TECEXSA

Egile

WATER ENGINEERING

A STEP BEYOND
IN WATER TREATMENT SOLUTIONS

Engineering equipment for water treatment

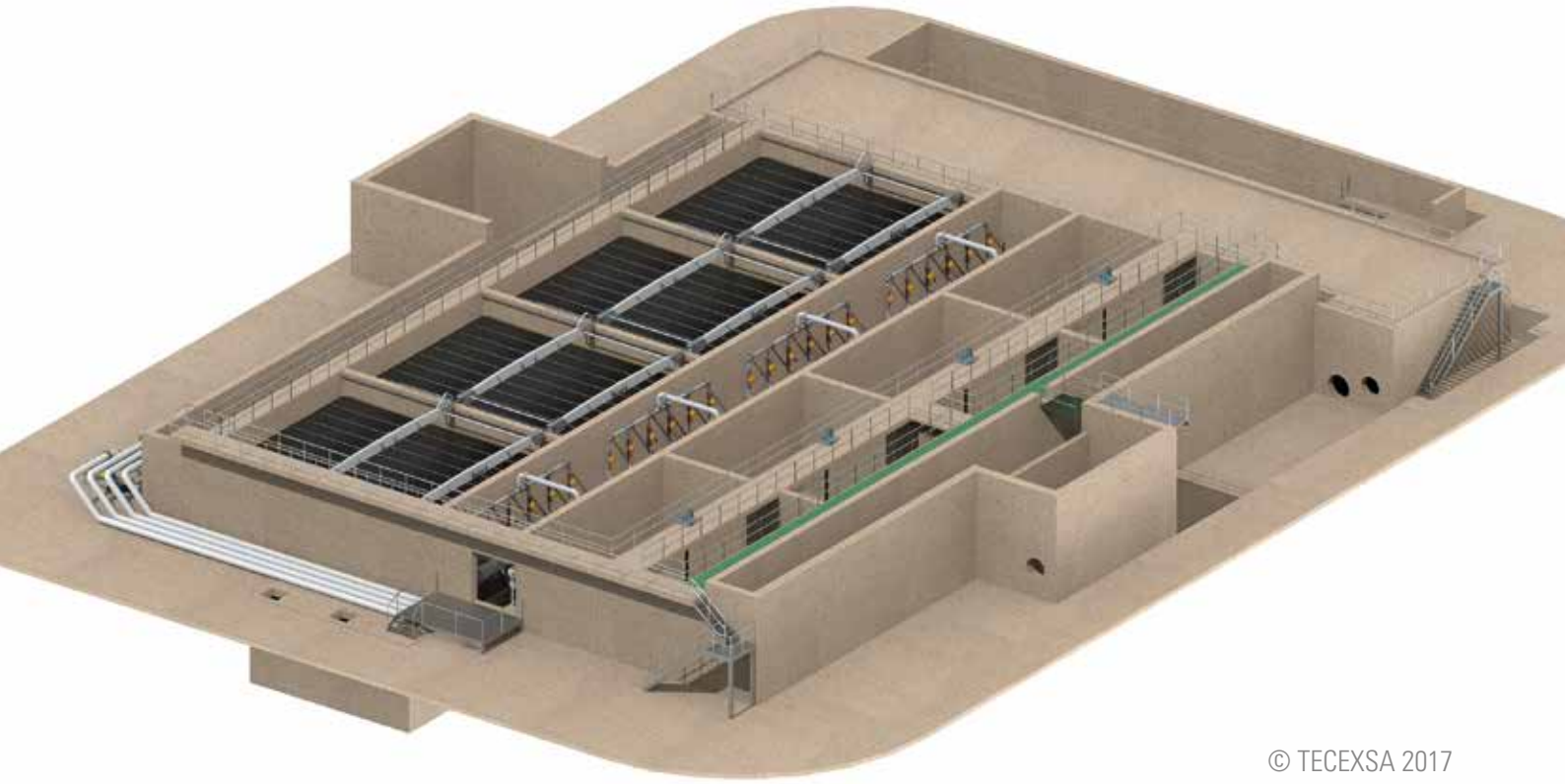
TECEXSA was created in 1967 with the aim of providing quality products and equipment to the industry.

Tecexsa initially focused on water treatment, in order to provide engineering solutions to this sector. The first objective was the recovery of fibers in the paper industry when treating process effluents. Following this the company focus was extended to effluent treatment, in order to recycle the maximum amount of water, thus reducing the economical impact of water costs. Across all of Tecexa´s facilities, our goal is a paper mill where it was possible to recycle 100% of the water, reaching a target of "zero discharge".

