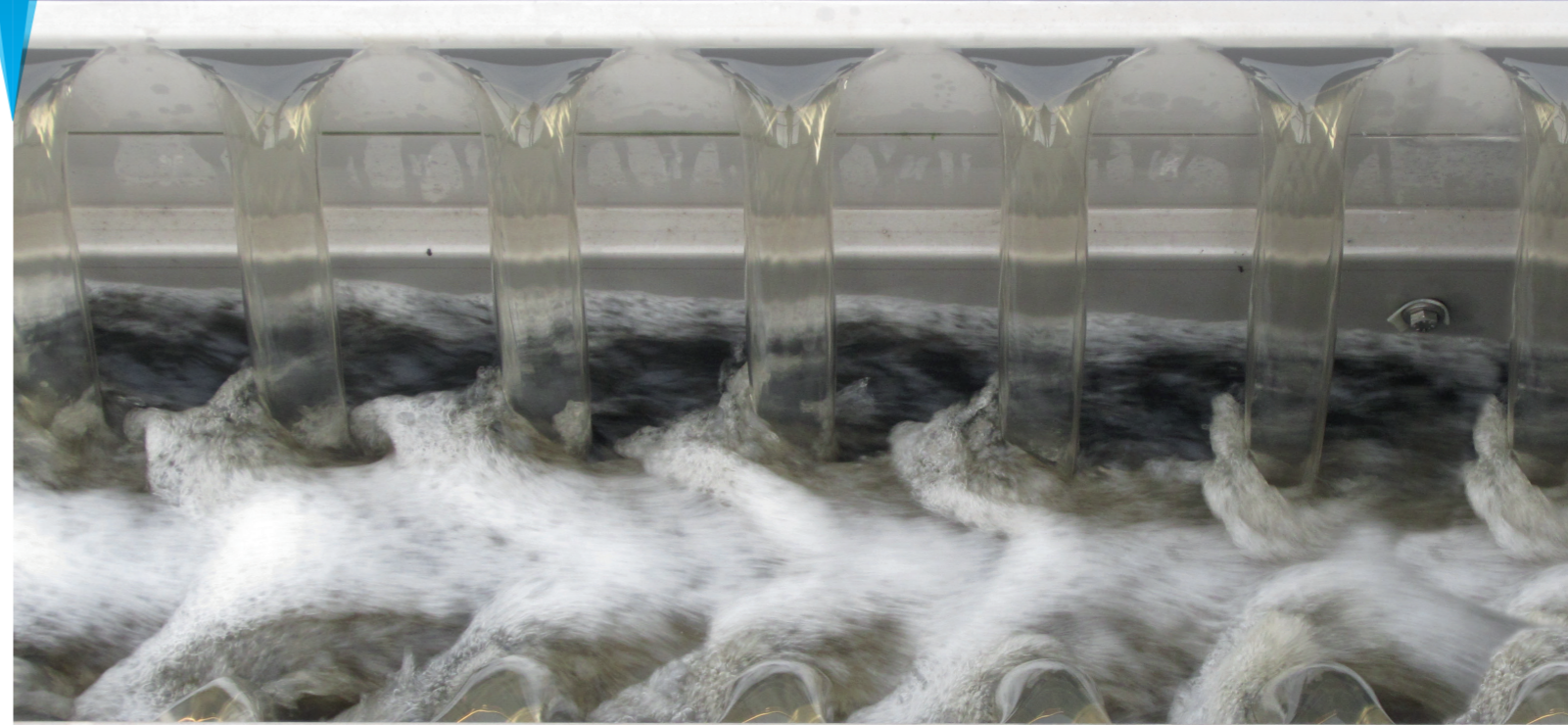




SEDIMENTATION TECHNOLOGY

EFFICIENT SOLUTIONS FOR WATER
AND AIR TREATMENT





SEDIMENTATION IN WATER TREATMENT BRENTWOOD OFFERS EXPERTISE AND EXPERIENCE

Municipal and industrial users rely on our solutions when solids need to be separated from liquids. We support you with process technology calculations as well as with the planning and design of your plant.

WHO WE ARE

Brentwood Europe GmbH has been part of Brentwood, a US family-owned company specializing in thermoplastic molding and engineered plastic systems, since January 2022. With our experience and pioneering spirit, we supply state-of-the-art solutions worldwide for

- Water and wastewater treatment
- Mass Transfer
- Exhaust air purification
- Cooling tower components
- Aquaculture
- Agricultural engineering

always with a responsible use of all resources for a clean environment.

Our solutions not only include the internals, such as structured packings, lamellae and drift eliminators, we also provide engineering services for the planning and design of your equipment.

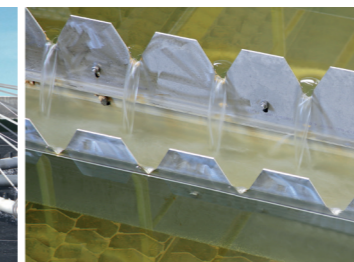
Our employees work with continued commitment to high quality, ecology, cost-effective products and services. We deliver top performance with one goal: maximum customer satisfaction.

Our BIOdek®, TUBEdek®, PLASdek®, MASSdek®, SANIPACKING® and HUMIPACKING® brands represent our expertise in a wide range of applications.

Brentwood Europe GmbH Areas of Activity



Biological water treatment



Sedimentation processes



Mass transfer (air treatment)



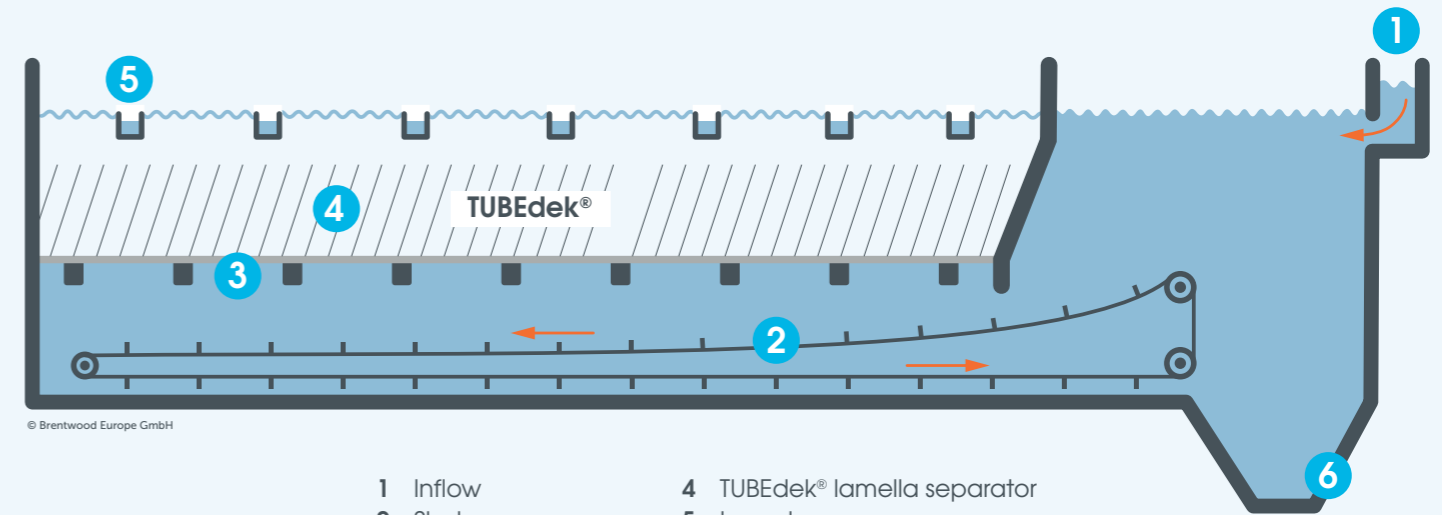
Cooling tower installations



FOR THE PERFECT INTERACTION OF ALL COMPONENTS

Our aim is to fulfill your requirements

Tank structure with TUBEdek®



© Brentwood Europe GmbH

- 1 Inflow
- 2 Sludge scraper
- 3 Substructure
- 4 TUBEdek® lamella separator
- 5 Launder
- 6 Sludge hopper

FOCUSING ON THE BEST OVERALL SOLUTION

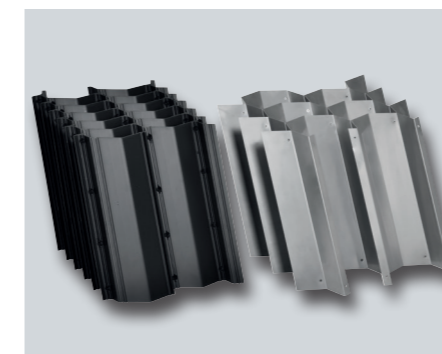
Our understanding of good engineering means helping our customers to find the best possible overall solution. TUBEdek® is the most important element of this. TUBEdek® can be adapted to any sedimentation task. The inclination, height and plate distance can be chosen virtually at will. This means that process technology requirements and structural conditions can be taken into account with first-class precision.

Made from polypropylene based on special formulas that allow use in especially cold (0 - 10°C) or warm temperatures (up to 90°C) or stainless steel, TUBEdek® can be used in all imaginable conditions. We have

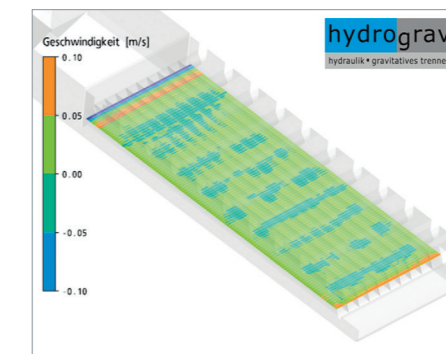
decades of experience and extensive expertise that help make the outstanding properties of TUBEdek® available for the entire process. Each of the many different practical conditions requires optimized adaptation of the overall solution, taking particular account of the flow ratios, both in tanks specified by the customer and any other tanks that may need to be planned.

In collaboration with leading CFD simulation service providers and universities, we draft the most favorable solution from a flow technology perspective for your system. We also contribute our many years of experience in **the optimization of flow ratios**.

Engineering expertise



TUBEdek® in stainless steel and polypropylene



Example of CFD simulation



TUBEdek® with support structure and launders

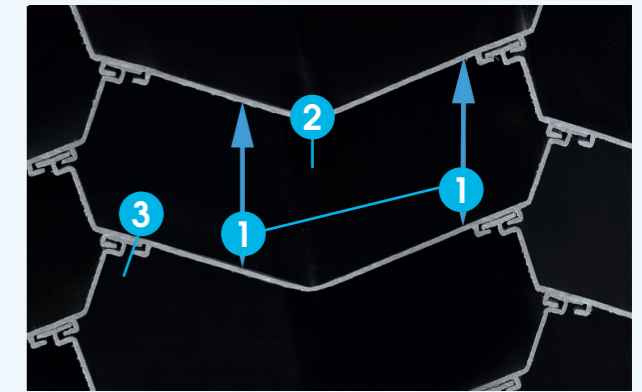


TUBEDEK® PARALLEL PLATE SEPARATOR FOR EFFICIENT SEDIMENTATION

Parallel sedimentation surfaces for shorter settling times or higher flows

Advantages of TUBEdek®

- Equal distances between the sedimentation surfaces ①
- Chevron shape for better sludge drainage ②
- Patented tongue and groove system for robust modules ③
- Flexible dimensions, different angles of inclination
- Full use of the tank without any losses from frames around the modules, support structures or edge effects

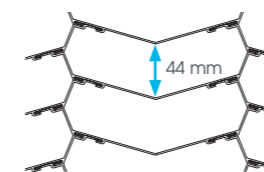


THE TUBEdek® ADVANTAGE: PARALLEL SEDIMENTATION PLANES

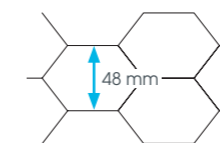
TUBEdek® is a parallel plate separator. Just like plates, the sedimentation planes lie parallel, precisely defining the maximum sedimentation path.

