

PRAGMA Blue



GENERAL INFORMATION

WATER TREATMENT PLANT FOR WHEEL WASHER BIOOVER-300C



DESCRIPTION OF THE EQUIPMENT

Regarding BioOver300 line mai information are following:

- Tank monobloc Polypropylene or Polyethylene (depending on the requested version) in longitudinal sectors. Due to natural elasticity matirial may have deformations at pressure or temperature range.
- Electrical connectio: 1-phase plug (German Type)
- Input: Water to be purified, maximum capacity 300lt/hour

Dimension BioOver300:

1. lenght 1415 mm
2. height 1430 mm
3. width 1096 mm

Weight BioOver300: 475 kg

INTENDED USE

The plant is designed for the treatment of waste water from the cleaning of exterior of cars, with the aim of recycling part of the treated water and download the extra part. The use of fresh water

can be limited to the rinsing phases and final waxing vehicles washed.

The treatment includes the following steps:

- Sedimentation
- Oil separation with coalescence filtering
- Oxygenation by injection of air 2 phases
- Intermediate mesh filters for suspendend solids
- Quartz filtration,
- Activated carbon adsorption,
- Swithch to sewer discharge or reuse

The cleansing action is to remove:

- Oil
- Substances in suspension,
- Mineral oil (trace)
- Surfactants
- COD
- Anaerobic bacteria responsible for unpleasant smells.

1 PRE-TREATMENT WITH FREESTANDINGS TANKS

Among the pollutants of the wastewater are present in variable quantities of settleable solids and oils and fats in a free form, which can be separated by simple gravity, by passing the effluent through a series of underground tanks adequately dimensioned and manufactured. This will lighten the work load of the main treatment, be it chemical-physical type only physical or other nature, resulting in lower costs and better results depurative.

An effective pre-treatment section shall contain the following tanks:

- V , primary sedimentation, where the particles are sedimented heavier, such as mud, sand, etc

- V , oil removal, where the light substances, such as oils and fat free, are in the flotation, and then may be removed to the touch;
- V , homogenization and storage of water to be transferred to the purification plant above ground.

Note: in order to achieve the results desired purification, the underground tanks of pre-treatment must be carried out according to the specifications defined on a case by case basis. For the minimum size and construction type, refer respectively to the Application Data sheets and at the drawing PQC513G089.

The minimum volume required for each of the three underground tanks is determined on the base of the water flow to be treated.

TIPICAL WATER POLLUTION IN THE ENTRANCE TO TREATMENT

Pollution average found in the waste water with the type of washing as described above after the section of pre-treatment consists of sedimentation and oil separation:

pH	5 ÷ 10
Settleable solids	10 mg/l
Suspended solids	150 mg/l
COD	500 mg/l
Mineral Oil	5 mg/l
Surfactant	20 mg/l
Iron	2 mg/l
Zinc	1 mg/l

Table 4 Tipical pollution



CAUTION!

To feed a washing plant is possible to use mains water, recycled water, well water, surface water. Pay attention to the characteristics inlet water indicated in the following table.

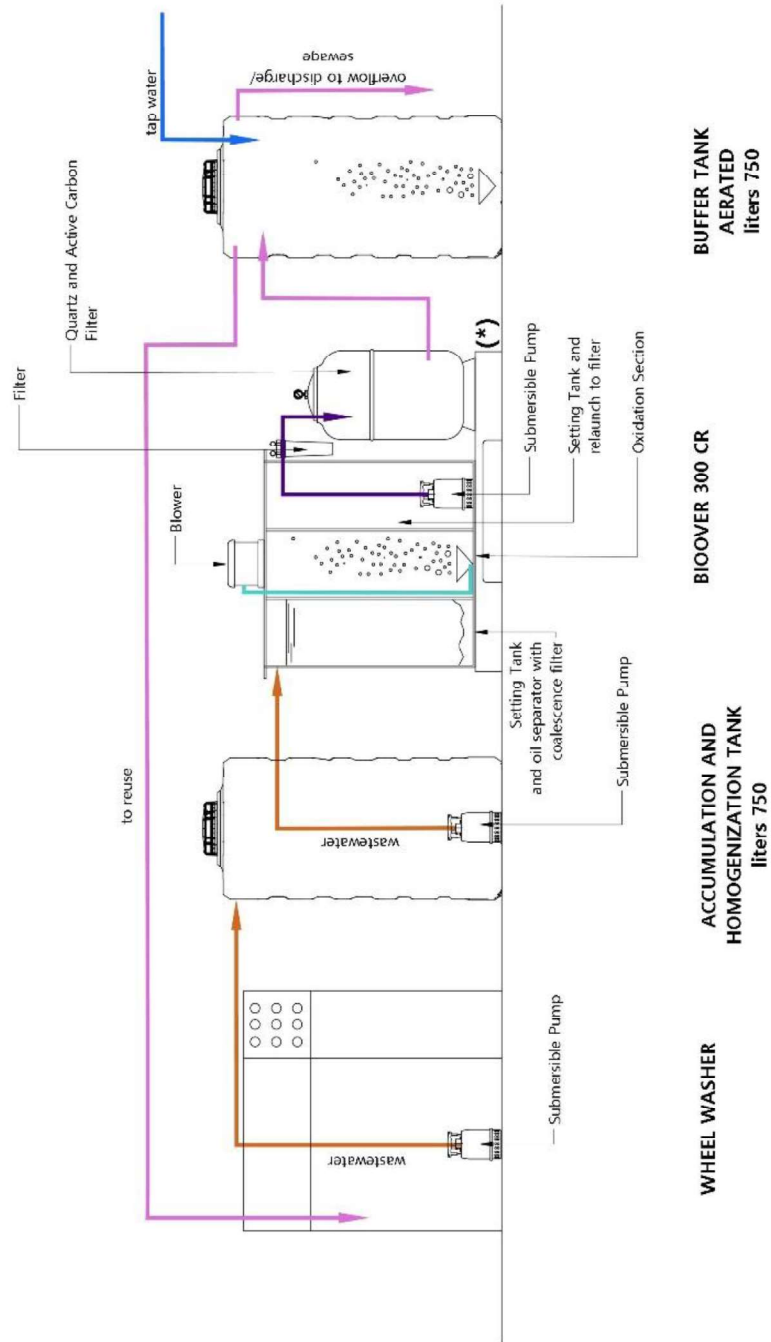
FEATURES WATER ENTERING THE SYSTEM WASHING

