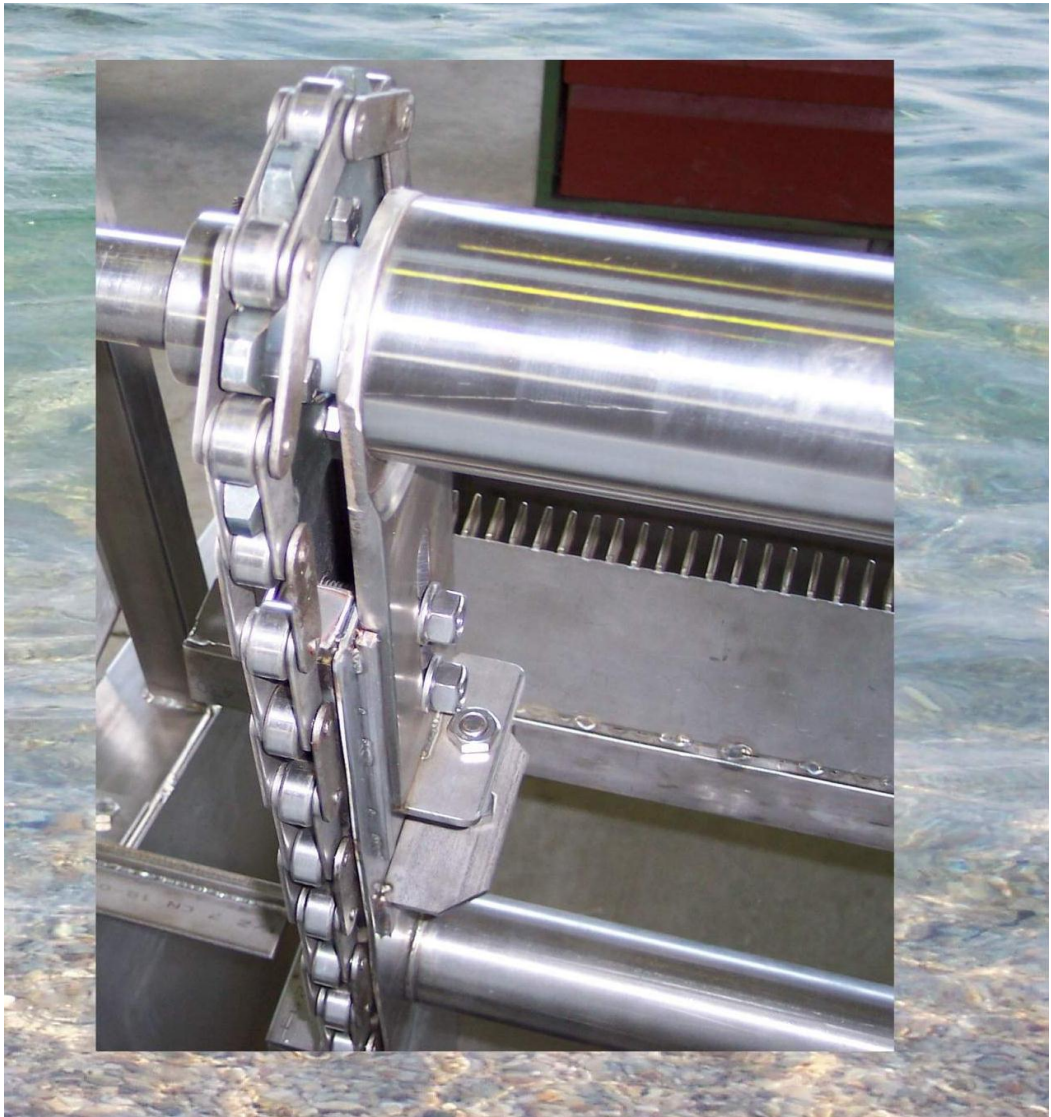




TSAMPOS Ltd



**machinery manufacturing from wastewater
treatment plants and industrial waste**

The company

The company is a continuation of the old individual company GEORGE TSAMPOS had established in Efkarpia /Thessaloniki, which since 1976 active in engineering and integrated assemblies in the following areas:

- ✓ Communal Waste Water Treatment
- ✓ Industrial Waste Water Treatment
- ✓ water treatment and environmental technology
- ✓ Stainless steel industrial construction

Our new company **TSAMPOS Ltd** has its headquarters in N.Santa Kilkis Prefecture and is situated in a private area of 14 acres with buildings 2.500 m², with part of the study / design and machine composed of the most modern CNC-processing machinery



The clean solution

The continuous increasing demand for new technologies and operating in the area of environment and industry, forced to find applications of high performance and quality. We respond to these demands and offer complete solutions.

