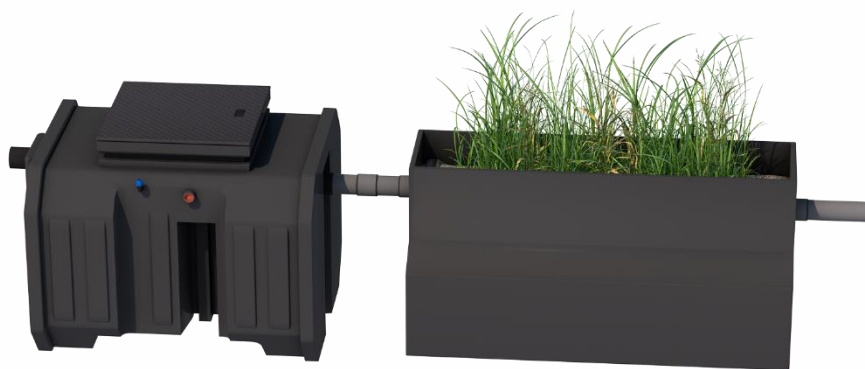






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# SMALL W.W.T.P.

ECODEPUR<sup>®</sup> DWW RECYCLER



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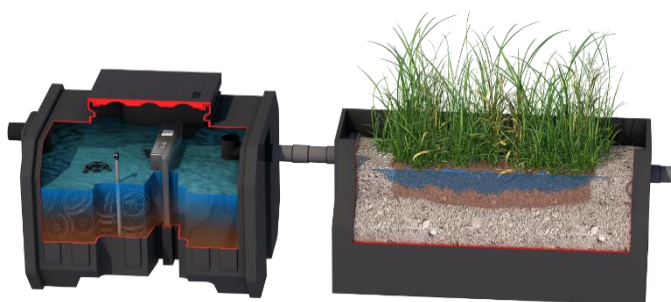
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## PRESENTATION

The Small Wastewater Treatment Plants, **ECODEPUR® DWW RECYCLER**, are a compact and modular units for Domestic Wastewater Treatment and Reuse in Irrigation operations. **ECODEPUR® DWW RECYCLER** combines biological treatment, Macrophyt Reed Bed Filtration and Disinfection by Chlorination.



The system incorporates high Environmental Engineering (Sanitary) knowledge level, seeking to optimize traditionally solutions.

**ECODEPUR® DWW RECYCLER** system combines the following unitary operations:

- **ECODEPUR® OXYBIO** - Reactor Activated Sludge , regime Low Load System ( Joint Fluidized Bed Reactor Constructive characteristics ECODEPUR ® OXYBIO associated with the boot method applied ( biological activation ), can dispense with traditional recirculation of sludge from the settling secondary to the biological reactor , thus decreasing the rather high energy form associated with such systems );
- **ECODEPUR® FITOCOMPACT** - Bed of macrophytes from functioning at optimal drainage profile, specific structure of the substrate and pre - stress applied species . The innovative method of construction of the bed, and the application of sub - surface drainage process, ensuring complete safety to the installation, making it a technical and natural solution. This equipment is supplied with a regulator cash flow off.
- **ECODEPUR® CHLORINATION KIT** - Disinfection aims at destroying pathogenic microorganisms for the purpose of reuse of treated water for irrigation. Proper mixing and contact time of the disinfectant solution with the residual water (minimum 30 minutes) , will be achieved in reservoir storage / Contact ( size and capacity to be determined by customer ) .

## LEGAL LEGISLATION

This way, **ECODEPUR® DWW RECYCLER** system was conceived to allow the fulfilment of percentage of reduction indicted on the **European Standard EN 12566-3: Small wastewater treatment systems for up to 50 PT - Part 3**, Since the real affluence values are coherent with the data base admitted in project and if is created a correct exploration and maintenance routine on the treatment system.

PARAMETER	TREATMENT EFFICIENCY (*)
Biochemical oxygen demand (BOD5 at 20°C) without nitrification	76% - 97%
Chemical oxygen demand (COD)	76% - 94%
Total suspended solids	85% - 94%

(\*)Values obtained from the initial tests, produced by the Notified organism n.º 1023, according with the European Standard EN 12566-3.

## FUNCTIONING

The Small W.W.T.P **ECODEPUR® DWW RECYCLER** is componed by the following unitary operations:

### Biological Treatment – OXYBIO:

- **Activated Sludge:** it is essentially destined in turning the organic matter transported by wastewater into biological flakes, resorting to the forced air circulation, through a small blower, promoting the oxidation/ reduction and the consequent Small organism's development. The synthetic filling introductions in the aeration tank allow increasing the biomass concentration in the reactor interior, maximizing the biological treatment.

- **Secondary Settling:** the biological sludge subsides, taking place the solid phase separation of the liquid phase; the introduction of a tube settler increases the specific area of decanting that potentates the increase of the decanting efficiency. The effective construction geometry allow that great part of the decanted sludge recedes to the aeration tank, dispensing a recirculation pump that would introduce a perturbation in the decanter and do damage the decanting. The recirculation pump absence also contributes to the almost null power consumption of the installation.

### Filtration – ECODEPUR® FITOCOMPACT:

The effluent filtration after the treatment is done in a macrophytes bed in an **ECODEPUR® FITOCOMPACT** reactor.

The rhyzospheric method is a efficient and cheap treatment for domestic effluents of a small cluster. The system present high yields, specially reducing CBO<sub>5</sub>, CQO, SST, nitrogen and phosphorus, as well as microbiological parameters.

The wastewater flows through the system over the ryzospheric zone, where many physical, biological and chemical processes occur.

This new system associated with the use of plants raised in wastewaters, allows a yield grow in depuration rate, comparing with the traditional devices.

### Disinfection – ECODEPUR® chlorination kit:

The solution will be injected by a metering pump, placed on the top of a 100L vat installed in the support building.

Desinfection kit:

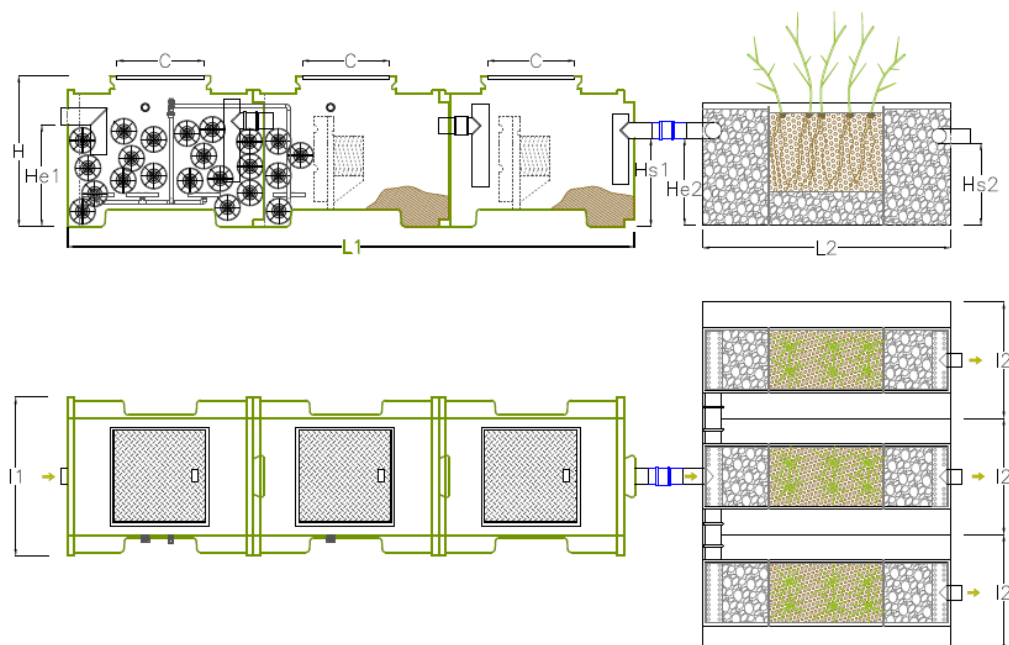
- Metering pump with manual control;
- Feeder deposit of 100L;
- A package of sodium hypochlorite to start the system.

The metering pump will dose the cleaning solution to a tank where the treated effluent is storage. This allow having a minimum time of contact between the cleaning solution and the effluent (normally 30minutes), furthermore, it allows the storage of the effluent after treatment.

## MAIN CHARACTERISTICS

- High treatment levels;
- Null visual impact (Underground Installation);
- Silent mini-blower with low power consumption;
- Easiness and speed of installation;
- Manufactured in additive linear polyethylene anti-UV, by rotomoulding system, which confer elevated mechanical resistance and insensitivity to corrosion;
- Absence of unpleasant odours;
- Treatment system by Activated Sludge in Fluidized Mixed Bed Reactor System;
- Functioning and maintenance simplicity;
- Aeration and agitation secured by only component in high profit conditions;
- Automatic functioning (electric board with integrated delayer);

## DIMENSIONS

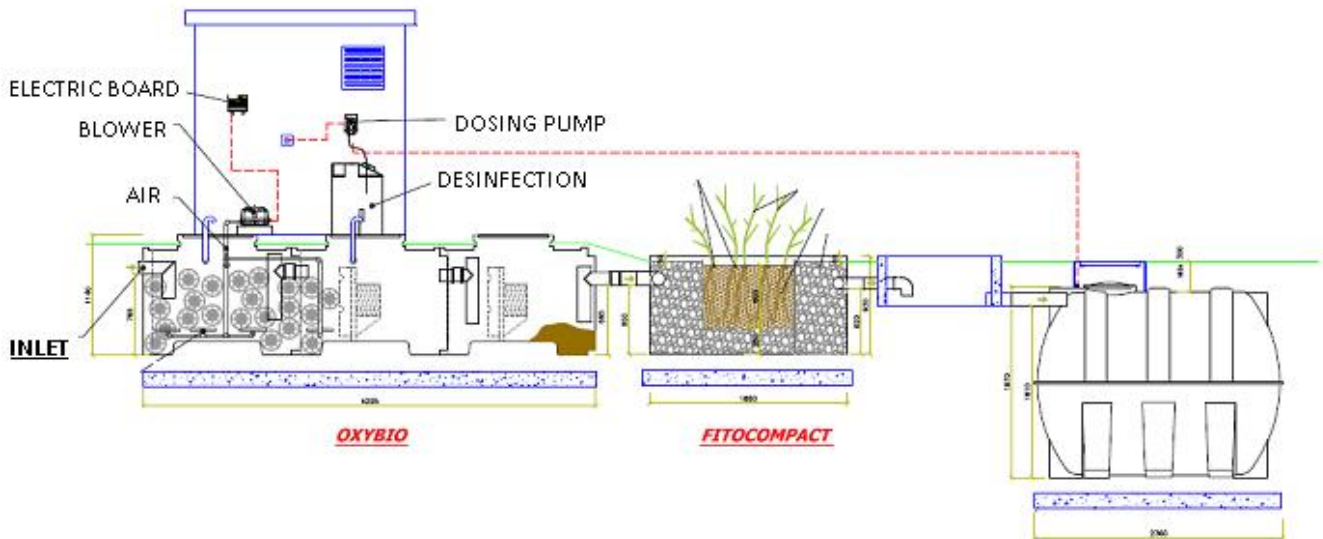


MODEL	EQUIPMENTS	L (mm)	I (mm)	H (mm)	He (mm)	Hs (mm)	Ø INLET PIPE (mm)	Ø OUTLET PIPE (mm)	Nº PLANTS
<b>DWW RECYCLER 6</b>	<b>OXYBIO 6</b>	1.485	1.200	1.140	800	720	110	110	----
	<b>FITOCOMPACT 6</b>	1.880	880	930	670	620	110	110	8
<b>DWW RECYCLER 10</b>	<b>OXYBIO 10</b>	2.880	1.200	1.140	780	710	110	110	----
	<b>FITOCOMPACT 10</b>	1.880	1.760	930	670	620	110	2 X 110	16
<b>DWW RECYCLER 15</b>	<b>OXYBIO 15</b>	4.295	1.200	1.140	765	665	125	125	----
	<b>FITOCOMPACT 15</b>	1.880	2.640	930	655	620	125	3 x 110	24
<b>DWW RECYCLER 20</b>	<b>OXYBIO 20</b>	5.080	960	1.230	880	770	160	160	----
	<b>FITOCOMPACT 20</b>	1.880	3.520	930	670	620	160	4 x 110	32

## INSTALLATION

The installation of the small WWTP **ECODEPUR® DWW**, Installation should follow the recommendations of **the document supplied "Installation PE Reactors/Tanks (<10.000).**

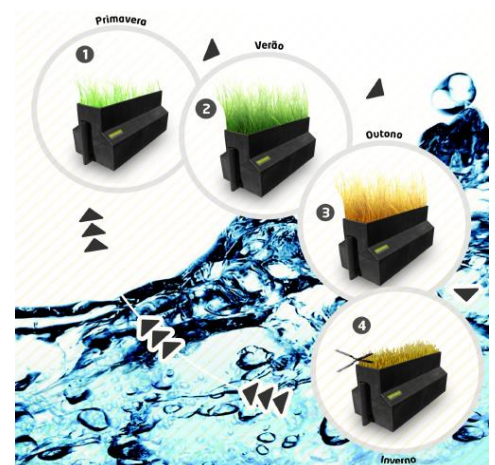
Simultaneously, should take into account the following recommendations:



1. Do not forget to connect the vent pipe. The discharge point location of the formed gas, resulting from the treatment process, should take into account the special conditions of installation (the correct placement of the vent prevent the formation of any unpleasant odour permanently);
2. The electric board and the blower must be placed in a building (technical area) constructed closest to the WWTP (up to 10 feet away), so as to save pipes and losses. This building should have the minimum dimensions: 400 x 600 x 1000 (length x width x height);
3. Fix the blower and connect the air outlet to the air inlet pipe in the small WWTP.
4. Fix the electric board and make the electrical connection to the blower;

During the process should take into account the following recommendations too:

- Proceed to the filling in FITOCOMPACT module, accordingly to the proportions present in the technical data (Draw) of the product. In the first and third compartment put only grit N°2, and in the middle one put a layer of grit (till 250mm) and then fulfil with Leca (till up to 80mm);
- In the outer layer of the bed, distribute the plants follow by a quantity of vegetal ground which will involve the roots, allowing the plantation e fixation of the plants in the early stages.
- Plant the macrophytes with a uniform distribution. In the case the plantation didn't occur after the delivery of the device, certain precautions must be taken, like the watering of the plants (only till the roots)
- Should know the life cycle of the plant. After the plantation, the effluent level should be near the roots of the plants.



**In case of any doubt do not hesitate to contact our technical services.**

## MAINTENANCE

The treatment unit simplicity, allied to its automatic functioning allows restricting its maintenance to a set of routine operations which frequency will be dictated by the normal exploration practice.

- Inspection and preventive maintenance of the electro-mechanic device:
  - Blower: Monthly clean the particle filter and verify the general device conditions.
  - Metering pump: Clean it with clean water from the injector regularly.
- Periodically remove excess sludge deposited and occasionally remove plant mass.
- Control de propagation of weed species.
- Between October and December remove the vegetal mass dried by the cold
- Every time you verify problems in hydraulic flow by the excess of rhizomes, should remove part of the bed, roots included (normally 20% - 25% is enough). This will allow the remaining roots to occupy the free spaces left behind.
- Three to four times a year should clean the outlet macrophytes pipe, by introducing a water hose in the pipe, in order to remove accumulated solids.
- Twice a year remove the excess sludge deposited in the secondary settling;
- Monthly verify the Electric board and check if it exist indication of some breaks down.

## GUARANTEE

**Five (5) years**, covering any manufacturing defects of the PE tank.

Electric equipments present **Two (2) years** covering any manufacturing defects

**ECODEPUR®** will not be responsible if there are clear indications of poor installation, misuse or poor maintenance, or if it is shown that the equipment was overloaded.