	Tunnel or Gantry	Washing Bays
pH	6-8	6-8
Hardness °F	<30	<30
TDS (salinity tot) mg/l	<3000	<1500
Suspended solids tot mg/l	<25	<10
COD mg/l	<500	<500
Hydrocarbons tot mg/l	<10	<10
Surfactants tot mg/l	<4	<4
Total chlorine mg/l	-	<0.1
Iron mg/l	<2	<0.05

Table 5 Features inlet water washing plant

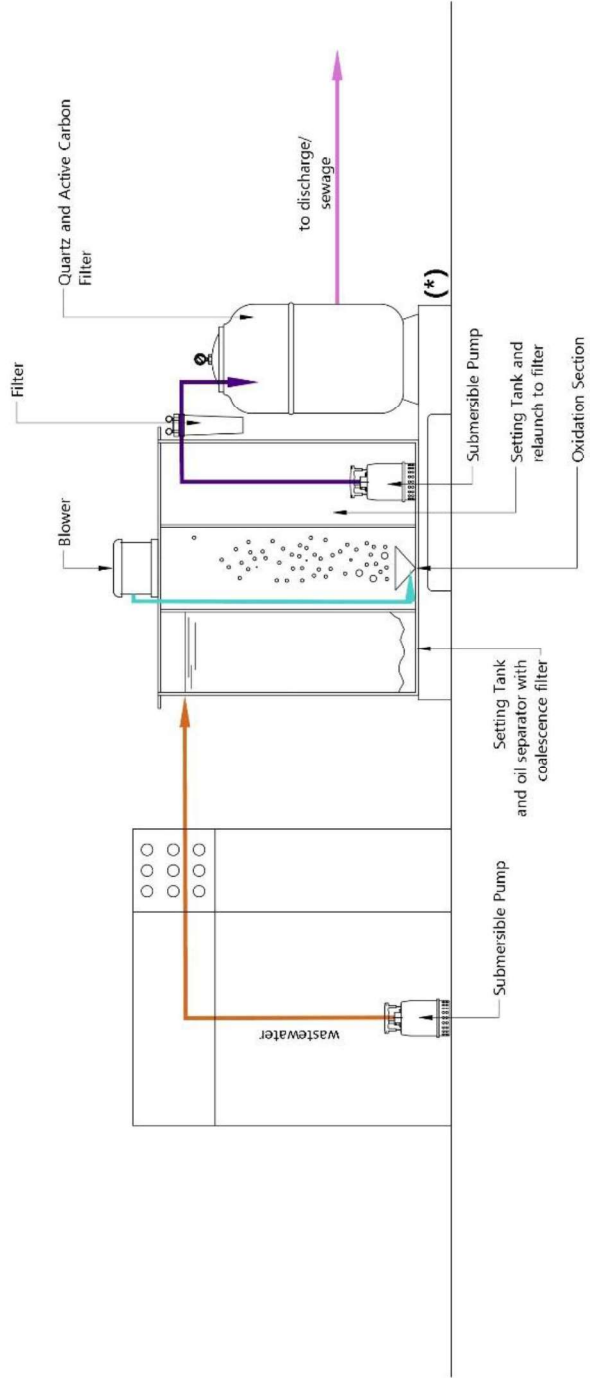
DESCRIPTION OF THE PROCESS

- a) Layout of BioOver-300C with complete set of buffer tanks for pre accumulation and recycling.