Our specialized personnel accompanies you in all phases of project implementation including:

- **study / design**
- **construction**
- **Installation**
- **operation**





Certificated performance

Since the beginning we give priority to careful design and construction with the help of full equipment which our company supplies.

The modern technology of production that we have, and the skilled team of our associates ensure the reliability of our products, exemplified by their own customers.

The location of the facilities in operation at the same time the necessary their effectiveness after delivery and especially long term, provide maximum safety and guarantee to our customers.

The company TSAMPOS Ltd is certified according to EN ISO 9001:2008 by the company TUV NORD.

Continuous objective of our company still the strict application and enforcement of standards of the quality assurance system.



Partnership

With the aim of the expansion of capabilities, the company cooperates with honorable foreign companies, specialized in new technologies plant construction of waste water treatment, environmental management services, water treatment, waste and laboratory analysis.



Program with construction machinery

Screening / solid separation



Rotary screen

The material is entirely of stainless steel AISI 304. The particles are separated on the exterior surface of roll and with the rotation are removed via special blade. The roll is constituted by spiral laminae of cross-section. Separated scum they are removed almost dewatering from drum.

With the assistance internal system of automatic spraying avoid any blockage of slots. The opening of the slot selected depending from 0.25 to 2.00 mm. The choices of flow rate ranging from 60 to 710 m³ / h.



Level self cleaning rake

The rake is completely stainless steel AISI 304. The cleaning of the rake on the containment of solids is via 2 scrapers with a special scallop scraping (notched device). The scrapers are entrenched in a rotary device on a stainless steel chain and rotating scratching the screening surface carrying the screenings at the upper point of rejection.

The equipment of the rake also includes a control box with all the necessary electrical equipment and automation of rake operation by measuring level rise. Alternatives and adaptations to desired flow rate, gaps screenings, width and depth of channel.



Bent self cleaning rake

The rake is completely stainless steel AISI 304. The cleaning of ribs on the containment of solids is via a rotary scraper comb (notched device). The scraper is incumbent on a rotary arm. The comb cleaners do a full rotation and streaks on incoming transports the screenings at the top point of rejection. At the point of the discharge screenings the scallop encounters a special scraper through which the solid detached from the scallop.

The equipment of the rake also includes a control box with all the necessary electrical equipment and automation of rake operation by measuring level rise. Alternatives and adaptations to desired flow rate, gaps screenings, width and depth of channel.



Basket screen

The grid is fully stainless steel and consists of parallel bars. It forms the basket on both edges of the basket is positioned rollers which rolled into stainless drivers. The side of the basket adjacent to the wall of the inflow sewage pipeline has no evidence screenings. The grid was brought by drivers running the type H which is fixed to the shaft wall.

Drivers leaving the shaft and have curved part to give a circular way in the movement of the basket for the disposal of screenings to bin collection.

The move be given through gearmotor-type windlass and the grill carried by stainless steel cable.

The equipment of the rake also includes a control box with all the necessary electrical equipment and automation of rake operation.

Typical application: screenings of adult materials before wastewater pumping station





Screening / solid separation

Retrograde bridge collection of sand and grease



Composed by:
Regression bridge, scrapers and bottom surface or selectively with suction pumps sand, rail rolling wheels.

Select the material of construction of the bridge:

- a) St37 double epoxy paint
- b) complete from stainless steel AISI 304L

Alternatives and adaptations to specified dimensions of the tank installation as width, depth, length tank, single or twin type of bridge.

The bridge equipment also includes stainless steel electric panel with all necessary electrical equipment and automation of bridge operation.

In both cases, the wetted parts are stainless steel

Sand dewatering unit

With material entirely from stainless steel AISI 304L. The mixture of water / sand enters the upper tank. The floating particles are separated on the surface with the help of a sinking plate, transferred through the screw and disposed of with the precipitating solids and sand almost dry in the collection bin. The clean water overflows leaving through the side of the tank.

Advantages

- ✓ High degree of efficiency
- ✓ Low energy consumption
- ✓ operational safety
- ✓ minimal service

Wastewater and faecal sludge screen with automatic compression and disposal of screenings

The grid is entirely of stainless steel AISI 304. The grate is made of arched bars of trapezoidal cross section, tapered in the direction of flow, positioned so that the free space between them is under option from 8 to 20 mm. The arm is only mechanical cleaning and full-rotation type 360° degrees. The cleaning rake is removable and their support is with stainless steel screws. The arm has a protection system against overload and can pass objects which can be stuck between the bars. At the closure of the facility cleaning, cleaning the comb will be in contact with water, that may ensure a specific automation. These screenings led to a screw inside the box, which led to the compression section where it then automatically discarded bucket screenings. All moving parts of the facility and all lubrication points are accessible and above the level of sewage.

The equipment of the screen are also included:

- The electrical panel with all necessary electrical equipment and automation of operation of the grid by measuring the level of inflow
- Special inflow level meter suitable for wastewater without clogging problems for the smooth operation of the screen

Complete mechanical preliminary treatment of wastewater and faecal sludge

Complete mechanical preliminary treatment of wastewater and faecal sludge, with material of manufacture by stainless steel AISI 304L in one unit comprising:

- ✓ Fine screening of wastewater
- ✓ Screenings dewatering
- ✓ Grit separation
- ✓ Grit dewatering
- ✓ Grit washing (option)
- ✓ Grease separation
- ✓ Automatic grease removal

To avoid the odors the unit is completely covered with stainless steel leakproof covers.

The solids with the help of turned scallops are transported in compressor solid where they are dehydrated in percentage up to 35% of TS and they are rejected in bucket of solids collection. Afterwards the wastewater or faecal sludge they pass with free flow in the oblong tank of grit and grease separation. Where with the help of airing are separated the sand, light and not soluble components, the greases and oils.

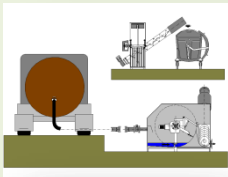
With the help of bisector wall the floating crust that is from greases/oils and floating material with the help turned surface of paddle they are rejected in incorporated in the tank container and with the help of pump they are transported in the entry of compressor of solids where they are mixed and removed with the compressed solids.

The sand that is separated in the seabed of reservoir is transported with the help of 2 snail and discarded in bucket or container collection of sand.

The wastewater or faecal sludge they come out from the unit exempted from firmly >6mm, sand at 90% roughly with size $\Phi > 0,2\text{mm}$ (according to specifications ATV), from greases/oils, light materials and they can process further in unit of biological cleaning.

By faecal sludge wastewater between the tanker and the unit it could also selectively be placed a trap of stone for withholding of bulky stones for the protection of grill.

The unit could be also placed inside the soil in suitable basin from concrete.



Program with construction machinery



Equipment of circular clarification tank

Includes:

- ✓ Turned bridge with walkway
- ✓ Center pivot
- ✓ Drive assembly
- ✓ Bottom scraper
- ✓ Surface skimming (or selectively system of collection and suction floating)
- ✓ Inlet well
- ✓ Dam floating with crucible of reject
- ✓ Overflow weir and scum baffle
- ✓ Stainless electric table

Select the construction material of the bridge:
 a) St37 with double epoxy paint
 b) St37 galvanized
 c) complete from stainless steel AISI 304L
 In all cases, the wetted parts are stainless steel

The construction and equipment adapted to the specified parameters and dimensions of clarification tank.



Equipment of Sludge thickener tank

Includes:

- ✓ Rotating scraper mechanism
- ✓ Central bearings of rotation axis
- ✓ Scraper (levelers)
- ✓ Inlet well
- ✓ Dam floating
- ✓ Overflow weir

The material is complete from stainless steel AISI 304L.

The construction and equipment adapted to the specified parameters and dimensions of thickener tank.



Prefabricated units sedimentation tank with lamella

Includes:

- ✓ flocculation tank with agitation
- ✓ lamella tank with a suitable bottom for the collection and removal of settled sludge
- ✓ incitement scraper sludge bottom
- ✓ triangular overflow weir
- ✓ Stainless electrical table with the required automation of the unit

The material is complete from stainless steel AISI 304L.

The construction dimensioned depending on the type and flow rate of wastewater.



Flotation Unit (DAF)

Includes:

- ✓ Tank of neutralization
- ✓ Tank of coagulation with Mixture or alternative with pipe flocculate from stainless and points of dosage chemical
- ✓ Tank of flotation
- ✓ Motion scraper for float sludge
- ✓ System of production and diffusion of micro bubble size of order 50-400 micron (μm)
- ✓ Stainless electric table with the required automatism of operation of unit

The material is complete from stainless steel AISI 304L. The construction dimensioned depending on the type and flow rate of wastewater.



