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ORM[®] OMNIA
RESINA
MAZZOTTI
WATER TREATMENT AND TANKS

Forty years experience and continuous commitment to research and development qualify ORM as a leading company in the production of GRP biological purifying plants and GRP tanks for chemical and food industries.

Complete design process, planning, technological choices, research and development, testing and final validation to offer consulting and solutions also developed on customer specifications and the guarantee of results which fully respect the environment and the regulations in force.



Sales network operating all over Italy, and abroad, continuously updated on the technical as well as plant engineering developments of ORM products.

After-sales technical assistance all over Italy to guarantee assistance demands (installation, start-up, maintenance, repairing and adjustment) is dealt quickly and efficiently.

ORM factory is set out over a surface area of 50.000 m², with 1.000 m² offices and service area, 6.000 m² production area and 2.000 m² storage area.

ORM designs and manufactures:

- GRP (glass-reinforced plastic) purifying plants which satisfy all requirements for treating domestic wastewater and similar types of sewage.
- GRP tanks for industry, water and winemaking, able to satisfy a wide range of liquid storage demand.
- Purifying plants and tanks in polyethylene.



Certificate UNI EN ISO 9001:2008.



CE declaration CE 89/106/CE

Conformity to:

- UNI EN 858-1
- UNI EN 1825-1
- UNI EN 12566-1
- UNI EN 12566-3
- UNI EN 12255-6
- UNI EN 12050-1
- 2006/42/CE
- 2004/108/CE
- 2006/95/CE
- 89/106/CE

TANKS

ORM tanks are manufactured to satisfy the many demands on liquid storage, thanks to a wide range of solutions related to storage capacities, geometric shapes, type of installation. The possibility to use special polyester resins allows ORM to manufacture tanks suitable for the storage of chemical aggressive products, even at high temperatures. ORM tanks are complete with standard equipment customizable on request. Used material used GRP (fiberglass reinforced polyester resin). GRP is a thermosetting composite with high compactness and resistance to chemical and biological agents, which does not form flaking, does not release substances and does not collapse at temperature changes.

TANKS FOR INDUSTRY

Tanks for the industry, made to order, satisfy multiple solutions for chemical and industrial plants. The possibility to use special polyester resins makes the tanks ORM suitable for aggressive chemicals, even at elevated temperatures.



TANKS FOR WATER

Water tanks are suitable for the storage of liquid food, according to Ministerial Decree 21.12.2010 No. 258, thanks to the particular chemical composition of the resin used and the final treatments.

TANKS FOR WINE

Tanks for winemaking and wine storage, are suitable for the storage of liquid food, according to Ministerial Decree 21.12.2010 No. 258, thanks to the particular chemical composition of the resin used and the final treatments.



TANKS FOR INDUSTRY

ORM technology applied to GRP (fiberglass reinforced polyester resin), allows to manufacture storage tanks of large sizes and with exceptional features:

- high mechanical resistance
- low thermal conductivity
- low coefficient of expansion
- chemical resistance to a large number of substances used in industry
- no toxicity and resistance to atmospheric agents
- low cost of installation and handling
- long service life

ORM tanks are widely used in the food industry (dairy, olive and seed oil, canning, etc.), chemical, pharmaceutical, petrochemical, textile, leather, paper and shipbuilding. ORM tanks also satisfy the technical and tank installation requirements for fire protection.

ORM tanks manufacturing technologies are: hand lay-up, spray-up and filament winding. Tanks are made of a first impermeable and anticorrosive (liner) layer, which goes into contact with the liquid. It is realized using high resistance resins. The next layer, which is the tank supporting structure, is made by wrapping crosswise and radially continuous fiber glass, soaked with resin and chopped fiber glass sprayed with a spray gun, to give the tank a very high mechanical resistance and a high safety coefficient. The third layer, rich in resin, protects the previous ones, forming a shiny and smooth surface that gives the product excellent characteristics of resistance to atmospheric agents.

40 years experience in manufacturing and a continuous commitment to research and development, allows ORM to offer the best assistance for the solution of problems related to plant for any kind of industry. On request we manufacture tanks on customer technical specifications and equipped with all kinds of pipe fittings.