(*) Maximum dimension at base: mm 1800 x 900

b) Layout of BioOver-300C with direct connection with wheel washer.



(*) Maximum dimension at base: mm 1800 x 900

EQUIPMENT BREAKDOWN

Electrical Panel BioOver

The electrical system on board system is built according to the European legislation. It consists of a single central electrical panel and mounted on board plant. It contains commands and auxiliary power, protection against overloads and short circuits for all electric motors.



Picture 1. Electric Panel



Picture 2.
Oil Drain Tap



Picture 3.
Submerged Pump



Picture 4.
Air flow registration Tap



Picture 5.
Membrane compressor

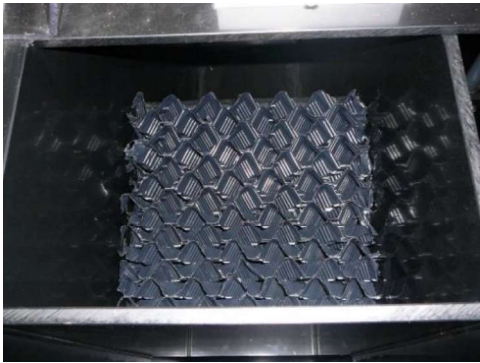
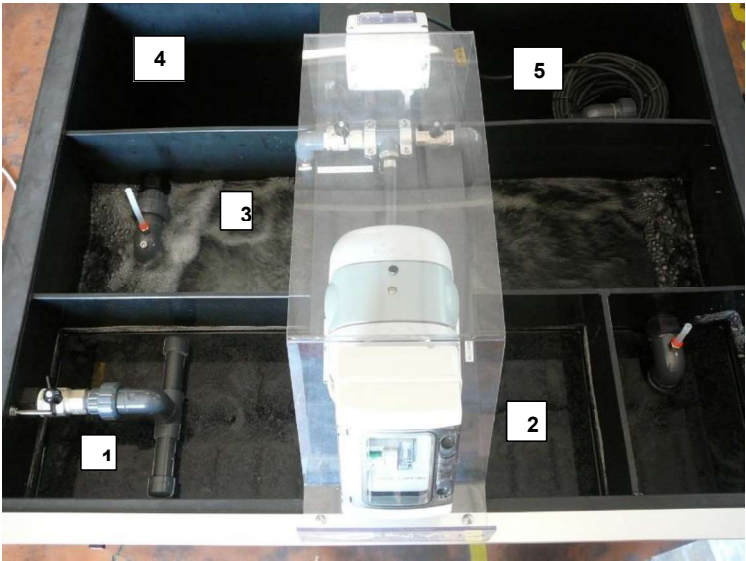
Air Filter Maintenance

Every week the filter of air compressor has to be cleaned, oil level has to be controlled (small glass ahead the compressor).



Picture 6.
 Top view of the tanks. Starting from the bottom left:

1. Input waste water and sedimentation
2. Oil separation with coalescence filter
3. Aeration through n.2 bottom circular air diffuser
4. Final air insufflation
5. Buffer with relaunch submerged pump



Picture 7
 Oil separator with coalescence filter



Picture 8
 Aeration Tank, detail bottom air diffusion



Picture 9
 Secondary aeration Tank, detail air piping



Picture 10
 Central section, filling bodies, detail (0,4 mc)



Picture 11
 Detail: water input valve (has to remain fixed)

No. 1 Column of active carbon filtration

Mounted on the support structure in galvanized steel.

Features of each column:

- Volume of 0,150 mc, construction with heat-cured powder, for electrostatic application, internally Teflon-coated, with high characteristics of resistance to chemical corrosion
- Design pressure of 4 bar, design temperature of - 10 ° to + 50 ° C
- No. 2 inspection flanges with locking plate
- Manifold, fittings and No. 2 3-way valves for normal operation and automatic backwash (lever in the manual version) of the filter pack, pressure gauge, air release valve
- Foot valve pneumatic for automatic emptying (lever in the manual version)
- Bed quartz in fixed grain size (25 Kg) and activated carbon (40 Kg) with high adsorption.



No. 1 or 2 Filtration Units

Mounted on external piping these filters are installed to retain suspended Solids. Maintenance is made with manual removal of the bottom and cleaning with fresh water.



BLOWER FOR OXYGENATION LINE (OPTIONAL)

The unit includes:

- A membrane compressor (picture 5) low-pressure including filter
- 2+1 aerators weighted, to be placed on the bottom of storage tanks V_A and V_R
- Protection thermal magnetic switchboard and timers to control operation during 24 hours.

4 SAFETY SIGNS DISPLAYED ON EQUIPMENT

In the work area / board equipment are the following signals: