



**BIOLOGICAL PURIFICATION SYSTEMS
FOR CIVIL SEWAGE AND SIMILAR WASTES
AND FOR CARWASH DISCHARGES**

OPERATING INSTRUCTIONS

Document code: AD98IU01-2_EN_R2

CE DECLARATION OF CONFORMITY

with the "machine" directive and arrangements for implementation
(in compliance with Art. 2 – section 2, letter a of Italian law no. 459/96)

The Manufacturer:

Omnia Resina Mazzotti S.r.l.

VIA MOLINELLO, 10/B – 48010 BAGNARA DI ROMAGNA (RA) - ITALY

Declares that the following machine

Model:	
Type:	
Year of manufacture:	
Machine number	

Complies with the arrangements outlined in the machine directive (EEC Directive 98/37)
and the following national arrangements for its implementation:

Italian Presidential Decree no. 459 dated 24/07/1996

Regulations for implementation of EEC Directives 89/392, 91/368, 93/44 and 93/68 harmonizing the
legislation of the member states regarding machinery.

and also complies with the arrangements in the following European directives:

EEC 89/336: European Council Directive issued on 3rd May 1989 harmonizing the legislation of the
member states regarding electromagnetic compatibility.

EEC 73/23: European Council Directive issued on 19th February 1973 harmonizing the legislation of
the member states regarding electrical materials to be used within certain voltage limits.

It complies with the arrangements in the following harmonized standards:

UNI EN 292/1, UNI EN 292/2,
CEI EN 60204-1, EN 60529

Bagnara di Romagna (RA), li

O.R.M. OMNIA RESINA MAZZOTTI S.R.L.
LEGALE RAPPRESENTANTE
Giambattista Mazzotti

ID Label

The unit is identified by a label created to meet the essential safety demands outlined at point 1.7.3 of Attachment I to the European Community Council Directive 98/37.

Given the importance of this label, always remember the following:

- never remove the label from the original position selected by the manufacturer;
- never modify or change the technical data reported on the label;
- never clean the label with sharp objects (e.g.: steel brushes), to prevent damaging the data reported.

 OMNIA RESINA MAZZOTTI			
Omnia Resina Mazzotti S.r.l. Via Molinello, 10/B Bagnara di Romagna - RA - ITALY			
MODELLO <i>Model</i>	<input type="text"/>		
TIPO <i>Type</i>	<input type="text"/>		
ANNO DI COSTRUZIONE <i>Construction year</i>	<input type="text"/>		
N° MATRICOLA <i>Serial n°</i>	<input type="text"/>		
TENSIONE <i>Voltage</i>	230 VAC	FREQUENZA <i>Frequency</i>	50 Hz

The ID label carries the **CE** mark, indicating that the unit complies with the essential health and safety requirements outlined in EEC 98/37 (Attachment I) and the procedure in Attachment V of this directive regarding CE declarations of conformity.



NOTE

The label must always be well preserved to ensure that all the data contained is perfectly legible.

If the label deteriorates with use, if even one piece of information is no longer legible, contact the manufacturer for a new label providing the data contained in the present instructions or on the original label.

For any information you may require regarding the unit, contact Omnia Resina Mazzotti S.r.l. and always provide the ID elements reported on the label.

Manufacturer and builder

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Edition

Code	AD98IU01-2_EN_R2	Edition	January 2006
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Operating instructions created by:



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MANUAL REVISIONS

Revision	Edition	Performed by	Approved by	Object
R0	March 2005	M.R.	G.C.	First issue
R1	June 2005	O.R.M. (RGQ)	O.R.M. (DIR)	Updating following RAC indications
R2	January 2006	O.R.M. (RGQ)	O.R.M. (DIR)	Delete TÜV marking
R3				
R4				

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ATTACHED

TECHNICAL INFORMATION Suggested method for installing – Specification headings

1 Preliminary works



READ

TECHNICAL INFORMATION Suggested method for installing – Specification headings

1.1 Pit

Before digging the pit, check for underground users (e.g. telephone lines, water or gas mains) or overhead lines (e.g. electrical networks) in the vicinity which could hinder movement and installation operations.

Dig a pit of adequate size (considering dimensions approximately 200 mm greater than the depth and circumference of the tank).