Observing that water issues are common to both the industrial and the municipal fields, and that the Tecexsa´s technology was equally valid in both of them,it was decided to expand the scope of action to encompass the municipal sector also.

In Tecexsa we have designed and built more than 200 water treatment facilities for different industrial applications; papermaking, food, chemical, puries, wood, desalination, etc.

Currently, Tecexsa's technology has evolved to become the state of the art next generation technology, mainly in the treatment of sea water (desalination), and with companies involved with the extraction of biocarburantrs from algae. We specialize in the design of equipment for water treatment, highlighting our DAF technology (dissolved air flotation). Other designs are sandtraps, lamellar clarifiers, sand filters and activated carbonfilters.



TECEXSA DESIGNS AND BUILDS WATER TREATMENT PLANTS

Tecexsa's services

Wastewater characterization.

Preliminary studies. Pilot tests.

Design and manufacture of water treatment plants.

SAT. We provide the maintenance at all our facilities, as well as all types of spare parts.

The refurbishment of obsolete facilities or studies for improving the performance of existing plant.

Solutions

Tecexsa's DAF system

Which is the purpose of the DAF system?
DAf Systems are used to separate dispersed solids and/or immiscible liquids from a liquid phase, for example water.

How do they work?
In four basic stages:

- Generation and distribution of bubbles in the liquid to be treated.
- Colissions occurring between bubbles and suspended particles in the water form agglomerated particles.
- The particles rise to the surface of the agglomerate.
- Removal of the agglomerate on the surface.

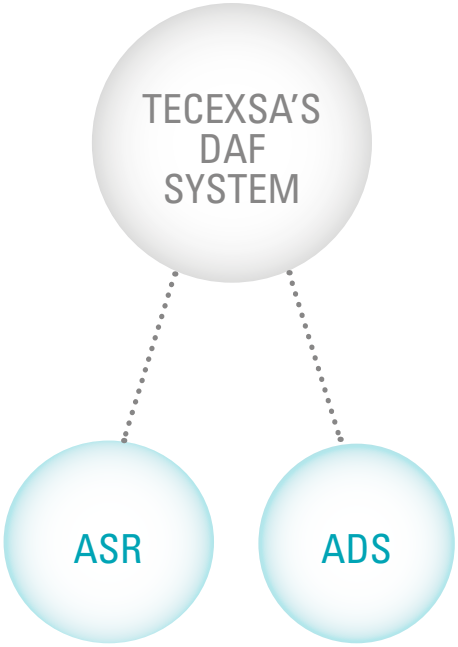
OUR **DAF SYSTEM** IS EXTREMELY EFFECTIVE AND EXCEPTIONALLY COMPETITIVE

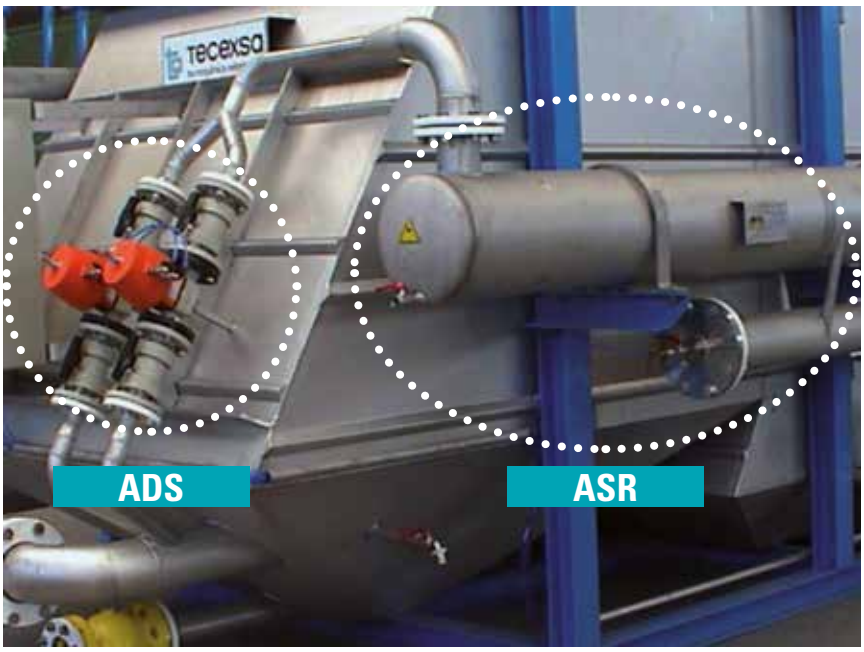
ASR

Air Saturation Reactor.
Micro bubble generator designed by TECEXSA.