HORIZONTAL TANKS

ORM horizontal tanks are widely used in chemical and food industries. They are made to meet the many demands on liquid storage, thanks to a wide range of different solutions for capacity (1000 liters to 100000 liters), for geometric shape and type of installation (above and underground storage). Tanks sizes and installation types are the same as the horizontal tanks for water.



UNDERGROUND TANK capacity 40.000 liters

VERTICAL TANKS

ORM vertical tanks are widely used in the chemical and food industries. They are made to meet the many demands on liquid storage, thanks to a wide range of different solutions for capacity (2500 liters to 100000 liters) and geometric shape (flat bottom and round bottom). Tanks sizes are the same as the vertical wine tanks.



STRIPPING TOWERS height 11 m



VERTICAL TANK with flat base capacity 65.000 liters

STATIC CLARIFIERS

CAPACITY (lt)	DIMENSION (mm)	
	DI	H
1000	900	2120
1000	1040	1890
1500	1040	2460
2000	1200	2470
3000	1400	2920
4000	1600	2960
5000	1600	3460
6000	1800	3450
7000	1800	3850
8000	1800	4250
8000	2000	3780
10000	2000	4430
10000	2500	3570
15000	2500	4590
20000	2500	5620
20000	3000	4090
30000	3000	5490
40000	3000	6890
50000	3000	8290
60000	3000	9190

DI=inside diameter H=height without legs
Legs height 500 mm

Conical hoppers standard from 60° and 80°.
Standard equipment: overflow duct and pipe of quietness.



VERTICAL TANK with round base capacity 7.500 liters



STATIC CLARIFIER capacity 10.000 liters

WATER TANKS

HORIZONTAL TANKS

CAPACITY (lt)	DIMENSION (mm)	
	DI	Lu
1000	900	1650
1500	1040	1910
1500	1200	1500
2000	1200	1940
2500	1200	2380
3000	1200	2840
3000	1400	2260
4000	1200	3920
4000	1400	2910
4000	1600	2340
5000	1200	4800
5000	1400	3560
5000	1600	2840
5000	1800	2500
6000	1400	4210
6000	1600	3340
6000	1800	2880
7000	1600	3840
7000	1800	3260
8000	1800	3640
8000	2000	3050
9000	1800	4020
9000	2000	3350
10000	1800	4400
10000	2000	3650
11000	1800	4780
11000	2000	3950
12000	1800	5160
12000	2000	4250
13000	2000	4550
14000	2000	4850
15000	2000	5150
15000	2500	3550
20000	2000	6750
20000	2500	4600
25000	2500	5600
30000	2500	6600
35000	2500	7600
40000	2500	8650
40000	3000	6300
50000	2500	10700
50000	3000	7750
60000	3000	9080
70000	3000	10490
80000	3000	11910
90000	3000	13320
100000	3000	14740

Standard equipment: top stainless steel manhole cover DN 400 , relief valve, and no. 3 fittings.



ABOVE GROUND HORIZONTAL TANKS



UNDERGROUND HORIZONTAL TANKS

VERTICAL TANKS FLAT BOTTOM

CAPACITY (lt)	DIMENSION (mm)	
	DI	HT
2500	1400	2040
3000 A	1400	2370
3000 B	1600	1910
4000 A	1400	3020
4000 B	1600	2410
5000 A	1600	2910
5000 B	1800	2420
6000	1800	2940
7000	1800	3320
8000 A	1800	3720
8000 B	2000	3110
9000	2000	3430
10000 A	1800	4530
10000 B	2000	3750
12000	2000	4390
15000	2500	3680
18000	2500	4290
20000	2500	4700
25000 A	2500	5720
25000 B	3000	4230
30000	3000	4930
40000	3000	6360
50000	3000	7780
60000	3000	9175
70000	3000	10575
80000	3000	11975
90000	3000	13425
100000	3000	14805

VERTICAL TANKS ROUND BOTTOM

CAPACITY (lt)	DIMENSION (mm)	
	DI	HT
2500	1400	2650
3000 A	1400	2980
3000 B	1600	2510
4000 A	1400	3630
4000 B	1600	3000
5000 A	1600	3500
5000 B	1800	3060
6000	1800	3570
7000	1800	3960
8000 A	1800	4350
8000 B	2000	3730
9000	2000	4050
10000 A	1800	5140
10000 B	2000	4370
12000	2000	5010
15000	2500	4470
18000	2500	5080
20000	2500	5490
25000 A	2500	6510
25000 B	3000	4900
30000	3000	5610
40000	3000	7075
50000	3000	8525
60000	3000	9855
70000	3000	9995
80000	3000	10135
90000	3000	10275
100000	3000	10415

DI = Inside diameter HT= Total Height

Standard equipment: top stainless steel manhole cover DN 400, relief valve, and no.1 flanged nozzle DN 40.

SMALL HORIZONTAL PARALLELEPIPED TANKS

CAPACITY (lt)	DIMENSION (mm)		
	Lu	La	H
300	960	570	840
400	980	570	1030
500 A	1040	640	1150
500 B	1210	660	910
600 A	1220	640	1140
600 B	1210	660	1030
800	1350	750	1020
1000	1350	750	1270
1200	1340	750	1530
1500	1690	750	1580

Lu=length La=width H=height



Standard equipment: top sealed manhole cover DN 400, relief valve, total discharge nipple. Up to 500 liters no. 3 nipples 1", from 600 liters no. 3 nipples 1" 1/4.

SMALL VERTICAL PARALLELEPIPED TANKS

CAPACITY (lt)	DIMENSION (mm)		
	Lu	La	H
300 A	670	570	1150
300 B	840	570	1000
400 A	840	570	1220
400 B	840	570	1160
500	980	640	1220
600	950	640	1380
800 A	820	750	1530
800 B	1230	680	1340
1000 A	1230	680	1600
1000 B	1100	750	1530
1200	1300	750	1570
1500	1350	750	1920
2000	1750	750	1920

Lu=length La=width H=height



Standard equipment: top sealed manhole cover DN 400, relief valve, total discharge nipple. Up to 500 liters no. 3 nipples 1", from 600 liters no. 3 nipples 1" 1/4.

SMALL PARALLELEPIPED TANKS

model "CASSONE"

CAPACITY (lt)	DIMENSION (mm)		
	Lu	La	H
500 OR	910	870	690
500 VR/A	870	650	980
500 VR/B	920	650	940
1000 OR/A	1680	690	990
1000 OR/B	1680	950	730
1000 VR	950	690	1730

Lu=length La=width H=height

Standard equipment: top sealed manhole cover DN 400.



VIPA

FOOD TANKS

CAPACITY (lt)	DIMENSION (mm)		
	Lu	La	H
25	440	300	300
33	500	330	300
50	490	490	300
50	410	410	440
60	570	430	400
100	660	460	500
140	1070	680	320
150	650	650	610
200	820	620	580
200	880	680	510
200	800	800	450
200	640	640	710
250	800	800	610
300	1010	710	610
300	680	600	1050
300	890	890	520
300	720	720	830
400	1080	840	600
400	950	950	690
500	970	700	1050
500	1150	860	690
500	1040	1040	690
500	830	830	1040
740	2600	900	400
750	1420	940	770
750	1140	1140	780
750	970	970	1060
1000	2600	1200	400
1000	1080	990	1230
1000	1420	1420	690
1500	1980	1220	810
1700	1640	1330	1070
2000	2130	1300	950
2400	2100	1610	800
4500	4000	2000	700

Lu=length La=width H=height
Equipment: upon request.



VERTICAL CYLINDRICAL TANKS with flat bottom

CAPACITY (lt)	DIMENSION (mm)		
	DE	H	Hp
200	580	1140	1290
200	680	810	960
250	680	990	1140
300	680	1140	1290
400	780	1140	1290
400	840	1010	1160
500	840	1210	1360
600	840	1480	1630
700	970	1210	1360
800	970	1390	1540
800	1120	1030	1180
1000	970	1720	1870
1000	1120	1330	1480
1500	1120	1920	2070
1500	1280	1480	1630
1700	1280	1650	--
2000	1280	1940	--
2500	1500	1750	--
3000	1500	2070	--
4000	1500	2690	--
4000	1700	2100	--
5000	1700	2630	--

DE=outside diameter H height with cover Hp height with cover and feet

Standard equipment: Edistir dust cover up to diam.1120mm. Over GRP cover, discharge nipple $\frac{3}{4}$ " up to 500 liters no. 3 nipples 1", from 600 liters to 1500 liters no. 3 nipples 1" $\frac{1}{4}$; from 1700 liters to 5000 liters no. 3 nipples 2".



MODEL WITHOUT FEET



MODEL WITH FEET

WINE TANKS

TANKS AND VARIABLE CAPACITY CYLINDRICAL TANKS with flat bottom

CAPACITY (lt)	DIMENSION (mm)		
	DE	DI	H
50	400	360	640
75	510	450	570
100	510	450	780
150	580	510	840
200 A	580	510	1090
200 B	680	600	760
250	680	600	940
300	680	600	1090
400 A	780	710	1090
400 B	840	760	960
500	840	760	1160
600	840	760	1430
700 B	970	900	1160
800 A	970	900	1340
800 B	1120	1040	980
1000 A	970	900	1670
1000 B	1120	1040	1280
1500 A	1120	1040	1870
1500 B	1280	1200	1430
1700	1280	1200	1600
2000	1280	1200	1890
2500	1500	1400	1700
3000	1500	1400	2020
4000 A	1500	1400	2640
4000 B	1700	1600	2050
5000	1700	1600	2580

DE=outside diameter DI= inside diameter H= height

VARIABLE CAPACITY TANKS are available with a wide range of accessories and in 3 different versions.

VARIABLE CAPACITY TANKS WITH EDISTIR OIL FLOATING LID available with capacity up to 1000 liters, equipped with cover and edistir oil floating lid, sampling tap DN 15 up to a capacity of 300 liters. Sampling tap DN 25 for larger capacities.

VARIABLE CAPACITY TANKS WITH GRP OIL FLOATING LID, equipped with GRP oil floating lid, sampling tap DN 15 up to a capacity of 300 liters. Sampling tap DN 25 for larger capacities.



CYLINDRICAL TANKS WITH FLAT BOTTOM



VARIABLE CAPACITY CYLINDRICAL TANKS WITH FLAT BOTTOM

Standard equipment **TANKS**: sampling tap DN 15 up to capacity 300 liters. DN 25 for larger capacities.

Upon request: Edistir cover or GRP cover, valves or flanges in different diameters, wine tasting tap, stainless steel manwaydoor 22 x 32 cm.(as from 200 liters capacity).

VARIABLE CAPACITY TANKS WITH TUBE FLOATING LID, equipped with tube floating lid complete with pump,manometer, relief valve, sampling tap DN 15 up to a capacity of 300 liters. Sampling tap DN 25 for larger capacities and floating lid lifting arm from capacity 1500 liters.

Upon request: valves or flanges in different diameters, wine tasting tap, stainless steel manwaydoor 22x32 cm (from capacity 200 liters).

VARIABLE CAPACITY VERTICAL CYLINDRICAL TANKS with round bottom

CAPACITY (lt)	DIMENSION (mm)		
	DE	DI	H
1500	1300	1200	2630
2000 A	1300	1200	3080
2000 B	1500	1400	2570
2500	1500	1400	2890
3000	1500	1400	3220
4000 A	1500	1400	3880
4000 B	1700	1600	3290
5000 A	1700	1600	3790
5000 B	1900	1800	3290
6000	1900	1800	3690
7000	1900	1800	4070
8000	2100	2000	3880
9000	2100	2000	4180
10000	2100	2000	4530
15000	2650	2500	4250

DE outside diameter DI=inside diameter H=height



Standard equipment: tube floating lid with relief valve and pump with manometer, galvanized iron floating lid lifting arm, adjustable support legs up to capacity 10000 liters and no. 2 flanged nozzles DN 40.
Upon request: valves or flanges in diameters, stainless steel manwaydoor DN 400 and pulley system for floating lid lifting.