Check the level of the sewer in relation to the tank inlet. If the tank is below ground level (height 0.00), fiberglass extension rings are provided upon request to ensure that **the tank can be fully inspected** during scheduled and special maintenance

On the bottom of the pit, prepare a lean concrete cast reinforced with an electrowelded mesh. The slab must be smooth and free of any upward projecting bumps, thus protecting the tank and guaranteeing stability.

1.2 Machine room and accessory works

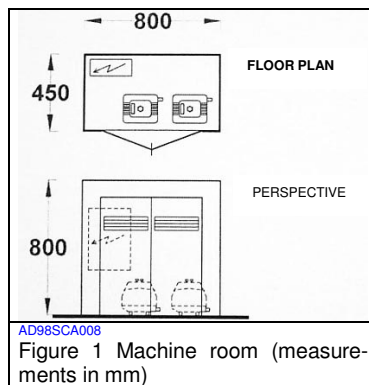
The machine room is required when the plant includes any of the following: Universal constant flow systems, universal direct flow systems, sludge recycle clarifiers, biological system for carwash discharges and dual system, and such components as diffusers and air-lifts that require a diaphragm compressor (blower) to function.

The machine room must be place at a distance of no more than **10 m max** from the plant. The support base must be flat and solid and, to prevent any sewage backflow toward the blower in case of power blackout, it must be positioned at a level higher than the contents of the tank.

Do not use in environments containing corrosive gases or in places where the compressor could be exposed to strong, frequent vibrations.

Figure 1 shows a diagram indicating the arrangement of the machine room. The machine room, prepared by the final user, in addition must provide:

- control board or power outlets (230 Vac, 50 Hz) in proportionate number, fit with manual knife switch (with fuse or magnetothermal breaker)
- a cable duct with a minimum diameter of 80 mm to protect the air hoses
- a cable duct with a minimum diameter of 63 mm to protect the electrical wiring;
- a running water tap for maintenance operations



1.3 Workplace lighting

The plant does not have any lighting devices incorporated for normal use. These are considered unnecessary because it is an outdoor installation.

Minimum lighting must guarantee **correct perception** of the symbols and signs. There must always be enough lighting to guarantee utmost operating safety.

2 Handling and transport

2.1 Lifting the tank

The tank must be lifted with an overhead traveling crane, crane or crane-truck using:

- for tanks up to 2000 mm in diameter: cables inserted in the holes found on the tank (see Figure 2)
- for tanks over 2000 mm in diameter: cables inserted in the eyebolts found on the outside edge of the tank (see Figure 3)

The weights of the individual tanks are reported in chapter 3 of document AD98IU01-1_IT_R0 "Safety prescriptions".



AD98FDA002

Figure 2 Lifting with cords



AD98FDA001

Figure 3 Lifting with eyebolts



WARNING

Move and raise the **empty tank**, making sure that there are no liquids inside (for example Rain water) or other materials.



WARNING

At the end of the operations check the integrity of the plant in all its parts and components.

2.2 Diaphragm air compressor or motor-driven pump

The diaphragm air compressors or motor-driven pumps are transported manually since their size and weight permit this (see technical description in the section entitled "General description of the units").

3 Installation, operation and use



READ

TECHNICAL INFORMATION Suggested method for installing – Specification headings

3.1 Installation

Before starting the unit installation operations, the operator must check that the instructions indicated in chapter 1 have been performed as indicated and wear suitable individual protective devices (reinforced footwear, helmet, gloves and protective clothing).

PROPPING

Before starting the propping operation, fill the tank to $\frac{3}{4}$ full with water.



WARNING

The filling operations should be carried out equally in all the compartments to avoid counterthrust pressure on the dividing walls.

When only pedestrian traffic is allowed and class A15 lids used, the propping operation must be performed with inert materials (sand or fine soil, free of any stones and/or other protrusions).

When the tanks are to have class D4000 lids for roadways, pedestrian zones, transit docks and parking areas for all types vehicles, the unit must be propped up with concrete and a height greater than the edge of the tank for supporting the weight of the cover.

CONNECTING THE COMPONENTS

Hook up the air hoses coming from the machine room and connect the electrical power supply (where called for, see chapter 1).

CONNECTING THE BIOGAS DISCHARGE PIPE

Connect a pipe to the biogas outlet and run it upward to dissipate any unpleasant odors that could develop inside the tank. To this purpose it is possible to use plastic pipes connected into the downpipe and, as a last alternative, even the discharge column ventilation pipes. Do not force the pipe to make narrow bends and seal the joints.



WARNING

The horizontal portion must slope toward the tank to return any condensation.

CONNECTING THE TANK

Before connecting the tank, check that:

- the sewer has a siphon installed to prevent the backflow of foul odors
- the slope of the sewer does not exceed 2%; if it does, intercept it with a small tank to slow down the flow of sewage (*not required for universal constant flow systems*)

Inlet

- connect the drains for the sewage water (WC discharges) and waste waters (wash basins and kitchen) to the tank inlet piping



WARNING

The kitchen drains must be **always** intercepted by an oil-grease separation tank.

- do not run rainwater and waters used to wash out water softening resins into the purification system

Outlet

- connect the system discharge to an inspection tank with a slope of approximately 2%
- convey the discharge from this tank to the final receiver

REGULATING FLOW RATE

Flow rate is regulated for the universal constant flow systems and for biological systems for the treatment of carwash discharges.

Connect the motor-driven lift pump to the inside of the protection grid.

Check that the float movement is not blocked.

Connect the delivery pipe of the motor-driven pump to the flow distributor and regulate using the supplied container (the level, indicated on the container, corresponds to the amount of sewage to be transferred into the oxidation compartment in the amount of time indicated on the container label and on the instruction sheet);

- measure the flow rate;
- if the flow does not match the level indicated in the container in the set amount of time, loosen the screw and slide the “pen” until the required flow has been achieved. Then lock in place once more.

REGULATING THE AERATION SYSTEM

The following plants have an aeration system: universal constant flow system, universal direct flow system, systems with sludge recycle clarifier, biological systems for carwash discharges and dual systems.

The **diaphragm compressor** is positioned in a covered, well aerated place (machine room, see chapter 1).

The operating temperature ranges from -20 °C to +40 °C with low relative humidity. Connect the power supply to a 230 V, 50 Hz outlet (arranged by the final user, see paragraph 3.2).

Connect the air feed hose to the plant by inserting it into the corrugated hose already running from the machine to the plant. Then connect it internally to the **air distributor** and secure it with the supplied clamps.

Finally, connect the air distributor outlets to the users (**plate and cone air diffusers and air-lift or sludge recycle**).

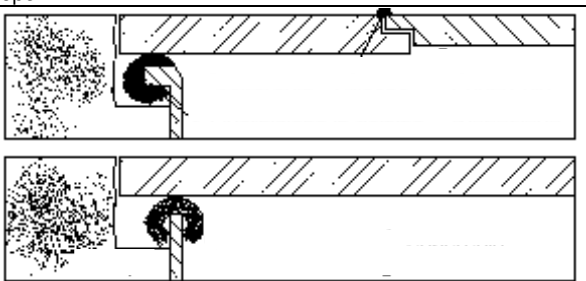
Adjust the air distributor cock as follows:

- plate air diffusers totally open
- cone air diffusers about one quarter open
- sludge recycle about half open

LID INSTALLATION

Insert the gaskets between the lid and the edge of the tank to prevent any odors from seeping out (see Figure 4).

When closing the tanks with lids, check that there are no people, animals or things on the inside since people and animals could suffocate or drown.



AD98SCA020

Figure 4 Lid installation



WARNING

Do not convey non-biodegradable material to the system (cotton wool, sanitary napkins, dental floss, etc.) so as not to prejudice the correct operation of the plant and the submersed pump, where provided.

3.2 Arrangement for electrical connections

The system must be hooked up to the power supply in compliance with the rules of good technical practice and current safety regulations using a control board or a plug/outlet combination. If you have any doubts about the efficiency of the network, do not plug the system in.

To plug in the unit, the user must arrange a system of industrial outlets with a cut-off switch that can be locked and a fuse-holder base (see Figure 5).

The user must also install an adequate knife switch on the power supply line upstream of the system; there must also be effective protection against overcurrent surges and indirect contacts.

Effective protection against overcurrent surges can be provided by:

- fuses
- automatic switches
- magnetothermal switches

Effective protection against indirect contacts, on the other hand, can be provided by:

- differential switches
- fault sensors outside the engineering room (warning light and/or sound)

When making the connection, check that:

- the power supply voltage corresponds to the voltage and frequency indicated on the ID label (using the wrong voltage could damage the unit)
- the power supply network has an adequate ground system

The systems are fitted with a "too full" device that prevents problems of overflowing of the sewage in the event the electricity temporarily fails and/or the electropump malfunctions.

The voltage and frequency values for the power supply are indicated on the ID label and in the paragraph entitled "ID label" found at the beginning of this document.

3.3 Checks and verification for safe use

Remember, the operator must:

- never tamper with or alter the function or effectiveness of the guards and safety devices found on the unit
- always be vigilant, attentive and have prompt reflexes
- always be in perfect psychophysical condition

Before starting operations with the unit, to prevent accidents, perform checks and **independent maintenance** to ensure that all the safety conditions are in place.

To facilitate the operator's job, below is a list of the **pre-start up checks** that must be performed to verify safety conditions:

- carefully read the present operating instructions



AD98FDB005

Figure 5 Electrical outlet arrangement

- check that the unit has been plugged into a power supply that matches the specifications indicated by the manufacturer. Carefully check the voltage rating
- the power supply must have an adequate knife switch installed upstream of the line and must have an effective protection against overcurrent surges and indirect contacts (to be provided by the final user, see Figure 5)

At the time the unit is hooked up, check that:

- the voltage of the power supply mains corresponds to the voltage and frequency rating indicated on the unit
- the power supply mains have an adequate ground system



DANGER OF ELECTROCUTION

Never plug the unit into a power supply other than the one indicated by the manufacturer. In case of doubt, do **NOT** plug the unit in.

- Use the unit only in the configuration indicated by the manufacturer
- Always follow the instructions and warnings reported by the pictograms applied to the unit



NO SMOKING

When performing operations, to ensure the best possible reflexes, the operator's hands must be free, unencumbered by foreign, dangerous objects.
For this reason, smoking is not allowed while operating the unit.

3.4 Connection to power supply and plant start-up

With the cut-off switch set to OFF, plug the unit into the arranged outlet (see Figure 6) as described in paragraph 3.2. Then turn the switch to ON to start up the system.

3.5 Noise

The only elements that generate noise are the diaphragm air compressor blowers for the machine's pneumatic power supply. The noise generated runs from 31 dBA for model HP20 to 46 dBA for model HP200.

3.6 Emergency shutdown

If an emergency situation arises, the operator can cut off the unit by turning the outlet switch to OFF and unplugging the unit from the outlet. This operation causes the motor-driven submersed pump and the diaphragm compressor to stop but does not cut off the power supply from the mains.



AD98FDB005

Figure 6 Connection to power supply

3.7 Shutting down and leaving the plant

To shut down the plant, follow the procedure indicated below:

- turn the cut-off switch on the outlet to off and lock it in this position (see Figure 5)
- clean the worksite so that there are no tools or other equipment set in an unstable position that could constitute a danger. Then lock the machine room

4 Troubleshooting

Problem	Cause (Intervention)
The pump does not deliver and the motor does not turn	Lack of electricity (<i>Check that there is electricity</i>) Differential switch released (<i>Reactivate the switch, if it goes again contact a qualified electrician</i>) Blocked rotor (<i>Check and free the rotor from any obstructions</i>) Motor or condenser damaged (<i>Contact the retailer or customer service</i>)
The pump does not deliver and the motor is running	Intake obstructed (<i>Take the pump apart and clean the intake</i>) Feed piping blocked (<i>Remove the obstructions in the piping</i>) Nonreturn valve blocked (<i>Clean or replace the valve</i>)
The pump delivers a reduced amount	<i>Intake partially obstructed (Take the pump apart and clean the intake)</i> <i>Force main partially obstructed (Remove the obstructions in the piping)</i> Presence of solid bodies that prevent the rotor turning (<i>Remove the solid bodies from the rotor</i>) Rotor worn out (<i>Replace the rotor</i>)
The distributor does not load the system	Obstructed regulatory "tube" (Loosen the blocking system, extract the tube, wash it and reassemble. <i>Check the project capacity, as illustrated in the instructions coming with the equipment</i>)
Blower with reduced air delivery to the system	Blocked air filter (<i>Remove the cover and clean the filter</i>) Partial obstruction of the compressed air delivery pipe (<i>Check that the tubes have not been crushed and that there are no bottlenecks</i>) Compressor room poorly ventilated (<i>Put in an air intake</i>) Blower working but noisy (<i>Contact the seller or customer service</i>)
Blower not working	Lack of electricity (<i>Check that there is electricity</i>) Differential switch released (<i>Reactivate the switch. If it happens again contact a qualified electrician</i>) Breakage of diaphragms and magnet with intervention of internal overload cutout (<i>Contact the seller or customer service</i>)
Poor insufflation of air from the diffusers	Blower (<i>Check that the blower is working properly</i>) Obstruction of the air distribution tap or of the porous body of the diffusers (<i>Take out the diffusers and wash them with water. Check that the air passage distribution taps are not blocked</i>)
Sludge recirculation not working	Obstruction in the air distribution tap or blockage in the pipes (<i>Check that the air passage distribution taps are not blocked and clean the pipes</i>) Insufficient air for pumping (<i>Check that the blower is working properly and check the air feed tube seal</i>) Thick sludge on the bottom of the compartment (Increase the amount of air using the regulation tap. Dismantle the circulation system trying to shift the sludge on the bottom, put back together and check how it runs. <i>If the malfunction continues contact customer services</i>)

