMENDATIONS FOR UNLOADING AND INSTALLATION

A. Use lifting and transport means of adequate capacity and compliant with current safety regulations (see par. “ HANDLING OF TANKS ”, page 28);
B. During unloading, always wear safety clothing and accessories (helmet, gloves, safety shoes, etc.);
C. Avoid impacts or contact with sharp objects that could compromise the integrity of the product;
D. Do not move the tank by dragging it or making it crawl on the floor, the bottom could be scratched or cut, compromising the seal;
E. Handle forklifts or other goods handling equipment with caution, the forks can accidentally puncture or scratch the product.
F. It is recommended not to lift or drag the tank by the legs, nozzles, valves, ladder rests, levels, etc. THE ONLY LIFTING POINTS ALLOWED ARE THE LIFTING POINTS.

14 - INSTALLATION AND LAYING

14.1 - BEFORE INSTALLATION

1. Handle the tanks only if they are completely empty, using the special eyebolts (see par. 10.4 “ HANDLING THE TANKS ”, page 28);
2. Never lift the tank by the inlet and / or outlet pipes, nor by the electrical connection cables (if present);
3. Check the integrity of the product, check the tightness of the gaskets and fittings, in the case of a tank equipped with a pump, check that it is correctly fixed, communicate any defects found;
4. For connections to the water mains, use flexible pipes to avoid stresses for loading and unloading the tank;
5. Make sure that gaskets, pipes and all parts are suitable for the liquid contained;
6. Have the designer and / or construction manager check that the project data communicated in the estimate phase (prevalence, flow rate, etc.) have not changed. Otherwise, contact the Tecnico SM INOXTERNI office immediately.

14.2 - LAYING THE TANKS

During the carrying out of the installation operations the prescriptions indicated by the Legislative Decree 81/2008 (Consolidated Law on Work Safety) must always be respected for temporary or mobile construction sites;

1. During the installation work, delimit the area concerned with adequate signs;
2. Tanks must NEVER be installed outdoors (unless specifically designed for this purpose);
3. Always and scrupulously follow the Leveling procedures (see par. 10.5 " LEVELING THE TANK ", page 31);
4. Always and scrupulously follow the Feet Pre-Load procedures (see par. 10.7 “ PRELOADING THE TANK FEET ”, page 34);
5. Tanks must NEVER be installed in seismic areas (unless specifically designed for this purpose);
6. Always and scrupulously follow the methods for securing the tank to the ground if positioned in seismic areas (Optional Device).

14.3 - FLOOR LAYING REQUIREMENTS

Floors must be designed for:

A. Withstand loads (distributed or concentrated);

B. Withstand compression, bending, shocks (mechanical strength);

C. Resist thermal changes;

D. Be waterproof;

E. Resist wear and abrasion;

F. Resist aggressive (chemical) agents;

The maximum permissible slope of the floor is 2%.

DANGER
It is necessary to check the correspondence of the data of the tank before placing the same correspondence to the project data if uncertain, request them from the technical office SM INOX SRL
It is strictly forbidden to NOT COMPLY with the over-exposed safety requirements that can cause serious damage to the health of workers.

15 - HANDLING OF TANKS

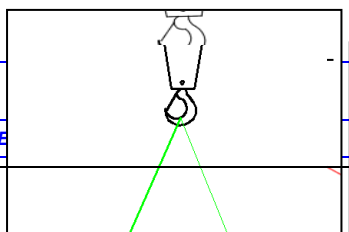
A. To handle the material, use means of transport and / or lifting suitable for the load;

B. During transport, avoid sudden movements that can compromise the integrity of the tank;

C. Lift the tank only if it is completely empty;

D. NEVER be under the lifted load;

E. For lifting, use special ropes or bands adequately resistant to the load to be supported and in excellent condition. Place the ropes or straps in the lifting eyebolts on the top of the tanks. To avoid load imbalances, always position them symmetrically as follows, respecting the angle of pull which must NOT be less than 45 ° (Fig. 2):



a) Ropes angle at 45 °
b) Use Ropes of adequate size and capacity.
c) Check that the ropes are not damaged, cut or damaged
d) Use shackles of suitable capacity between the belts and lifting eyebolts.

Figure 2: Tank handling.

15.1 - HANDLING OF THE FERMENTER TANK

MOVIMENTAZIONE SERBATOIO FERMENTATORE

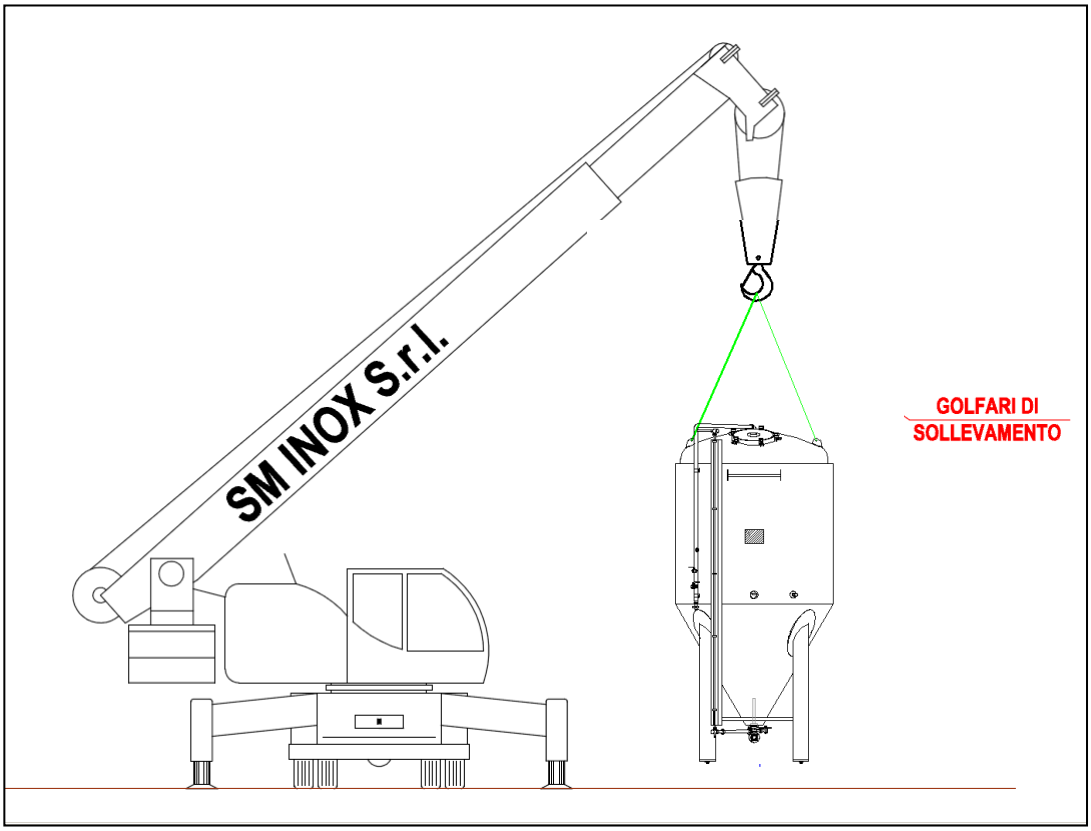
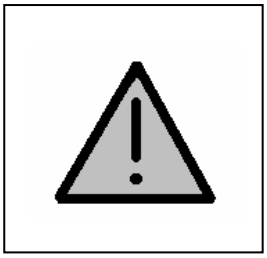


Figure 3: Conical roof tank handling.



DANGER
It is strictly forbidden to NOT COMPLY with the over-exposed safety requirements that can cause serious damage to the health of workers.

15.2 - LEVELING THE TANK

EQUIPMENT REQUIRED

Level150 cm

Professional three-bubble level to detect slopes on horizontal, vertical and inclined surfaces.

FEATURES

A. Unique **aluminum structure.**

B. **Impact resistant** ends

C. **3 Anti-shock bubbles** .

D. Central bubble **also visible from above.**

E. N ° 02 rubber grips.

F. **Accuracy of the work surfaces: 0.5 mm / m.**

G. **Length 150 cm.**

Figure 4: Spirit level.

TORQUE WRENCH

Figure 5: Torque wrench

15.3 - ADJUSTMENT OF THE TANK FEET

The maximum adjustment of the tank feet is **6 cm**, do not remove the foot from the bush.

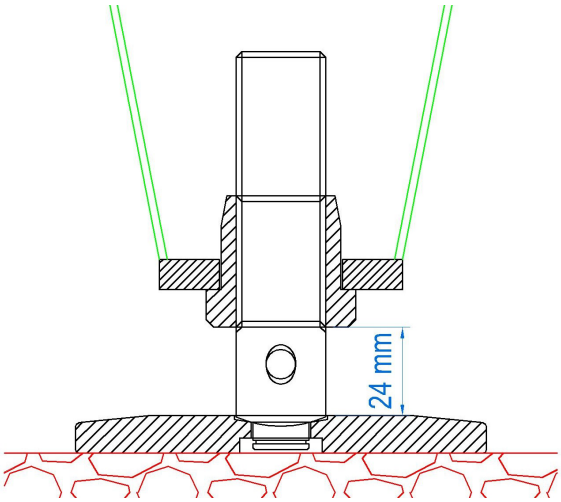


Figure 6: Minimum height adjustable foot.

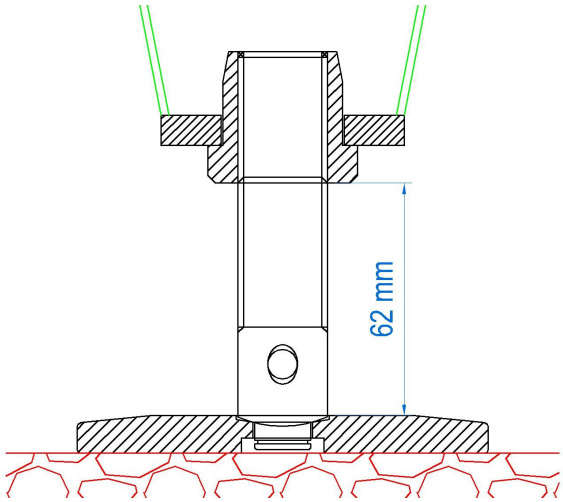


Figure 7: Maximum height adjustable foot.

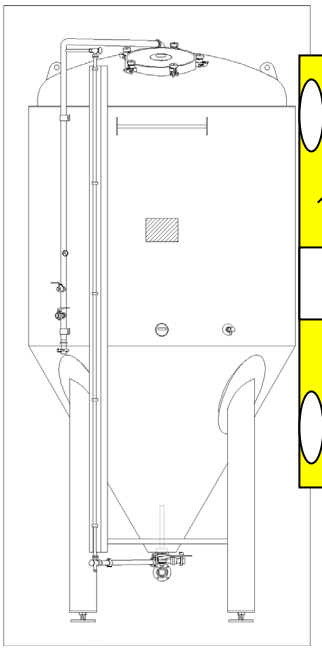
DANGER
Incorrect adjustment of the height of the tank feet can cause serious structural damage up to its structural collapse.
It is strictly forbidden to NOT COMPLY with the over-exposed safety requirements that can cause serious damage to the health of workers.

CAUTION: It is recommended to apply a small amount of metal-free “anti-seize paste” to the entire length of the thread of the adjustable feet.

The "anti-seize paste" must have the following technical characteristics and quality:

- Chemical formulation containing graphite, calcium fluoride and anti-rust additives,
- Wear and corrosion protection,
- Operating temperature from -185 to + 1340 ° C,
- Resistance to acids, water splashes and salt
- Non conductivity,
- Specificity for use on brake systems, bolted joints and sliding surfaces
- Suitable for avoiding or reducing the seizure of stainless steel screws during assembly.

15.4 - LEVELING PHASES FOR TANKS WITH 4 LEGS OR LESS

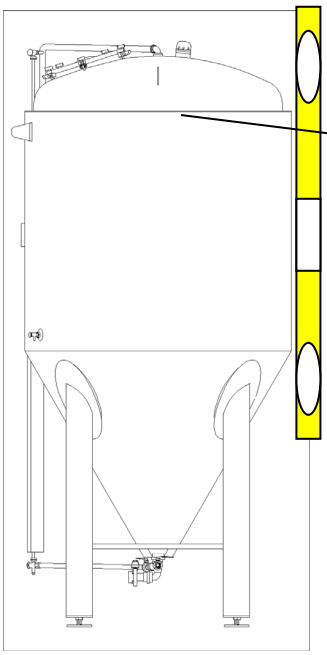


Position the level on the right side of the tank and adjust them using the lower feet so that it is perfectly level.

Figure 8: Tank leveling front elevation.

Turn the threaded pin and level the tank.

Figure 9: Adjustable foot.



Position the level on the front of the tank and adjust them using the lower feet so that it is perfectly level.

Figure 10: Tank leveling side elevation.

16 - PRELOADING THE TANK FEET

16.1 - PRELOADING THE FEET FOR TANKS WITH 4 LEGS OR LESS

Based on the number of supports that the tank has, once leveling has been carried out, preload all the feet of the tank with the torque wrench, which must be done with a torque of 20 N / m.

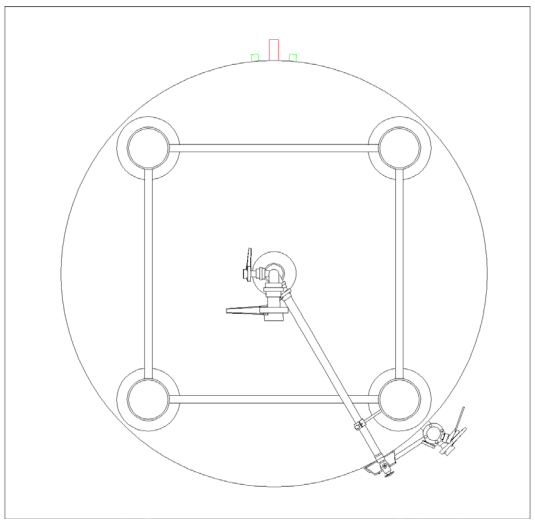


Figure 11: Tank bottom with 4 legs.

DANGER
The incorrect preload of the tank can cause serious structural damage up to the structural collapse of the same.
It is strictly forbidden NOT TO COMPLY WITH the above safety prescriptions which can cause serious damage to the health of workers.

16.2 - PRELOADING THE FEET FOR TANKS WITH 5 LEGS OR MORE

On the basis of the number of supports that the tank has, once leveling has taken place, the foot **E** , previously left in position "0", is brought into contact with the ground, and the preloading of all the feet of the tank itself which must occur with a torque of 20 N / mt.

In the case of the support and therefore the central foot **F** this must be left raised by 1mm from the ground to allow the slight flexion of the bottom during the load and the correct distribution of the effort on the perimeter legs (see Figure 16).

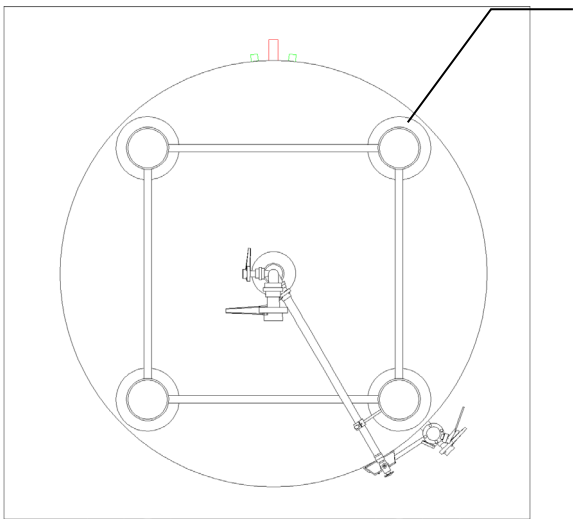


Figure 12: Tank bottom with 5 legs plus central support.

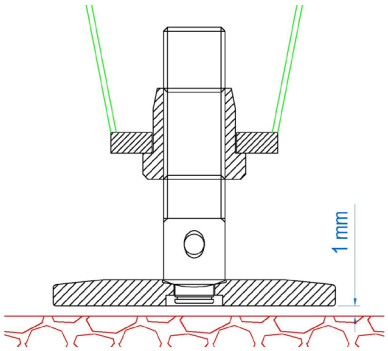


Figure 13: Central foot F in a raised position with respect to the floor.

DANGER

The incorrect preload of the tank can cause serious structural damage up to the structural collapse of the same.

It is strictly forbidden NOT TO COMPLY WITH the above safety prescriptions which can cause serious damage to the health of workers.

1 7 - TANK ACCESSORIES

17.1 - DOORS AND MANHOLES

Due to the various possible uses, Sm Inox Srl nonhas provided no system to limit access to the equipment in the presence of pressure: this eventuality is left to the user.

The main checks and maintenance interventions to be carried out for a longer life of the doors / manhole covers, to be carried out only when the system is stopped, after depressurization and disassembly, are the following:

- Check that after the first workings no solid residues remain on the gasket between the frame and the cover;
- After use, carefully clean and dry the gaskets and, in the event of long periods of downtime, keep them lubricated with suitable products, avoiding direct exposure to sunlight;
- It is essential that during long periods of shutdown or when the tank is empty, the lids remain open so as not to expand the sealing gaskets. Subsequently, before starting new processes, it is advisable to wash the internal surfaces to remove any residual dust, etc;
- Periodically check the sealing gaskets and if they are found to be damaged, contact Inox Srl perthe original spare parts directly to Sm;
- In the impossibility of carrying out these operations, it is good to know that the probability of damage to the sealing gaskets is significantly increased, and therefore subsequent leaks which can also lead to the emptying of the tank or of the system itself.

La Sm Inox SrlSrl guarantees its products under the following conditions:

- By law twelve months after delivery;
- The operating pressure indicates the static sealing pressure of the product and not the dynamic pressure which, in some cases due to incorrect maneuvers or water hammer, can well exceed this threshold;
- In the event of any damage to the doors, these must be returned to the manufacturer for repair, under penalty of forfeiture of the guarantee.

La Sm Inox Srldeclines any responsibility related to incorrect use due to lack of maintenance, or to the use of unexpected fluids or with unsuitable temperatures and / or pressures.

1 7.2 - INSTALLATION, USE AND MAINTENANCE INSTRUCTIONS FOR THE MANHOLE

The component can only be used after welding on a pressure equipment, for the construction of which in compliance with the directives in force the manufacturer of the equipment itself will be responsible;

therefore the welding operations must be carried out in compliance with the provisions of the UNI EN ISO 15614-1: 2012 Standard, "Specification and qualification of welding procedures for metallic materials - Qualification tests of the welding procedure - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys ";

It is a good idea to carry out the following checks to carry out the installation of the component in a workmanlike manner:

- functionality of the complete opening / closing system;
- correct coupling of cover / frame.

The execution of these checks is necessary to avoid the correction of errors i when the component is already installed.

The component will be housed on a hole made on the tank; it is necessary to verify that this does not present deformations, damage or discrepancies from what was foreseen in the design and, if present, take action to eliminate them.

The welding operation, by virtue of the high temperatures reached, can induce deformations on the structure in which the component will be housed, with the risk of leakage through the gasket and compromising its coupling with other constituent parts. 'equipment.

Once the weld bead has been made, you can proceed with the finishing operations,

such as grinding, pickling or satin finishing. It will therefore be possible to reassemble the cover, the pins and the other parts previously removed only with tools suitable for the purpose.

The gasket must be reassembled correctly, taking care that its surface is not damaged when closing the lid , paying attention to the centering of the latter in order to prevent contact between the metal of the lid and that of the container.

Finally, we proceed with the manual closing of the lid by acting on the handwheels, taking care not to damage the thread of the tie rods.

WARNINGS

The only welding operations allowed on the component are those necessary for its installation on the pressure equipment, carried out according to certified procedures by qualified welders;

The welding operations must be certified by a Notified Body, whose requirements are established in article 12 of the PED;

the personnel assigned to welding operations have a "license" in compliance with the provisions of the UNI EN ISO 9606-1: 2013 Standard, "Qualification tests for welders - Fusion welding - Part 1: Steels "; the certification of the operators takes place by a Notified Body;

NOTE 1: the assembly instructions given above are general and not exhaustive.

NOTE 2: once the installation has been carried out, before proceeding with any other operation, check the correct functioning of the opening / closing system as a whole and the correct coupling between the cover and the frame. If anomalies are found with respect to what is prescribed, these must be removed in an appropriate and definitive way.

NOTE 3: The manufacturer of the equipment on which the component will be installed will take care to carry out a final test in the place of installation, as well as to verify the compensation of the opening practiced for the installation of the component itself.

IMPROPER USE

Since the equipment can be used for various purposes, SM Inox Srl has not provided for the use of protective devices designed to limit access to the container even in operating conditions (in the presence of pressure); the necessary precautions are left to the operator.

To avoid any damage to the doors or manhole covers, due to accidental pressure oscillations with respect to the correct operating values (overpressure or depressurization), we recommend the use of a safety valve.

It is absolutely forbidden to modify or replace the limbs or components making up the product.

CHECKS AND MAINTENANCE INTERVENTIONS

The interventions to be programmed and carried out are aimed at increasing the life of the doors and the tank itself.

In order for the product to work in the best conditions it is advisable to carry out a series of checks, such as:

a) Keep the lids open when the tank is empty or during periods of inactivity
prolonged installation, in this way it will be possible to avoid the expansion of the gaskets;

b) If the lids are kept open (for the above reasons), carefully wash the internal surfaces to remove any residual dust or other impurities;

c) Keep in mind that, if it is not possible to carry out the operations described above, the possibility of damaging the seals increases considerably, which can lead to emptying of the tank or of the entire system;

d) Manhole covers are not immune from deterioration. Their possible excessive exposure to unfavorable atmospheric events can lead to a worsening of the seal and an acceleration of their aging process;

e) Pay particular attention to the installation phase of the manhole covers to avoid mechanical damages that can reduce their duration;

f) Use in extreme conditions of pressure or temperature can reduce the life of the manhole covers;

g) Schedule maintenance of the equipment at monthly intervals. This operation is necessary to check the state of wear between the sealed parts, the conditions of the opening and closing system and of the gasket and any critical surface conditions of the article, if it is found to operate in particularly unfavorable environmental conditions;

h) If, following maintenance operations, damage or discrepancies are found with respect to the normal conditions of the equipment, the supplier must be promptly informed, ordering the damaged or deteriorated part (s). In this way it will be possible to avoid a further deterioration of the condition of the article.

17.3 - THE USE OF NITROGEN AND ARGON INSIDE THE TANK

MANHOLE SUITABLE FOR SEALING

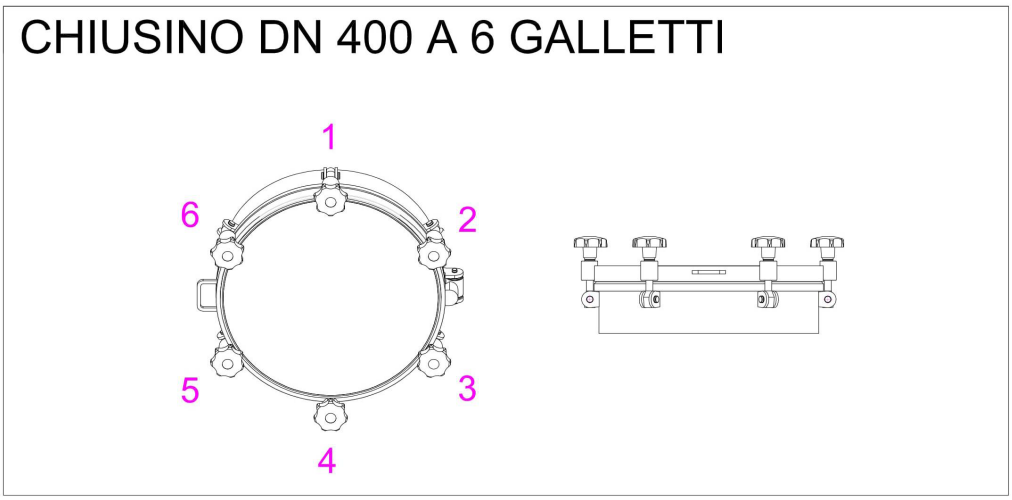
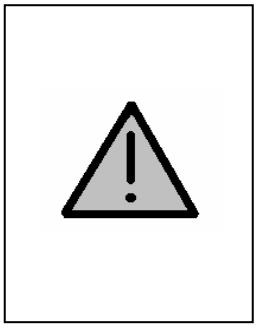


Figure 14: AISI 304 DN manhole cover 400 MMwith 6 wing nuts.

The correct way to close the manhole cover is to close the wing nuts according to the scheme: 1 - 4 - 6 - 3 - 5 - 2.



DANGER
The incorrect use of the tank valve can cause serious structural damage up to the structural collapse of the same, both for overpressure and depression.
It is strictly forbidden NOT TO RESPECT, the overexposed safety requirements that can cause serious damage to the health of workers.

REQUIREMENTS AND PROCEDURES FOR USE

In the cellar activities nitrogen is used more and more, as it is an inert gas (in the conditions of use) which serves to protect the wine from oxidation.

The air we breathe is made up of 79% nitrogen and 21% oxygen. For this reason, it is commonly believed that nitrogen is not a gas in itself dangerous. In fact, it does not belong to any of the hazard categories defined in the legislation for the classification of dangerous substances and preparations: flammable, explosive, oxidizing, corrosive, toxic, harmful, irritating, sensitizing, carcinogenic, mutagenic, toxic for the reproductive cycle.

However, it can become dangerous based on its chemical-physical properties and the way it is used. In the case in question, the gas is pumped into a confined environment and its presence reduces the partial pressure, and therefore the concentration, of the oxygen present in the atmosphere. If workers are introduced into this environment for inspection, washing and maintenance operations, there is a danger of asphyxiation for those who inhale this air. This type of asphyxia, called anoxic anoxia, occurs in all oxygen-poor atmospheres, as, for example, can occur at high altitudes due to a reduction in barometric pressure, but above all due to air pollution by inert gases (not harmful or toxic) such as nitrogen, methane, hydrogen, etc.

These gases at high concentrations can also have a narcotic effect.

As can be seen from the testimonies of the injured, the victim does not have the perception of what is happening; so she quickly goes into a state of unconsciousness and, if not rescued in time, suffers permanent damage or dies.

The analysis of the causes of these accidents and the methods of assistance show the lack of awareness of the risk on the part of the people involved and the inability to implement appropriate intervention measures in the event of an emergency.

The regulatory references governing work within confined spaces are found in Legislative Decree 81/2008, the so-called Consolidated Law on workplace safety and hygiene.

One article in particular deals specifically with "Work in areas suspected of pollution":

The employer must in any case:

a) Preliminary assessment of the chemical risk in confined environments;
b) Take steps to eliminate or minimize the risk.

<u>The risk can be eliminated by operating only outside the confined environment.</u>

If it is necessary to operate indoors, the following measures must be implemented to minimize the risk:

- Verify that the access opening has adequate dimensions to allow the easy recovery of an unconscious person;
- Systematically use equipment for checking air quality (eg with an oximeter. It is not allowed to use empirical systems, such as the time elapsed from the moment the access hatch is opened);
- Formulate and arrange written and detailed procedures for each phase of work;
- Identify people and skills;
- Insure teams made up of at least two people;
- Arrange and use respiratory protection devices suitable for the risk (self-contained breathing apparatus, not filter devices);
- Arrange and use PPE for rescue by promptly lifting and extracting the injured person (eg harness and lifting winch);
- Ensure adequate education and training of operators;
- Formulate and disseminate written and detailed procedures for emergency and rescue interventions;
- Ensure adequate preparation of the PS company employees (with reference in particular to mouth-to-mouth ventilation).

1 7.4 - BALL AND BUTTERFLY VALVES

Sm Inox Srl declares that its products are built in a workmanlike manner with materials suitable for the place and type of installation and the tests are carried out using appropriate equipment.

In accordance with la vigente Direttiva97/23 / CE (PED), the conditions of use according to the nominal dimensions (DN) of the valves are shown below:

CLASSIFICAZIONE / *CLASSIFICATION* (Allegato II / *Annex II* - 14/68/CE)						
Tipo valvola Valve type	**DN** (mm)	**Pressione esercizio** *Working pressure* (bar)	**Temperatura** *Temperature* (°C)	**Gruppo fluido** *Fluid group*	**Categoria di rischio** *Risk category*	**Marchio CE** *CE mark*
VALVOLE A SFERA BALL VALVES	**<= 50**	16	-15 ÷ 120	2	Art. 4.3	NO
	60 ÷ 100	10	-15 ÷ 120	2	Art. 4.3	NO
VALVOLE A FARFALLA BUTTERFLY VALVES	**125**	6	-15 ÷ 120	2	Art.4..3	NO

Table 5: Classification of ball and butterfly valves.

Before using one of our valves, make sure that it has the right temperature, static pressure and product content requirements for the system in which it is used.

If the valve has threaded connections, first of all check that the male / female with which it must be coupled conforms to those of the cap / ring of the valve itself. At this point, always coat the male or female with a layer of Teflon film and start tightening the fittings. It is recommended to always use wrenches suitable for the type of valve and to lock it by grabbing it by the grooves on the cap or ring. In any case, never use mechanical tools on the handle: this could lead to a bending of the handle or, in more serious cases, to deformation of the seals. The assembly must under no circumstances subject the valve to tractions or loads, so as not to compromise its integrity. In this regard, if the valves are supported by pipes, it is recommended to use supports on the pipes themselves and expansion joints each 3 metri.

Our valves have glass-filled Teflon gaskets in order to better withstand the temperature and the passage of food liquids. Other types of products, such as powders, granules or suspensions, can damage them irreparably. The same applies to uncontrolled internal chemical reactions that the user must avoid. It is therefore essential to check that after use the gaskets are intact for the work they have to carry out, and if damaged they must be replaced in order not to compromise the good seal of the valves themselves. It is recommended to always contact Sm Inox Srl perfor the supply of original spare parts.

Due to the various possible uses, Sm Inox Srl nonhas provided no system to limit access to the equipment in the presence of pressure: this eventuality is left to the fitter. However, in normal use, both the delivery and the discharge are made by means of pipes that prevent access to the valve and the fluid it contains, and the body has been designed to be opened only with the aid of suitable tools.

Particular care and attention during transport and handling, since there are parts of such thickness that they could be damaged in the valve.

The use of a safety valve upstream of the valve supplied by Sm is required to Inox Srl ondeavoid accidental overpressures and to install a filter upstream of the system or in any case before the valve to preserve the sealed parts in the best possible way. .

The main checks and maintenance interventions to be carried out for a longer life of the valves, to be carried out only when the system is stopped, after depressurization and disassembly, are the following:

- Check that after the first processing there are no solid residues (berries, seeds, grape stalks, etc.) between the sealing gaskets;
- It is essential that during long periods of shutdown or when the tank is empty, the valves remain open at 45 ° in order not to expand the sealing gaskets. Subsequently, before starting new processes, it is advisable to wash the internal parts to remove any residual dust, etc;
- After having checked the cleanliness of the valves, lubricate the gaskets with oenological or food grease, in order to facilitate the initial operation. In the impossibility of carrying out these operations, it is good to know that the probability of damage to the sealing gaskets is significantly increased, and therefore subsequent leaks which can also lead to the emptying of the tank or of the system itself.

Sm Inox Srl guarantees its products under the following conditions:

- By law twelve months after delivery;
- The operating pressure indicates the static sealing pressure of the product and not the dynamic pressure which, in some cases due to incorrect maneuvers or water hammer, can well exceed this threshold;
- In case of any damage to the valves, these must be returned to the manufacturer for repair, under penalty of forfeiture of the guarantee.
- La Sm Inox Srldeclines any responsibility related to incorrect use due to lack of maintenance, incorrect assembly, or the use of fluids that are not foreseen or have unsuitable temperatures and / or pressures.

17.5 - RECOMMENDATIONS FOR INSTALLATION

It is recommended to install ball valves with "third hole" and / or "drain plug" in the areas of the system subject to fermentation of the contained fluid.

The sphere with the "third hole" must be oriented in this way:

Third hole to the tank: the pressure increase generated by fermentation is discharged from the tank vent valves without causing damage to the ball valve.

The drain plug on the valve body, which may or may not be combined with the third hole, must be used when the valve is closed to drain the residual fluid contained in the valve cavities, preventing it from fermenting inside. The diameter of the outlet must be suitable for the viscosity of the product.

By placing the third hole towards the outlet and opening the drain, the valve can be flushed.

17.6 - WARNINGS

The remaining fluid destined to ferment inside the closed valve can cause considerable problems and damage both to the valve itself and to the operators.

The ball valves installed in areas of the system where the fluid ferments must be emptied (completely or almost) when the valves are closed. If this does not happen, especially when the valves are not equipped with a "third hole" and / or "drain plug" on the valve body, the fluid that ferments inside the valve cavities causes strong increases in pressure being inside a closed volume without the possibility of venting. These pressure increases are such as to exceed the design pressure of the valves (PN 16 - 10 - 6 inbased on DN). Exceeding these internal pressure values can cause:

a) The locking of the ball as it is pushed against the seals;
b) The breakage of the handle if you act with too much force trying to open the valve;
c) The “peeling” of the cap from the valve body.

Point c) describes a very dangerous consequence for the operator. Based on the internal pressure that is generated due to fermentation, the cap can be ejected towards the operator at high speed with the consequences of the case. Furthermore, high pressure jets of the contained fluid can be generated which can dangerously hit the operator.

The ball valves are suitable for use with low or medium viscosity liquid products. The presence of solid parts in suspension can compromise the seal of the valves as the ball itself and the PTFE seals can be engraved by the solid bodies present. It is therefore recommended, in these cases, to frequently check the general condition of the valves and request appropriate maintenance in case of damage.

Sm Inox Srl, in case of improper uses described above, declines all responsibility.

17.7 - DECANTERS

Sm Inox Srl dichiarathat its products are built in a workmanlike manner with materials suitable for the place and type of installation and the tests are carried out using special equipment.

In accordance with la vigente Direttiva97/23 / CE (PED), the conditions of use according to the nominal dimensions (DN) are shown below:

CLASSIFICAZIONE / *CLASSIFICATION* (Allegato II / *Annex II* - 97/23/CE)						
Tipo prodotto Product type	**DN** (mm)	**Pressione esercizio** *Working pressure* (bar)	**Temperatura** *Temperature* (°C)	**Gruppo fluido** *Fluid group*	**Categoria di rischio** *Risk category*	**Marchio CE** *CE mark*
DECANTATORE DECANTATION ELBOW	**40 ÷ 100**	10	-15 ÷ 80	2	Art. 3.3	NO

Table 6: Decanter classification.

Before using one of our decanters, make sure that it has the right temperature, static pressure and product content requirements for the plant in which it is used.

Our decanters have standard NBR O-rings suitable for the passage of food liquids.

Other types of products, such as powders, granules or suspensions, can damage them irreparably. The same applies to uncontrolled internal chemical reactions that the user must avoid. It is therefore essential to check that after use the gaskets are intact for the work they have to carry out, and if damaged they must be replaced in order not to compromise the good seal of the decanters themselves. It is recommended to always contact Sm Inox Srl perfor the supply of original spare parts.

Due to the various possible uses, Sm Inox Srl nonhas provided no system to limit access to the equipment in the presence of pressure: this eventuality is left to the fitter. In any case, in normal use, both the delivery and the discharge are made by means of pipes that prevent access to the body and the fluid contained in it.

The main checks and maintenance interventions to be carried out for a longer life of the decanter, to be carried out only when the system is stopped, after depressurization and disassembly, are the following:

- Check that at the end of the process there are no solid residues left in the internal parts;
- Before starting new processes, it is advisable to wash the internal parts to remove any residues;
- After having checked the cleanliness, lubricate the seals with edible grease.

In the impossibility of carrying out these operations, it is good to know that the probability of damage to the sealing gaskets is significantly increased, and therefore subsequent leaks which can also lead to the emptying of the tank or of the system itself.

Sm Inox Srl S.r.l. guarantees its products under the following conditions:

- By law twelve months after delivery.

- The operating pressure indicates the static sealing pressure of the product and not the dynamic pressure which, in some cases due to incorrect maneuvers or water hammer, can well exceed this threshold.
- In the event of any damage, the decanters must be returned to the supplier for repair, otherwise the warranty will be void.
- Sm Inox Srl declinaany liability related to incorrect use due to lack of maintenance, incorrect assembly, or the use of fluids not foreseen or having unsuitable temperatures and / or pressures.

17.8 - THERMOMETERS

BIMETAL ANALOG THERMOMETER

Stainless steel thermometer suitable for all applications industrial; suitable for the chemical, pharmaceutical and food industries and in general for heavy use with corrosive substances.
Consisting of a tube inside which there is a bimetallic spiral which deforms as a result of changes in temperature.

Figure 15: Analog thermometer.

Description	Value / class
Nominal Ø	100
Accuracy class	+/- 1% of the full scale value
Case and ring	AISI 304 stainless steel with bayonet coupling
Sensitive element	Bimetal spiral
Attack to the process	Sliding male threaded G 1/2 ”A, or pocket in AISI 316
Stem	Cylindrical in AISI 316 DN 9mm. (on request DN 6mm.)
Index	Resettable black anodized aluminum
Transparent	Glass, 3mm thick.
Transparent gasket	Nitrile rubber NBR
Clock face	White aluminum. Scales and gradations: black

Table 7: Analog thermometer characteristics.

DANGER
It is recommended to remove the thermometer when washing the tank, especially with pressure lances.
It is strictly forbidden to NOT COMPLY with the over-exposed safety requirements that can cause serious damage to the health of workers.

DIGITAL THERMOMETER

Long operating autonomy, up to two years without replacement batteries. IP 65 watertight execution. All in stainless steel.
Customizable front mask.
N. 3 measuring ranges, from -40 ° to + 110 °Cto cover a wide range range of applications. Display digits h. 19mm.
Possibility of immediate replacement of traditional models analog. Excellent accuracy.

Figure 16: Digital thermometer.

Description	Value / class
Nominal Ø	80
Accuracy class	+/- 5% of the full scale value
Case and ring	AISI 304 stainless steel with bayonet coupling
Sensitive element	Bimetal spiral
Attack to the process	Sliding male threaded G 1/2 ”A, or pocket in AISI 316
Stem	Cylindrical in AISI 316 DN 9mm. (on request DN 6mm.)
Sampling	Every Second
Battery life	Two years
Diet	2 AAALR03 1.5V mini stylus

Table 8: Characteristics of digital thermometer.

DANGER
It is recommended to remove the thermometer when washing the tank, especially with pressure lances.
It is strictly forbidden to NOT COMPLY with the over-exposed safety requirements that can cause serious damage to the health of workers.

DIGITAL THERMOSTAT

Automatic control of the winemaking temperature.
Direct mounting on the tank. Indicated and ideal for small cellars. Allows you to save on expenses for the framework centralization and the related electrical system set up from the outward and return cables, panel for connection of the probes and the command of the solenoid valves. IP65 sealing.

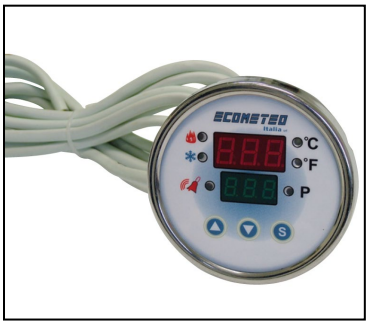
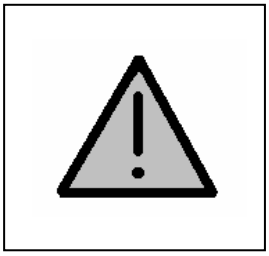


Figure 17: Digital thermostat .

TECHNICAL FEATURES

Adjustment range from-9 a 99°C, measurement -9.9 ÷ 99.9 ° C. Display resolution 0.1 ° C, accuracy better than ± 0.5 ° C. Red LED display, h 14mm for the measured temperature.

Green LED display, h 10mm for the programmed temperature. Four LED lights to check the operating status. 24V / 50Hz power supply, 5VA consumption. Two relay outputs, pre-powered, to control 24V solenoid valves: one for cooling, the other for heating. Contact rating of relays 3A / 24 Vac. Selectable operating mode. Access to programming parameters on 3 levels, password protected. Detailed instructions attached to the tools



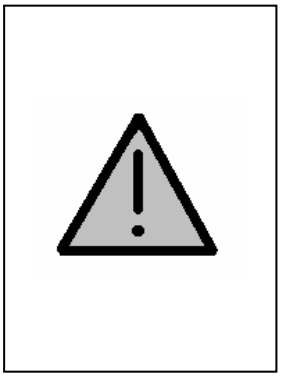
DANGER

It is recommended to remove the digital thermostat when washing the tank, especially with pressure lances.

It is strictly forbidden to NOT COMPLY with the over-exposed safety requirements that can cause serious damage to the health of workers.

17.9 - REFRIGERATION BANDS

The refrigeration bands can be channel or honeycomb. They are present in a tank in the part of the shell and in the beer tanks also in the bottom part. The maximum working pressure of the installed conduits is between 1.5 and 2 bar. The temperature, on the other hand, is between -7 ° C and + 7 ° C.



DANGER

Use only and exclusively ball valves with refrigeration belts. Using valves other than those just indicated, the tank will be damaged because, as the closing times are too short, a harmonic wave will be created inside the tank. The latter can even increase internal pressure five times, creating the dangerous "water hammer". It should also be remembered that, if manual valves are used, it is advisable to use long closing times and it is recommended to install the necessary shock absorbers inside the tank.

1 8 - DANGERS FOR WORKERS

18.1 - WORK AT HEIGHT ON THE TANK

If work is carried out inside the tank, it may happen to work near the manhole cover or in any case to carry out work on the top of the tank (work at height). In order to minimize workers' exposure to falls from a height it is the employer's responsibility:

- train operators, training them to work at height (climbing on wine vessels with pumping, decanting, control activities);
- make periodic training on the control, use and maintenance of portable ladders;
- where possible, install certified walkways;
- install lifelines (Figure 28) when it is not possible to install suitable parapets on the walkways;
- equip ladders higher than 5 metri, starting at least from 2,5 metrithe floor, with a solid protective metal cage;
- equip walkways and work or raised walkways with non-slip flooring. The same must be provided, on all open sides, with parapets with a useful height of at least 1 metroand at least two currents and a toeboard band;
- reduce the use of portable ladders to the bare minimum.

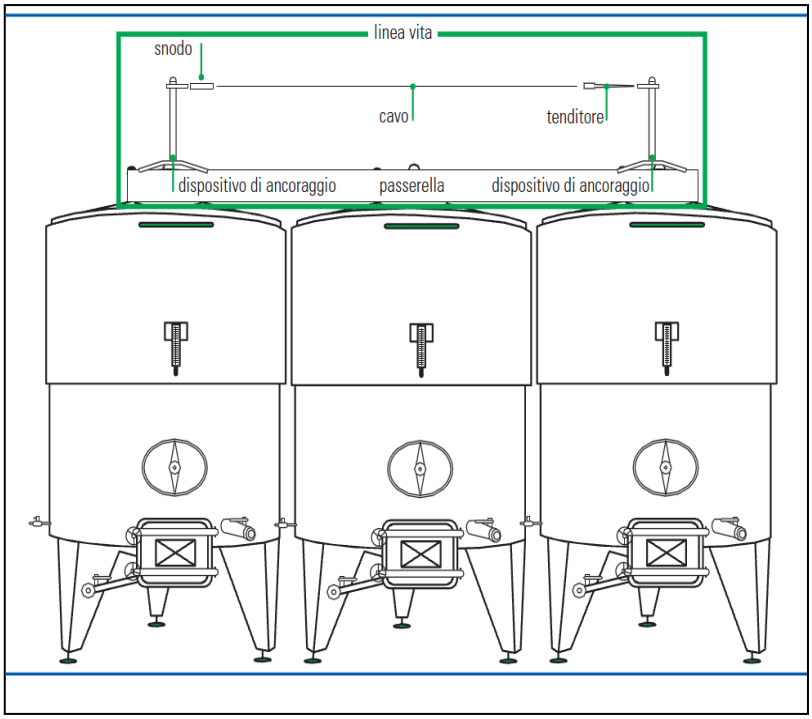


Figure 18: Life line.

In any work situations where, for actual technical reasons, it is not possible to provide a work platform, adequate barriers or other similar protections, it is necessary to prevent
falls from heights through the use of suitable safety belts.

The belt must be designed in such a way as to allow the user to perform his work without excessive discomfort and to be protected against the risk of falling from a height.

In any case, easily accessible elements must be prepared in advance to which the seat belt can be effectively anchored.

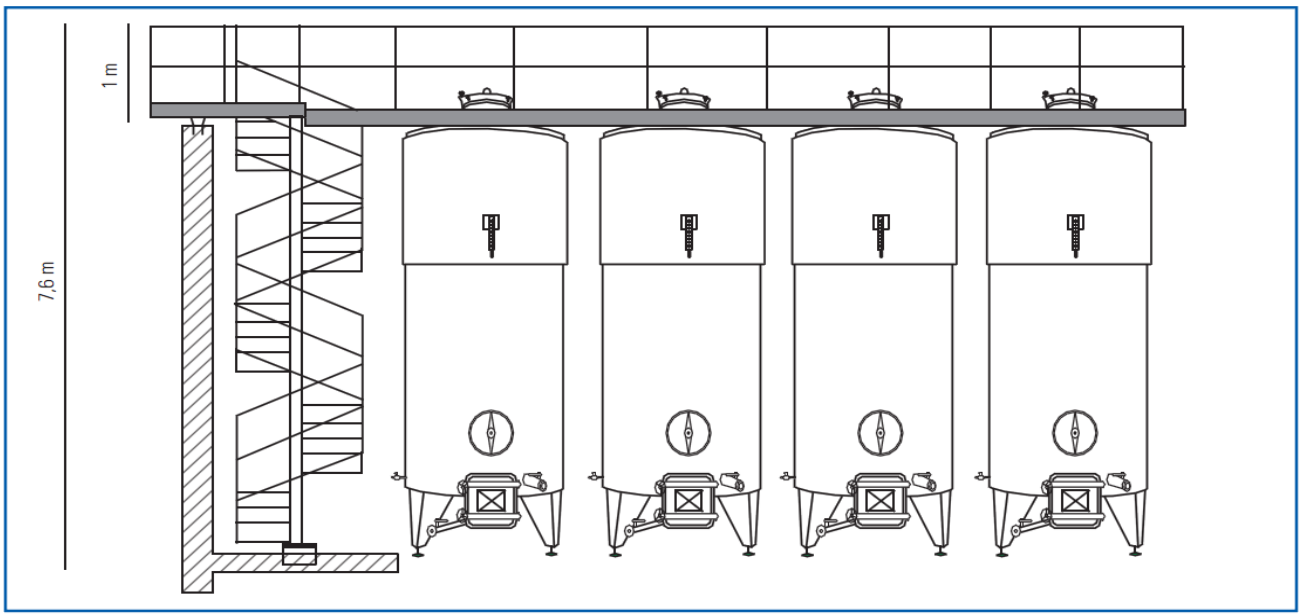


Figure 19: Walkways and stairs.

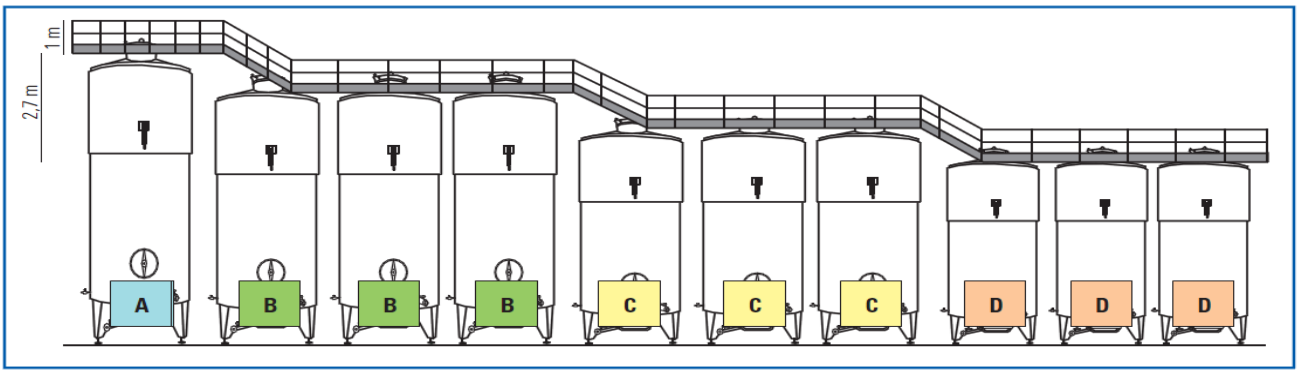


Figure 20: Walkways.

Seat belts must be CE marked and each component must clearly and indelibly bear the following information:

a) the name or identification mark of the manufacturer or supplier;
b) the serial number;
c) the last two digits of the year of production;
d) the number of the European reference standard (EN 358 for belts of the first type and UNI EN 813 for belts with leg loops).

In addition, leg belts must show the correct size and method of fastening or adjustment, for example by means of pictograms.

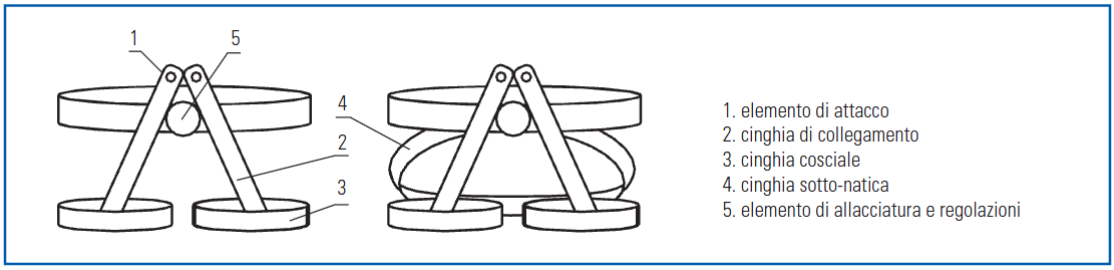


Figure 21: Belts with leg loops.

Figure 22: Standard belts with leg loops.

All operators carrying out work at height must be informed, trained and trained to perform these operations.

18.2 - SPECIFIC RISKS FOR WORKERS

The specific risks to which an operator is subject in the foreseen phases of working with the tank are the following:

- danger of falling from a height (work at height);
- electrocution from contact with live parts;
- chemical risk due to the use of detergents and sanitizers;
- presence of emissions and toxic substances that can be inhaled by the operator;
- working in confined environments;
- various trauma from stumbling, slipping;
- manual handling;
- microclimate;
- biological risk;

- incongruous postures;
- microclimate;
- poor lighting;
- contact with chemical agents (soda, SO2, detergents, etc.);
- exposure to alcohol vapors.

19 - CLEANING THE TANK

When cleaning the tank (after emptying it) remember to clean the tank and all its stainless steel parts using a cloth and a suitable detergent / sanitizing liquid; then dry the treated parts.

19.1 - THE ENVIRONMENTS CONFINED IN THE BREWERY

Attention: inside the cellar during the sanitization and cleaning activities there may be the danger of working in confined environments, i.e. inside tanks, fermenters and cisterns in which the presence of pollutants and the saturation of the air can lead to even to fatal consequences.

There are specific work procedures for this risk factor:

- verify that the access opening has adequate dimensions to allow the easy recovery of an unconscious person;
- systematically use equipment for checking air quality (eg with an oximeter. It is not allowed to use empirical systems, such as the time elapsed from the moment the access hatch is opened);
- formulate and arrange written and detailed procedures for each phase of work;
- identify people and skills;
- ensure teams of at least two people;
- have and use respiratory protection devices suitable for the risk (self-contained breathing apparatus, oximeters);
- arrange and use PPE for rescue by promptly lifting and extracting the injured person (eg harness and lifting winch);
- ensure adequate education and training for operators;
- formulate and disseminate written and detailed procedures for emergency and rescue interventions;
- ensure adequate preparation of company employees for First Aid (referring in particular to mouth-to-mouth ventilation).

EXAMPLE OF WRONG MACHINING

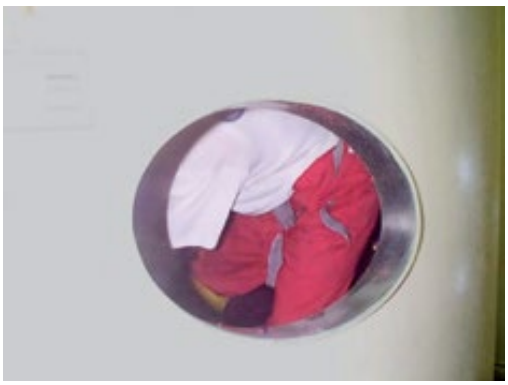


Figure 23: Example of incorrect machining.

Aria inalata Concentrazione di ossigeno	effetti
21%	percentuale nell'aria non inquinata
17%	– diminuzione della visione notturna – aumento dell'aria inspirata – accelerazione del ritmo cardiaco
16%	– vertigini
15%	– turbe dell'attenzione, delle capacità valutative, del coordinamento – episodi di apnea – affaticamento – perdita di controllo della motricità
12%	– forte perturbazione delle capacità valutative e di coordinamento – perdita di coscienza – lesione cerebrali irreversibili
10%	– incapacità di muoversi – nausea – vomito
6%	– respirazione spasmodica – movimenti convulsi – morte in 5-8 minuti

Table 9: Effects of inhaled air based on oxygen concentration.

20 - STARTING THE TANK

Before starting the tank permanently:

1. Wash the dispensing systems as described in the paragraph;
2. Make sure that the electrical connections are well secured (if provided);
3. Insert product for sanitation;
4. Rinse thoroughly with water;
5. Check for leaks.

20.1 - SANITATION

Warning: DO NOT use chlorine-containing detergents or sanitizers such as bleach, as over time it pierces and corrodes stainless steel.

Any other chlorine-free sanitizer can be used. Iodophor ™ and StarSan ™ both work very well and do not require rinsing.

Initial cleaning: Before first use, carry out the sanitizing cycle as indicated in the HCCP Manual . Rinse carefully and allow to dry well, in order to allow the protective layer of CrO2 to naturally reform itself on the stainless steel surface. Scrub the fittings with a nylon brush and some cleaner or dip them in a boiling PWB solution. You can also boil fittings and gaskets to sterilize them but first you need to remove the black vinyl handles from the faucet handles so as not to boil them. If the fermenter will not be used immediately, carefully dry the fittings and gaskets and store them in a new airtight plastic bag.

BEFORE EACH USE:

Valves and Fittings: Soak all fittings, valves, gaskets and the lid gasket in a sanitizing solution or boil in water for 10 minutes, if not already done after previous use. Be sure to remove the black vinyl handles from the faucet handles so as not to boil them. To make sure that the inside pocket of the hermetic closure of the ball valve is properly sanitized, close the valve completely and then open it until a small “cat's eye” opening is visible. It is advisable to completely disassemble the valves, for a thorough cleaning after about 6 uses to avoid contamination problems, it will only take a few minutes.

Fermenter : Carry out the Sanitization cycle as per the HCCP Manual.

21 - ORDINARY MAINTENANCE AND PERIODIC CHECKS

Periodic checks are necessary and have the purpose of keeping the tank efficient and prolonging its useful life.

The checks and maintenance that are entrusted to the Operator must, as a rule, be carried out in the absence of electricity.

The interventions that require the presence of voltage or the working tank must be carried out by qualified and authorized technicians who are aware of the dangers deriving from the specific working conditions. When carrying out maintenance work or checks, place a sign on the control panel or in the immediate vicinity (in any case in a visible way) that clearly indicates that the tank is subject to maintenance.

Place a sign prohibiting any insertion of current on the general isolation switch of the electric circuit of the tank.

21.1 - PERIODIC CHECKS

Periodic checks are necessary to keep the tank efficient and extend its useful life.

21.2 - DAILY CHECKS

It is advisable to perform the following operations every day:

- Visual and functional check of the operation of the tank.

  If any anomalies or malfunctions of the tank are found, contact the assistance service immediately and switch off the system to prevent the tank from being used until the intervention of specialized technicians to resolve the problems encountered.

21.3 - MONTHLY CHECKS

Each month it is mandatory to perform the following operations:

- Global control of the tank and all its hydraulic and electrical components;
- Check the correct operation of the safety valves:
  a) Nitrogen valve
  b) Vacuum valve
  c) Maximum Pressure Valve
- Check and grease the door seals;
- Check and grease the valve seals;
- Check and grease the manhole gaskets.

NB. These checks must be authorized and carried out by qualified operators. Under penalty of forfeiture of the guarantee.

21.4 - SEALS REPLACEMENT

- valves every 1 year
- manhole covers every 1 year

21.5 - CALIBRATION VERIFICATION

It is mandatory to check and calibrate by a certified and accredited body, which issues a test certificate which must be an integral part of the tank's technical file.

- Gauges - every three years
- Safety Valves - every three years
- Vacuum Breaker Valves - every three years

21.6 - CHECK WELDINGS

is mandatory, by a certified and accredited body, which issues a test certificate on the state of the welds, which must be an integral part of the tank's technical file.

- Of all the welds described in the welding specification drawing, inserted in the technical file - **every three years**

21.7 - EARTHING CHECK

It is mandatory for the purchaser that, within thirty days from the commissioning of electrical grounding systems and protection devices against atmospheric discharges, the same must request the declaration of conformity issued by the installer (Article 2 of Presidential Decree 462/01) pursuant to Ministerial Decree 37/08 and attach it to the technical file of the tank with a certain date.

- Grounding check - every three years

22 - MAINTENANCE TIMES TABLE

DAILY MAINTENANCE		
DATE	**OPERATOR**	
Visual and functional check of the tank	**YES**	**NO**

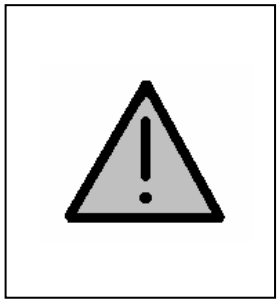
MONTHLY MAINTENANCE		
DATE	**OPERATOR**	
Control of nitrogen valves	**YES**	**NO**
Control of the vacuum valves	**YES**	**NO**
Control of the maximum pressure valves	**YES**	**NO**
Check the door seals	**YES**	**NO**
Checking the valve seals	**YES**	**NO**
Check the manhole gaskets	**YES**	**NO**
Checking the hydraulic and electrical components of the tank	**YES**	**NO**

ANNUAL MAINTENANCE		
DATE	**OPERATOR**	
Replacement of valve seals	**YES**	**NO**
Replacing the manhole gaskets	**YES**	**NO**

THREE YEAR MAINTENANCE		
DATE	**OPERATOR**	
Check the pressure gauge	**YES**	**NO**
Replacement of safety valves	**YES**	**NO**
Replacement of the vacuum breaker valve	**YES**	**NO**
Check welds as per technical file	**YES**	**NO**
Check grounding	**YES**	**NO**

23 - REPLACING THE TANK ELEMENTS

The replacement of the gaskets of doors and manhole covers must be carried out at least once a year to guarantee the hydraulic seal of the tank.



SM INOX SRL has provided for the supply of a spare kit that contains all the materials necessary for the replacement of the gaskets .

The interventions concerning the extraordinary maintenance of the tank must be carried out by qualified and authorized technicians who know the dangers deriving from the specific working conditions.

24 - FINAL DISMANTLING OF THE TANK

The machines described in this manual are built with non-polluting metal materials (in particular stainless steel) with the exception of:

1. parts in heat-insulating material;
2. rubber or technopolymer gaskets;
3. electrical cables, electronic boards and components inserted in optional components.

For these products, separate disposal must be carried out in accordance with the laws and regulations in force in the individual countries.

ATTENTION

The dismantling of the tank must be carried out by specialized firms. The tank must be disposed of separately according to the current directives, in accordance with the legislative decree n.151 / 2005. Due to the presence of toxic substances in electrical or electronic components, disposing of these or parts of them in non-recyclable waste can have harmful effects on the environment and human health. The customer is required to separate the products or part of them labeled according to the waste regulations. For more information, contact a sales point or an installer to find the closest collection point to your city. The customer can dispose of the tank free of charge at the point of sale or the installer when purchasing a new tank. It is the customer's responsibility to provide for reuse, recycling and other forms of waste reduction in order to reduce the amount of waste to be disposed of. This legislation is introduced in support of environmental policies.

25 - TANK IDENTIFICATION PLATE

The identification plate of the tank and la marcatura CEare applied on the external front wall of the tank. The plate shows all the data required by the standards applied, specifically the data necessary for identifying the tank.

SM Inox S.r.l.