Unit of mechanical sludge dewatering

Complete equipment of mechanic treatment and dehydration of sludge that it includes:

- ✓ Pump of catering of sludge of type monopump
- ✓ Stainless tank of coagulation

Group of thickener belt constituted from:

- frame from stainless steel
- system of distribution of sludge on the belt
- belt (film) dehydration by polyester
- roll of compaction with blade of sludge in her exit to filter press
- system of belt wash with nozzles of pressure
- provision of collection drainages and waters of wash
- system of movement of belt with change of turns

Group of filter press constituted from:

- frame from stainless steel
- crucible of distribution of sludge on the belt
- belt (film) dehydration by polyester
- rolls of compaction with blade of sludge in her exit of filter press
- system of belt wash with nozzles of pressure
- provision of collection drainages and waters of wash
- pneumatic system for the automatic alignment of belt
- system of movement of belt with change of turns

to equipment are also included

- ❖ stainless electric table of operation and control with PLC of entire group of dehydration
- ❖ automatic unit of polymer solution from stainless steel AISI 304L

Gates - Screw press – Screw and band conveyor

Stainless steel **gates** complete leakproofness of all kinds like

- surface for placement on the channel,
- underwater,
- adjustable overflow

alternatively manually or with electrically operated mechanism (AUMA gearmotor).

Alternative solutions and adjustments to the desired dimensions of channels / holes and depth of hole

Stainless **Screw and band conveyor**

for the transport and disposal of screenings and dewatered sludge.

Are offered and adapted to the desired dimensions, supply and angles of inclination placement

Stainless **screenings compressor**

In desired flow rate with the possibility of dehydration to 35% TS

Package plants in stainless steel construction with rotating biological disks

APPLICATIONS

- ✓ Small communities
- ✓ Hotels
- ✓ Groups holiday homes
- ✓ Campings
- ✓ Restaurants

The material except discs are made of stainless steel.

A great advantage is the minimal energy consumption

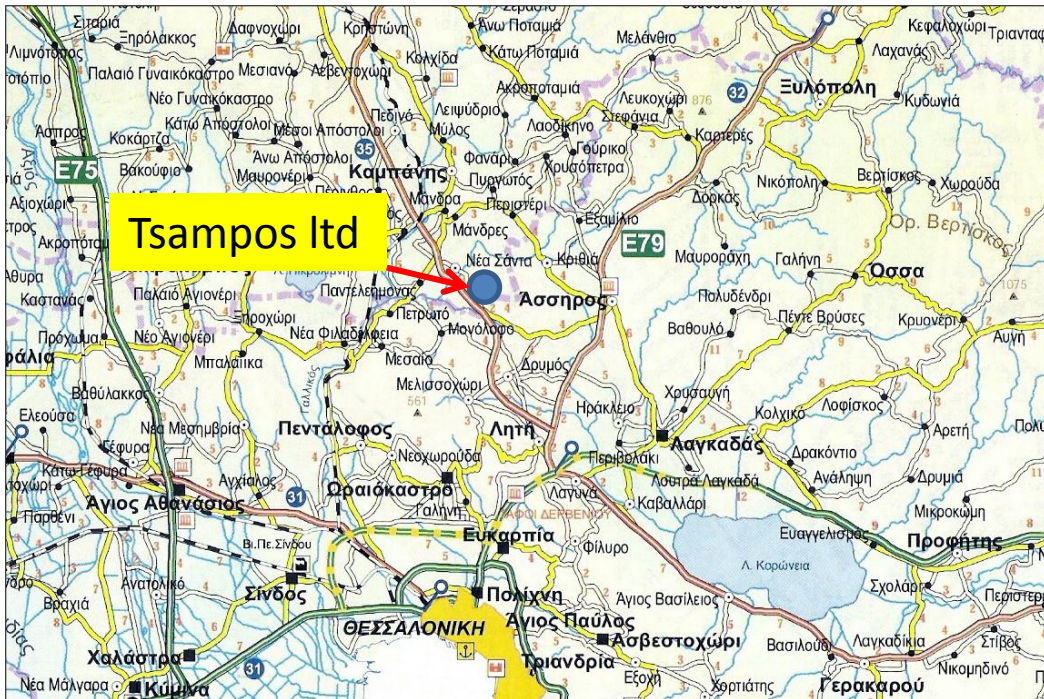
OPERATING PRINCIPLE

The degradation of the organic load is a completely natural methods parallel to those of natural degradation of growth of microorganisms on a rotating semi-sinking-immersed bio-discs from material polypropylene (PP).

The microorganisms grow on the surfaces of the discs, supplied with oxygen during the phase of non-immersed rotation and degrade the organic load in phase immersed rotation.

The density and balance of biomass in the reservoir obtained by using suitable static mixers between discs.





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