OVERVIEW
The "civil" waste is purified "biologically" because this is the most suitable system to obtain outputs exceeding 90%. WTEC plants work on decomposition of BOD₅ through "active sludge total oxidation" processes with mineralization of sludge in excess (extended aeration).
The correct supply of oxygen contained in the air and the homogeneous distribution within the tank, allows the formation and growth of "active sludge", an indispensable factor for purification.

ENVISAGED TREATMENT
- Screening
- Pre-denitrification
- Biological oxidation and nitrification
- Settling and sludge circulation
- Disinfection

NOTE: The installation of a fatty condenser is required for the kitchen discharges

PROJECT DATA
- BOD₅ < 300 mg/l
- COD < 500 mg/l
- TOTAL SUSPENDED SOLIDS < 300 mg/l
- AMMONIACAL NITROGEN < 50 mg/l

EFFLUENT CHARACTERISTICS
According to design data, the effluent water from our purification plant will have the following characteristics (ref. to the extreme values of the legislative decree 152/99 –Tab. 3)
- BOD₅ ≤ 40,0 mg/l
- TOTAL SUSPENDED SOLIDS ≤ 80,0 mg/l
- NITROUS NITROGEN ≤ 0,6 mg/l
- COD ≤ 160,0 mg/l
- AMMONIA NITROGEN ≤ 15,0 mg/l
- NITRIC NITROGEN ≤ 20,0 mg/l

OPERATING DATA
- Voltage/electric frequency supply 350/50 V/Hz

EXAMPLE OF "DEPURBIOX"

FUNCTIONAL DESCRIPTION
The sewage, via the sewer collector (or collection via a pump) will pass through a grille cleaned manually. This phase will retain all large solid bodies which could cause operation problems on equipment placed at the bottom and which are materials that cannot be treated by the biological process.
The "screened" water will then be sent to the pre-denitrification basin and subsequently to the oxidation-nitrification basin. The oxidation process will use active sludge with extended aeration.
The pre-denitrification zone will be equipped with a sewage mixing system that prevents the addition of oxygen and aids the biological process by using the oxygen in the nitrates circulated by the oxidation basin.
The oxidation-nitrification zone will be equipped with an air generation and distribution system comprising diffusion pipes and submerged diffusers for high oxygenation output. Air diffusion will be bubble type and the oxidation basin volume will guarantee a volumetric load of approx. 0.35 kg. BOD₅/mcd
The air flow rate will be sufficient to cover oxygen requirements, to guarantee the turbulence required to maintain the mass of active sludge in suspension, and ensure efficiency to the sludge extractors (air lift system) of the oxidation and settling stations.
The active sludge will pass from the oxidation basin to the Dortmund type, vertical flow settling basin with a square plan and base with the form of an upturned truncated pyramid. In the settling zone, the sludge, because of its weight, tends to fall to the bottom of the basin, while the water separated from the sludge, clarified will rise to the surface, and by means of an overflow system will pass to the final disinfectant station.

As an option:
- As an option, a screening with automatic cleaning is envisaged.
- On request the supply of a refinement station (sand and active carbon filters), for the discharges in Tab. 4 – L.D 152/99
TYPICAL SYSTEM LAYOUT – Models from 50 to 200 Equivalent Inhabitants (E. I.)

TYPICAL SYSTEM LAYOUT – Models from 300 to 500 Equivalent Inhabitants (E. I.)

TECHNICAL DATA – Models from 50 to 500 Equivalent Inhabitants (E. I.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Presence</th>
<th>Peak flow rate</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>E. I.</td>
<td>m³/h</td>
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<tr>
<td>DEPURBIOX 50</td>
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<td>1,5</td>
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<tr>
<td>DEPURBIOX 100</td>
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<td>DEPURBIOX 150</td>
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<table>
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</thead>
<tbody>
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<td>m³/h</td>
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<tr>
<td>DEPURBIOX 50</td>
<td>50</td>
<td>1,5</td>
</tr>
<tr>
<td>DEPURBIOX 100</td>
<td>100</td>
<td>3,0</td>
</tr>
</tbody>
</table>

NB: - For constructional reasons dimensions and weights are not binding.
- The company hold the right to modify the technical and aesthetic characteristics of each equipment.