5 Scheduled and special maintenance

5.1 Warnings



WARNING

The manufacturer **forbids** any scheduled and special maintenance which is not specifically mentioned in the present instructions.

All information on maintenance involves only, and exclusively, scheduled maintenance aimed at ensuring correct daily operation of the unit.

Always make repairs using only original materials and parts as this will guarantee the safety of the unit. If supplementary instructions are needed, or if particular problems arise, do not hesitate to contact the manufacturer. Carefully follow all the instructions reported on the unit. This is very important as it will prevent malfunctions that could, in turn, directly or indirectly lead to serious accidents, injury and property damage.

Check that the tools available are suitable for the purpose. Always avoid all improper use of tools or utensils.

5.2 Precautions to be taken prior to scheduled and special maintenance

All instructions reported in the present operating instructions must be carefully followed, starting with the general indications for preparing the unit for maintenance.

It is essential that:



Unqualified, unauthorized personnel are **not** allowed access to the unit operating area while maintenance is in progress.



Perform maintenance operations only when the unit is not running: that is, when the unit is not powered (when applicable).

- all maintenance operations must be performed with adequate lighting
- all maintenance operations must be performed only when the weather is good (since the unit is installed outdoors)

The operator must also always remember that:

- those maintenance operations that require a power supply (e.g. unit troubleshooting) must only be performed by qualified personnel
- the recommended individual protection devices should be used (reinforced footwear, protective masks with active carbon filters, gloves and protective clothing)

Never use the unit unless you have read and fully understood the content of these operating instructions and all attachments.

5.3 Scheduled maintenance

The minimum period for maintenance is biannual or quarterly depending on the size of the plant, the type of discharge (civil sewage, industrial wastes, etc.) and use (occasional, continuous).

5.3.1 Checking submerged motor-driven pump function (if present)

If the section where the motor-drive pump is installed is empty, the pump must not be running; if it is not empty, check that the piezoelectric float is not blocked in any way.

If the float is blocked check the correct positioning of the electropump and the float.

5.3.2 Checking flow regulator (if present)

Check the flow rate on the regulator. If it does not correspond to what is indicated in the instructions for its regulation, clean out the flow distributor (shut down the motor-driven lift pump, remove the end of the delivery pipe, wash it out with water and reinstall everything before starting up the pump once more). Then check that the flow rate matches the setting given in the instructions.

5.3.3 Checking and cleaning air diffusers (if present)

Check the air diffusers (whether plate or cone models) to ensure that they bubble the sewage correctly. If bubbling is not uniform, withdraw the diffusers from the tank by holding onto the pneumatic connection piping. Clean by spraying them with water and check that there are no solid foreign bodies in the nozzles. Then return them to their original position in the tank.

5.3.4 Checking and cleaning the air-lift (sludge recycle, if present)

Check the air-lift. If it is not functioning properly, withdraw it from the purification tank, clean it by spraying it with water and check that there are no solid foreign bodies in the inside the intake hole. Then return it to its original position in the tank.

5.3.5 IMHOFF-type septic tanks

Periodically check the material that has settled in the digestion chamber and the material floating in the tank. If there is too much material, run a self-purge to clean out the tank.

5.3.6 Checking oil and grease separation tanks

The following operations are to be performed:

- every four months: inspect the tank and check that the layer of suspended grease does not impede flow between compartments;
- transfer the separated grease into the storage chamber;
- when necessary, have the oil storage chamber cleaned out by a specialized company authorized for such work.

5.3.7 Checking oil separation tanks with coalescence filters

Periodically check the separation unit to determine when it is necessary to:

- open the valve to let the separated oil flow into the storage cylinder: to be performed when a substantial layer of oil is accumulated in the tank and there is a lull in operations (a period of minimum discharges: e.g. during the evening hours or at the end of production activities)
- withdraw the filters and wash them with water
- have the oil storage chamber cleaned out by a specialized company authorized for such work

5.4 Special maintenance



WARNING

Special maintenance of the unit can only be performed by authorized Omnia Resina Mazzotti S.r.l. service centers.

5.5 Electricity-free maintenance

5.5.1 Procedure for setting the unit in maintenance mode

To turn off the unit to perform electricity-free maintenance, proceed as follows:

- turn the cut-off switch on the outlet to off and lock it
- clean the worksite so that there are no tools or other equipment set in an unstable position that could constitute a danger
- post a sign that reads "UNDER MAINTENANCE"



UNAUTHORIZED PERSONS NOT ADMITTED

Never let unauthorized persons approach the unit while under maintenance.

5.5.1.1 Checking the elements securing electrical components for tightness

AT LEAST ONCE A YEAR check the clamping of the general sorter (to be installed by the end user).

5.5.1.2 Replacing a motor-driven submersed pump

Replace the motor-driven submersed pump: **do not use the unit while the pump is out of service.**

To perform this operation:

- unplug the pump power supply cord
- open the plug on the inspection hatch on the tank lid
- lift the pump by grasping its delivery pipe (see Figure 7)
- replace the motor-driven pump with another having the same characteristics
- return the pump to its original position inside the protection grid
- plug the pump into the power supply outlet once more
- close the lid on the tank



AD98FDB009

Figure 7 Lifting the motor-driven pump

In any event refer to the instruction manual supplied with the specific equipment.

5.5.1.3 Replacing the diaphragm compressor (blower)

To replace the diaphragm compressor located in the machine room:

- disconnect the compressor from the rest of the plant (disconnecting both electrical and pneumatic systems)
- replace with a compressor having the same technical characteristics
- restore pneumatic and electrical connections

In any event refer to the instruction manual supplied with the specific equipment.

5.5.1.4 Replacing the plate-type and cone-type diffusers

The plate and cone bubbling air diffusers need to be replaced when they are plugged. To do so, follow the operations below:

- open the inspection plugs located on the tank lid, at the point where the air diffusers are located
- disconnect the hoses feeding air to the diaphragm compressor (blower) diffusers
- lift the distributor by gripping the connected pneumatic hose or with the cord, if presents
- disconnect the diffuser, replace, reconnect the pneumatic hoses and replace inside at the tank
- close the inspection plugs on the lid



Figure 8 Lifting the diffuser/s

5.5.1.5 Leaks or infiltrations between compartments of the tank and the tank itself

In the event of breakdowns and/or breakage of the tank or part of it, contact the service centres authorised by Omnia Resina Mazzotti S.r.l.



WARNING

Special maintenance of the unit can only be performed by authorized Omnia Resina Mazzotti S.r.l. service centers.

5.5.1.6 Evacuating the tanks

If, because of malfunctions or leaks and infiltration of the purification system, the tanks need to be cleaned out, remember:



WARNING

Tank evacuation operations must be performed by a company specialized in cleaning septic tanks (the substances removed must be disposed of in compliance with current law). To prevent backpressure on the dividing walls, evacuation operations must be performed uniformly in all compartments.

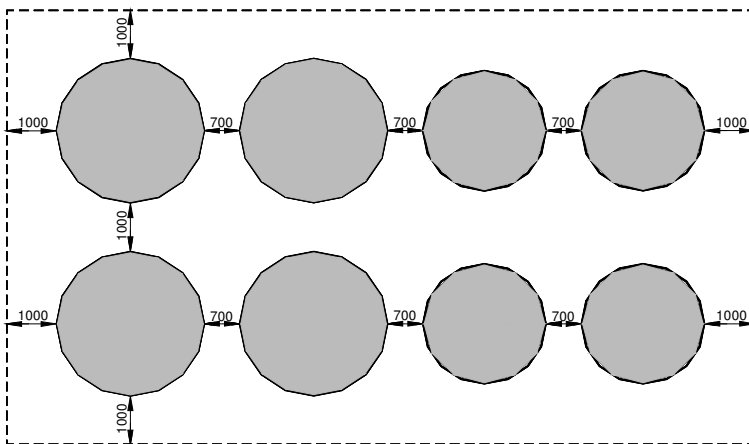
TECHNICAL INFORMATION

Suggested method for installing – Specification headings

EARTH-MOVING EXCAVATION (positioning of O.R.M. tanks above ground) all that is necessary for the levelling and adjustment of the terrain for the formation of the support surface of the foundation slab (cu. m. ____).