The process consists of 3 phases:

1. Introduction of air into the water:
   The recirculated water enters the ASR simultaneously with the compressed air with through a diffuser system.
2. Dilution of the air:
   The mixture of air and water enters the saturator tangencially. The fluid flow is controlled by Tecexsa. The entire process is carried out inside defined temperature and pressure parameters.
3. Depressurization:
   The pressurized fluid (saturated with dissolved air) is depressurized in the ADS system, generating microbubbles.





ADS

Self-cleaning Depressurization System.

Its function is to reduce air saturation Pressure so the generation of microbubbles is allowed. At the same time, a the circuit is cleaned, which guarantees that it functions correctly and exactly as designed.

Air Control

The pressurized air in the ASR is automatically controlled using a touch screen. We can fix the operating point (set point) and if pressure changes, the system will self adjust automatically to the set point.

The purge system guarantees a continuous air saturated water filled system.

Control of ADS

Automatically regulated air pressure in the ASR.

Automatic adjustment by regulation of the control loop, controlled from the PLC.

Self-cleaning valve. Cleaning time is monitored from the touch screen. This is made possible through control of the generated pressure lost in the depressurization valve.

Advantages of Tecexsa's DAF system

The **automatic level control** ensures the optimum conditions to efficiently remove mud. This system maintains the water level in the DAF, independently from water flow.

The circular DAF creates minimum turbulence in the water distribution when taking a radial route (from the center to the periphery). Clarified water is collected in the Clarifier submerged perimeter, achieving very low speeds.

The settled solids are collected in a hopper and are drained through a "PINCH" automatic valve.

Tecexsa´s DAF system is characterized by its simple operation. It reduces commissioning time and any variations in the operating requirements.

The process is automatically controlled.

The operation parameters are controlled from the touch screen.

Tecexsa's DAF equipment

ISOFLOAT

The ISOFLOAT is especially designed to work in environments with extreme requirements.

Its special circular design creates a laminar distribution, for the incoming raw and recycled water from the ASR reactor, from a central crown. This effect, along with the radial distribution of the clarified water through the tank's external crown, provides for the "zero" speed effect. This means that the micro-bubbles remain longer, increasing adherence of the suspended particles, with the consequently positive effect of optimised results in generation of sludge and in clarified water output.

The floating sludge is collected with a surface collector, while the decanted sludge is extracted with a bottom rake, and then later, with an automatic purge. Thanks to their design, they are easy to transport.

In the specific case of the metallic ISOFLOAT, the space saved is an added advantage, since the equipment needed for the floater to work is located beneath it.

The pre-treatment equipment is available in steel (IF) with various properties depending on the characteristics of the effluent to be treated, as well as the environmental setting where the plant is located; AISI 304, 316, Superduplex, rubber, Civil Work (IFOC)...

The range is complete and includes specific equipment for biological treatment (IFB steel and IFOCB Civil Work) and for thickening (IFE and IFOCE).