CYLINDRICAL VERTICAL TANKS

with flat and round bottom

CAPACITY (lt)	DIMENSION (mm)		
	DI	Hfp	Hfb
2500	1400	2040	2650
3000 A	1400	2370	2980
3000 B	1600	1910	2510
4000 A	1400	3020	3630
4000 B	1600	2410	3000
5000 A	1600	2910	3500
5000 B	1800	2420	3060
6000	1800	2940	3570
7000	1800	3320	3960
8000 A	1800	3720	4350
8000 B	2000	3110	3730
9000	2000	3430	4050
10000 A	1800	4530	5140
10000 B	2000	3750	4370
12000	2000	4390	5010
15000	2500	3680	4470
18000	2500	4290	5080
20000	2500	4700	5490
25000 A	2500	5720	6510
25000 B	3000	4230	4900
30000	3000	4930	5610
40000	3000	6360	--
50000	3000	7780	--

DI=inside diameter Hfp=flat bottom height Hfb=round bottom height



Standard equipment: top stainless steel manhole cover DN 400 and no. 1 flanged nozzle DN 40, adjustable support legs in tanks with round bottom.
Upon request: valves or flanges in different diameters, oval stainless steel manwaydoor (33 x 46 cm); stainless steel manwaydoor DN 400 and valves in different diameters.

GENERAL INSTRUCTION FOR INSTALLATION

UNDERGROUND HORIZONTAL TANKS

HANDLING

Use appropriate means to lift the tank and use the hooks you find on it.

Handle the tank only when it is empty.

EXCAVATION

Make an excavation of appropriate size (consider about 80 cm more than the tank maximum size).

FOUNDATION

Make a 20÷25 cm concrete base at the bottom of the excavation and then put a sand bed of about 25-30 cm.. Level and remove any bump to ensure a good tank stability and protection. Position the tank perfectly horizontal and anchor it to the concrete base by means of belts and / or bands made of suitable material for this use. Do not use any " anti-rolling " objects such as wedges, wooden planks, etc. which could damage the structure of the tank during the subsequent phases of abutment and filling.

SPECIAL CONDITIONS

PRESENCE OF GROUNDWATER - In the case of a normally empty tank , in order to avoid that it emerges from the soil due to the hydraulic pressure, make a drainage using a draining pipe, gravel of suitable granulometry and discharge pipe.

PRESENCE OF CLAY SOIL – Cover the walls of the excavation with a sheet made of filtering material the kind of non-woven fabric to prevent that the clay seeps through the interstices of the drainage.

ABUTMENT

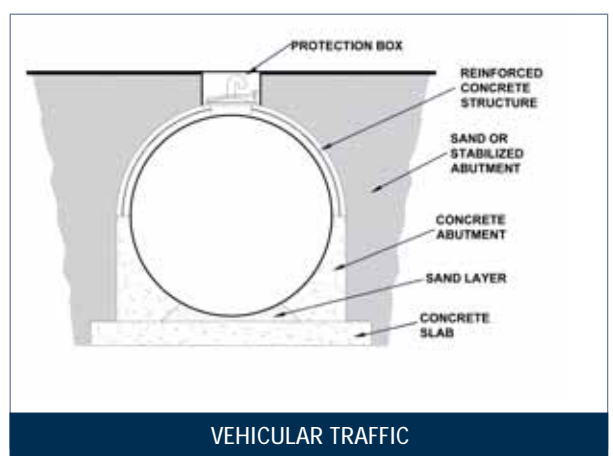
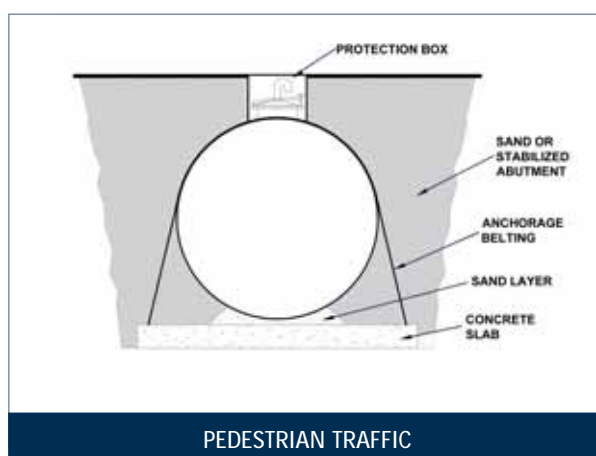
PEDESTRIAN TRAFFIC