EXCAVATION WITH COMPULSORY SECTION (O.R.M. tanks buried) with dimensions suitable for positioning the O.R.M. tanks (there is a surcharge with respect to the height of the tank for the construction of the foundation), piping and winzes, whatever the nature and quality of the terrain is. The excavations should be carried out in accordance with current safety regulations (Leg. Decree 494/96 Construction sites directives) (see diagram) (cu. m. ____).

DIAGRAM OF THE DIMENSIONS OF THE EXCAVATION



INSTALLATION OF THE CABLE DUCT Ø80 mm, from the engineering room to the O.R.M. depuration plant for protecting the air pipes, including all charges for the excavation, embankment and adjustment of the surface (m ____).

INSTALLATION OF THE CABLE DUCT Ø63 mm, from the engineering room to the O.R.M. depuration plant for protecting the electrical pipes, including all charges for the excavation, embankment and adjustment of the surface (m ____).

FOUNDATION made of poor concrete and electro-welded netting, average thickness 15÷20 cm, including laying and levelling carried out with shafts or plastering, so as to eliminate any protrusions and unevenness to ensure the tank is protected and stable (cu. m ____).

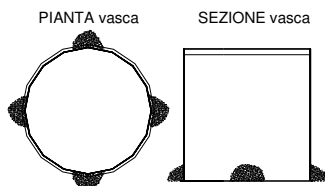
MOVEMENT of O.R.M. tank, with adequate means of hoisting, using its special hooks and positioning on installation surface (with a ____ body).

FIXING of tanks that are normally empty (for example accumulation, aerobic filter)

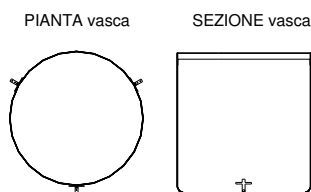
Tanks with lower edge make 4 concrete buttress points (see diagram) (with a ____ body).

Tanks with log bolts fix 3 log bolts to the tank and anchor them with pressure stoppers to the floor screed in concrete. (see diagram) (with a ____ body).

TANKS WITH LOWER EDGE



TANKS WITH LOG BOLTS



STRENGTHENING for pedestrian traffic with suitable material (sand or earth without stones or other bumps), compacted for 40/50 cm thick layers which can guarantee that after compaction there will be no empty spaces (cu.m ____).

STRENGTHENING for vehicular traffic with flat-slab concrete and a height greater than the edge of the tank for supporting the weight of the cover. For installations with more than one tank and with a single constrained section excavation, identify the most suitable support structure for the cover (for a single tank, for the complete system or parts of it) and any other formwork and dismantling of the concrete casting and carry out the embankment of the part left with suitable material (sand or earth without stones or other bumps), compacted for 40/50 cm thick layers which can guarantee no empty spaces (cu.m ____).

PIT FOR INSPECTION AND TAKING OF SAMPLES with dimensions of 60 x 60 cm, with bottom sloping towards the exit; with a height that allows the difference in level between the flow in the feed tube and the flow in the outlet tube to be at least 20 cm. Preferably position the outlet tube on the bottom of the pit to avoid stagnation. The pit will be equipped with an input and outlet stub pipe made of PVC Ø ____ mm; the input stub pipe will stick out inside the pit by at least 10 cm (with a ____ body).

MACHINE ROOM suitable for housing the blower(s) and the electrical panel to be made according to the recommendations given by the Director of Works, in brickwork or reinforced concrete, on-site or prefabricated, with dimensions of about ____ x ____ (h) ____ cm and anyway big enough to ensure an adequate change of air to prevent the blower(s) overheating. The room will have to be ____ metres away from the O.R.M. plant but not more than 10 metres. The support base of the room should be flat and solid and at a higher level than that of the tank to avoid the sewage coming up to the blower. The room will be fitted with a galvanised sheet metal window or something similar with ventilation vanes (with a ____ body).



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