EXAFLOAT

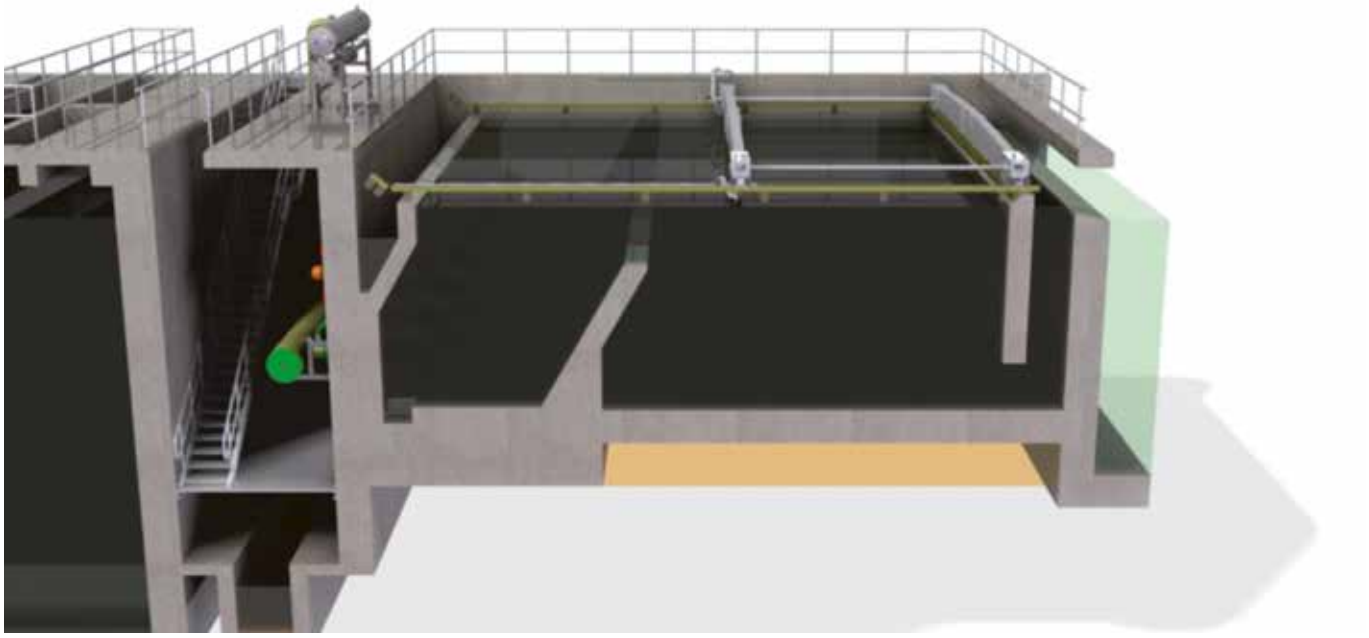
EXAFLOAT is designed to increase treatment capacity when space is a determining factor.

Its rectangular design and the technology developed for this model means that it can work with greater hydraulic loads on limited surfaces, which provides for greater treatment in less time.

Through the equi-current and counter-current system, the treated water is perfectly clarified and the floated sludge decanted is collected on the side opposite the clarified water output, which guarantees better quality in results.

Our equipment is delivered already installed anywhere in the world (Plug & Play).

The line is available in metal, TEF (different qualities depending on the characteristics of the effluent to be treated, as well as the environmental setting where the plant is located; AISI 304, 316, Superduplex, Ebonite-lined) or Civil Work (EFOC)...