The tank must not be buried at a depth more than 30 cm. Lay the tank on a sand bed thick not less than 15:20 cm. Begin the gradual filling of the tank and **simultaneously** make the abutment, using wet sand (or stabilized) in layers of about 30 cm, taking care to compact each layer before proceeding with the laying of the next one. Once you have finished the backfilling, close the excavation with land thick not more than 30 cm. For bigger excavations proceed as follows:

- Up to 50 cm. bury the upper part with lightweight material (e.g. expanded clay)
- Over 50 cm. proceed as mentioned in VEHICULAR TRAFFIC

VEHICULAR TRAFFIC

Fill the tank up to 1/2 of its capacity and simultaneously make the abutment with concrete. Make a concrete vault- or slab structure (see example in figure), which conveys the loads coming from above directly to the concrete abutment, leaving the tank undamaged.



FINAL SETTING

INSPECTION MANHOLE COVERS – use a plate or other similar material box-type extension to protect the inspection manhole covers and make them accessible. In case of use of heavyweight material (e.g. cast iron or concrete) or with vehicular traffic avoid that the load falls on the tank. On the surface mark the tank presence and size.

CONNECTIONS - make connections using elastic joints and/or flexible piping to favour ground settling.

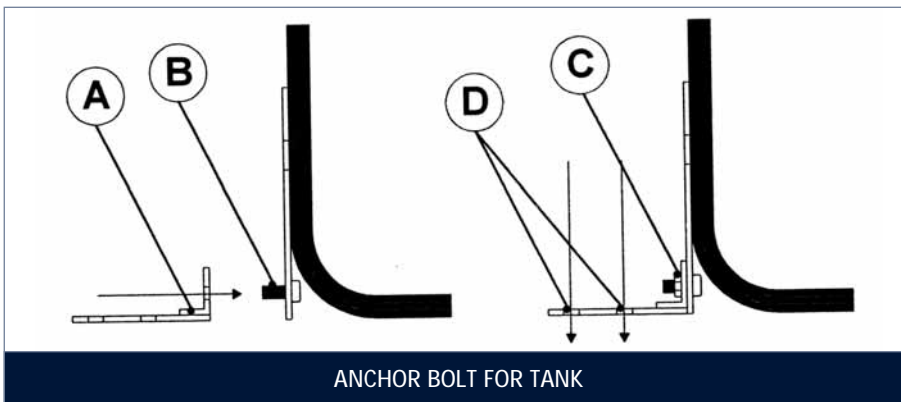
ABOVE HORIZONTAL TANKS

Before starting any operation of tank installation check that the ground to lay it is smooth and well levelled.

FLAT BOTTOM VERTICAL CYLINDRICAL TANKS

Before starting any operation of tank installation check that the ground to lay it is smooth and well levelled.

ANCHOR BOLT FOR TANK



Place tank on a flat and well levelled concrete base. Insert the bracket (A) on the screw welded to the tank (B). Lock with the supplied nut (C). Anchor the bolt to the concrete screed by means of suitable pressure caps.

ROUND BOTTOM VERTICAL CYLINDRICAL TANKS

Before starting any operation of tank installation check that the ground to lay it is smooth and well levelled.

TANK POSITIONING AND ANCHORING

Place the tank on a flat and well levelled concrete base. Anchor each tank leg to the concrete screed, using a suitable pressure cap, with the hole you find on the base of each leg of the tank.

If the tank has to be installed outdoor it will be necessary to find the most suitable anchoring way, taking also into consideration wind action.





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