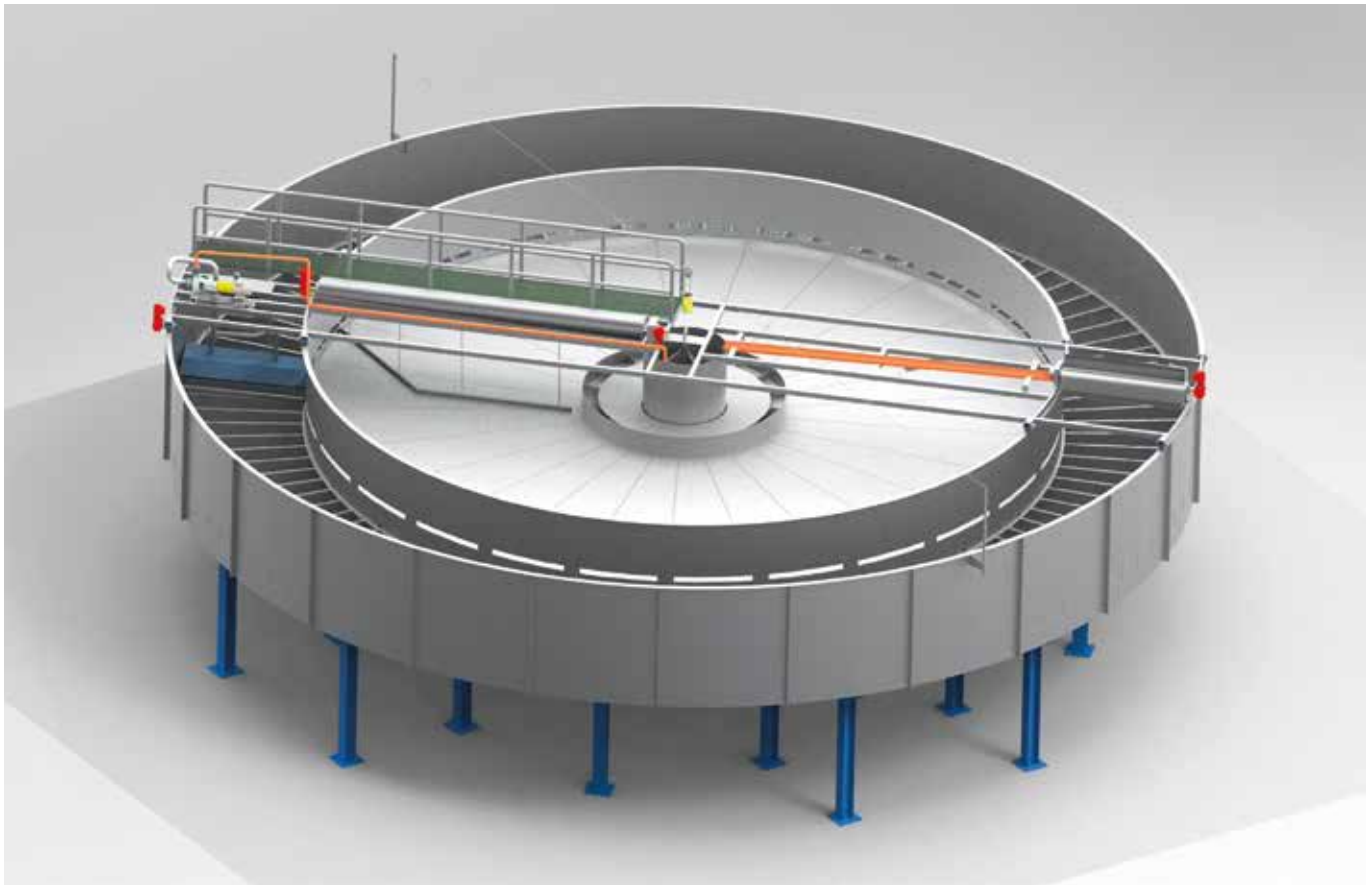


CLEARFLOAT

In our ongoing search to provide value to our clients through innovative products, we are pleased to present CLEARFLOAT, the sum of ISOFLOAT with a CIRCUMFERENTIAL SAND FILTER, a combination that allows us to reach values under 10 ppm in effluent output results. It has a built-in backwash system, where filtration is not interrupted, so the effluent's flow is constant, and it uses filtered water as cleaning water.

CLEARFLOAT is designed so that one sole product has two applications, which leads to huge advantages in conceptualisation for the project and consequent savings in space, energy, accessories and complements, civil works, etc.

The line is available for metallic structures, and has different qualities depending on the characteristics of the effluent to be treated, as well as the environmental setting where the plant is located; AISI 304, 316, Superduplex, Ebonite-lined, Civil Work...



Containerized Solution

DRINK WATER PACK

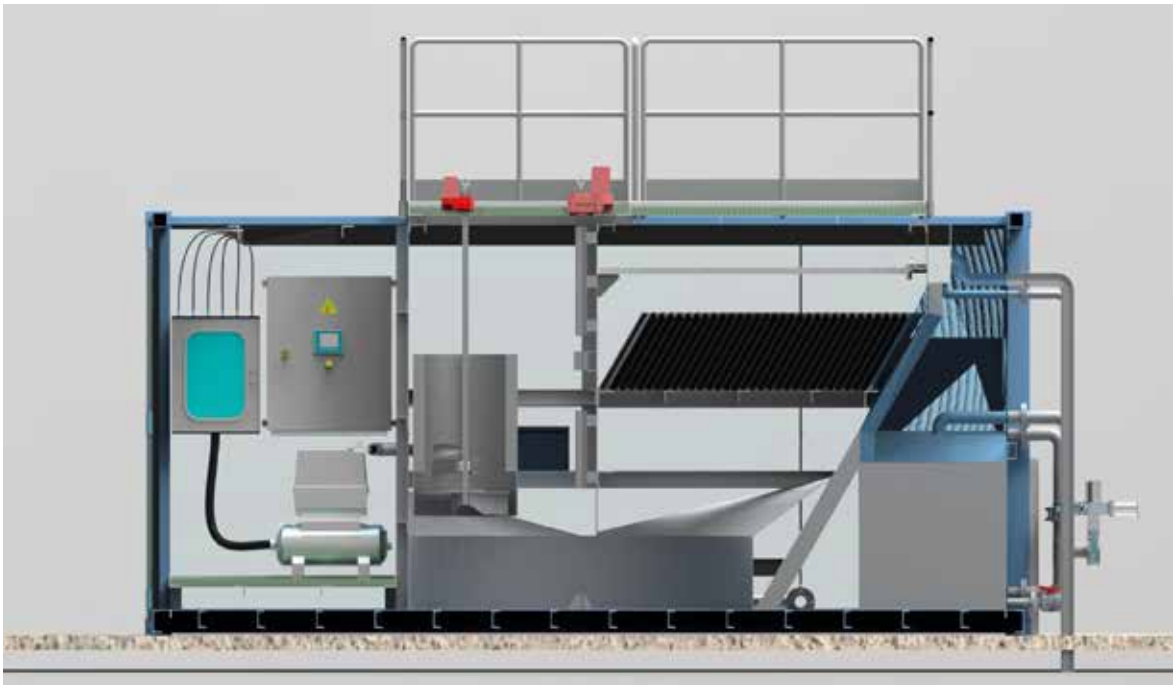
It is a complete water purification system with previously developed engineering pretreatment reagent dosing system and filtration.

The proposed equipment to carry out the purification is composed of the following elements:

1. DWP TECEXSA, is a compact device that includes clarifier with recirculation, lamellae modules and filtration all in one unit.
2. Coagulant dosing station (poly aluminum or similar) consisting of tank, stirrer and dosing pump.
3. Polyelectrolyte dosing station with two tanks, stirrer and dosing pump.
4. Bactericidal dosing station (sodium hypochlorite NaClO), including a tank and a dosing pump.

As result of the treatment there will be sludge, coming from the solid removal which must be properly treated. Thickening and dehydration are recommended before the sludge is removed by an authorized agent for its disposal.

Drink Water Pack is the name of our compact water purification equipment: a compact treatment plant, that combines a mixing chamber, lamellar decanting and a false-bottom sand filter, with a storage tank for filtered water and self-cleaning.



Other Products

CHEMIX

In some installations it is common to use large amounts of flocculant. In these cases it is recommended to use pretreatment equipment, so that the operator only has to handle small amounts of concentrated polyelectrolyte.

The system works as follows:
Clean water is introduced into the tank through the rotameter. The flocculant is added by means of a dosing pump, only the exact amount required to each application, and it is agitated by a propeller inside the tank.

Level sensors ensure that the tank is always at the correct operational level and ensure that the tank never becomes empty or overflows. If minimum level is detected the valve opens the solenoid valve and allows the addition of clean water. It also start the concentrated flocculant dosing pump until maximum level is detected.

DESAND

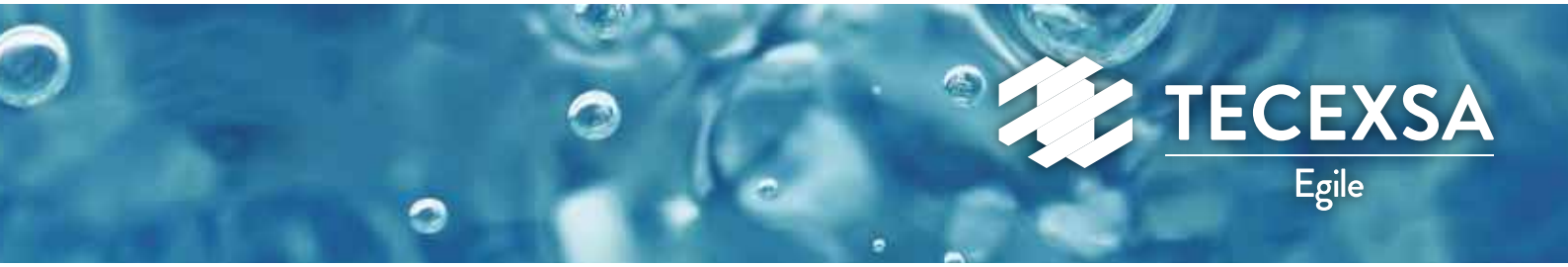
The system is designed to separate the heavy particles (sand) suspended in the liquid.

The principle of operation is based on the fast settling of heavy particles, which are deposited at the bottom and are removed mechanically by the rake outside the tank.

It is built in galvinised steel covered with an epoxy coating and stainless steel is used for all elements that are in contact with the fluid. If required demand, it can be fully fabricated from stainless steel.

Customers

TECEXSA, member of aclima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TECEXSA
Egile

Polígono Ibarluze s/n
20120 Hernani - Gipuzkoa (Spain)
T. +34 943 332 819
F. +34 943 332 853

www.tecexsa.es

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