With every channel shape (e.g. hexagonal) not based on parallel planes, part of the sedimentation path is always significantly longer than with parallel plates despite the same channel width (sedimentation surface) and channel size (cross-section).

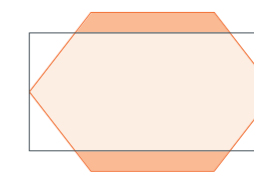
Different profile distances make it easy to choose the right TUBEdek® type for your application.



TUBEdek® parallel plate separator



Hexagonal separator



Parallel sedimentation planes

Profile distances



TUBEdek® FS41.50



TUBEdek® FS 41.62



TUBEdek® FS41.84



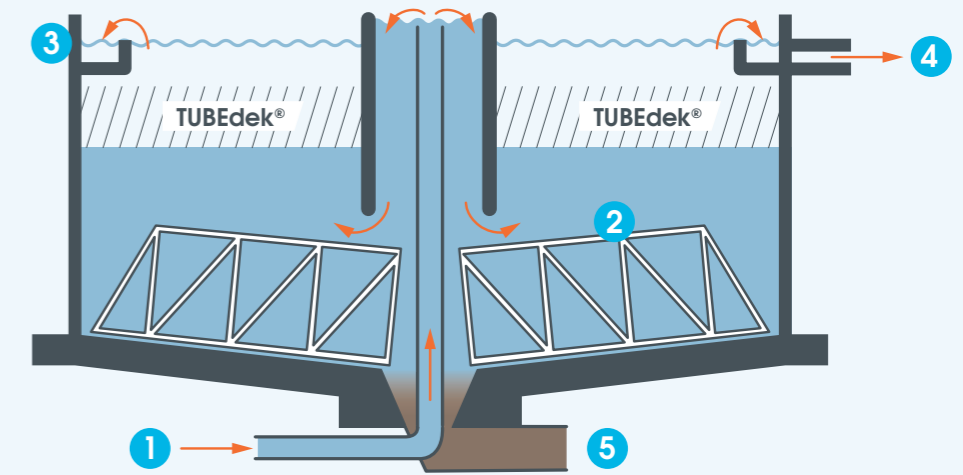
TUBEDEK® ALSO FOR ROUND CLARIFICATION TANKS

TUBEdek® also demonstrates its strength in round tanks



Round clarification tank with TUBEdek®

- 1 Basin inlet
- 2 Sludge collector
- 3 Peripheral effluent flume
- 4 Clarified effluent
- 5 Sludge outlet

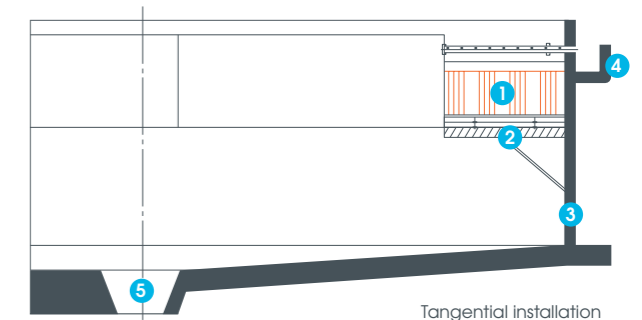


OVERLOADED ROUND TANK? TUBEdek® IS THE SOLUTION!

TUBEdek® lamella separators are ideal for upgrading existing round tanks that are overloaded and where there is no space for further expansion. Solutions from Brentwood Water Technologies combine the advantages of parallel plate separators with those of round sedimentation tanks. TUBEdek® lamella separators increase the sedimentation surface and therefore increase a system's capacity. Depending on the application, there are various options for installing lamella separators in round tanks.

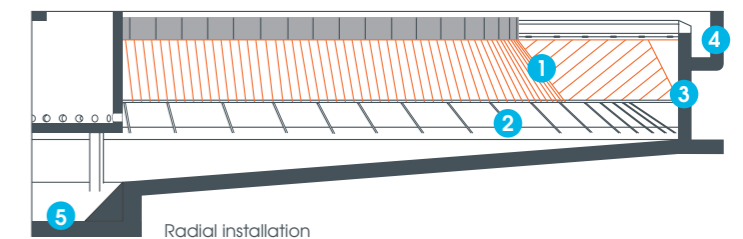
Installation in an external ring – tangential arrangement

TUBEdek® lamella separators are installed in a tangential arrangement in a ring along the outer edge of the tank. For this to happen, the ring must be no more than 3 m in width and the internal diameter of the tank must be no more than 12 m.



Radial arrangement

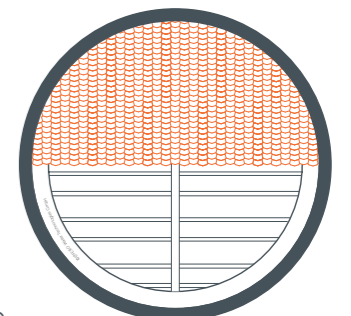
If larger parts of the tank are to be equipped with TUBEdek®, we recommend radial installation of the TUBEdek® separators. To do this, the modules are cut into cake-like segments. The shape of the edge profiles allows installation in the round tank with almost zero dead space.



Parallel arrangement

For small tanks, parallel arrangement of the TUBEdek® separators is ideal. Only the modules at the edges of the tank are arranged in a circular shape. A simple cut-out can be provided for a central sludge scraper.

Parallel installation



- 1 TUBEdek®
Lamella clarifier
- 2 Support grid
- 3 Tank edge
- 4 Peripheral effluent flume
- 5 Sludge outlet

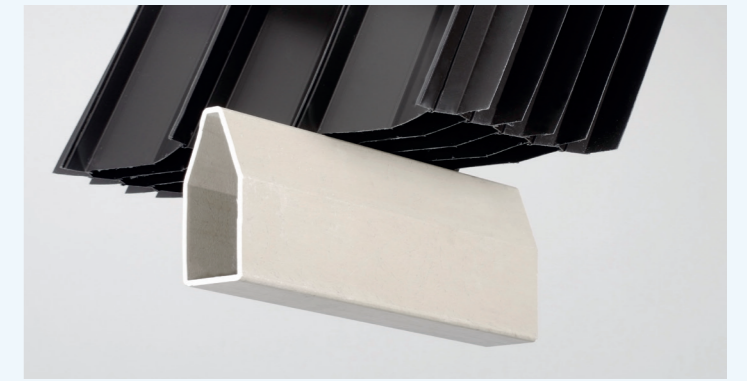


EVERYTHING FROM A SINGLE SOURCE WE OFFER MORE

Extensive portfolio for
sedimentation tanks

Support structures

The GRP support leaves the channels free and there is no loss of performance.



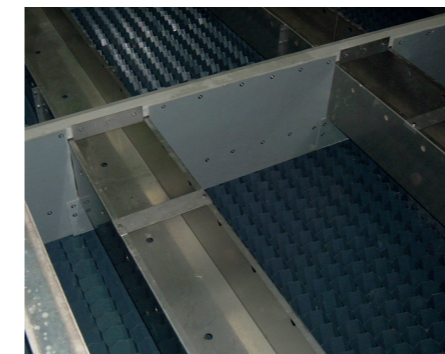
BRENTWOOD COMPONENTS FOR SEDIMENTATION

Brentwood has an extensive portfolio for sedimentation tanks used in wastewater cleaning and drinking water purification. Alongside our core product, the parallel plate separators (lamella separators), we also take care of the provision of launders, flushing devices, scrapers and support structures.

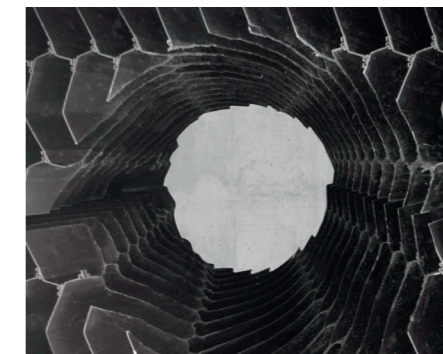
Our portfolio for sedimentation tanks

- **Launders** made from stainless steel and GRP with an optimized design and configuration for even clarified water removal
- **Support structures** with angled surfaces: stable and insensitive to sludge deposits
- **Anti-floating systems** prevent the lamellas from floating up, either as a result of flushing processes or due to their own buoyancy
- Round or square **cut-outs** for rabble rakes, measuring probes or pipelines
- Ideally arranged **baffles and inlet grills** for infeed restriction and to equalize the flow below and above the TUBEdek® modules
- **Composite assembly:** The connection of individual modules in a single tank avoids any edge losses and allows 100% of the tank to be used!
- **End cuts** reduce the size of the "loss zone" under the plate inclination on vertical walls! Extremely beneficial with high-up and small installation areas
- **Flushing device:** Especially with biological sludges, automated flushing avoids or reduces the frequency of cleaning effort during periods of low utilization
- **Chain scrapers and circular scrapers:** TUBEdek® offers solutions for connecting drive assemblies to the cleaning blades through minimum-sized cut-outs. Brentwood Engineering ensures the right choice of scraping performance.
- **On-site assembly:** The safe and simple assembly of TUBEdek® blocks on site allows low-cost delivery to anywhere in the world, avoids damage during transport or costly packaging and provides work for the local population.

Customized configurations



TUBEdek® with stainless steel launders and baffles



Round cut-out for rabble rake



Composite construction allows problem-free installation



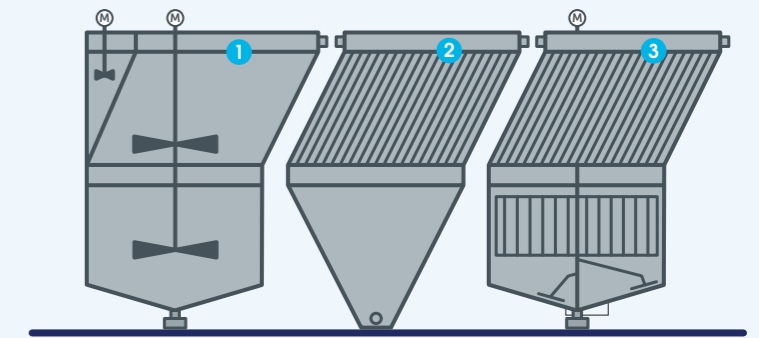
FREE-STANDING SEPARATORS – EFFICIENT SEDIMENTATION WITH THE SMALLEST POSSIBLE FOOTPRINT

Significant space saving thanks to compact units

Brentwood free-standing clarifiers

Example of a module configuration

- 1 Flocculation tank with agitator
- 2 SKT standard sedimentation tank
- 3 SKT sedimentation tank with rabble rake



FREE-STANDING SKR/SKT LAMELLA SEPARATOR WITH RELIABLE TUBEdek® LAMELLA PACKS

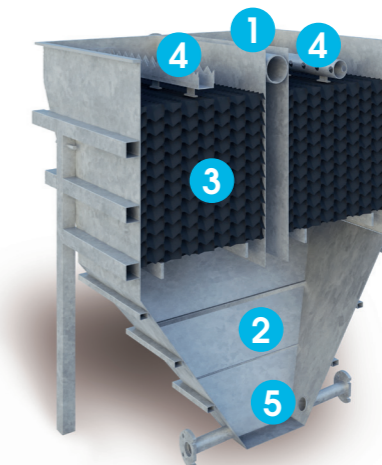
The advantages of the TUBEdek® module are combined in our separators with stable and long-lasting plastic or stainless steel containers, but also in GRP and steel, to create low-maintenance, free-standing, high-performance separators.

All free-standing models, either round SKR or rectangular SKT, can optionally be supplied with one or more flocculation tanks, agitators and rabble rakes, along with all necessary peripherals.

Unlike conventional separators, we build our SKT separators in a modular design, saving costs and enabling our solution to be tailor-made to your application. The modular construction also offers tremendous flexibility if the system changes or is expanded. The installation dimensions are adapted to the local conditions.

Our TUBEdek® systems handle volume flows of between 5 m³/h and 180,000 cubic meters per hour. Our largest free-standing units boast a sedimentation surface of up to 700 m² despite having a footprint of just 35 m².

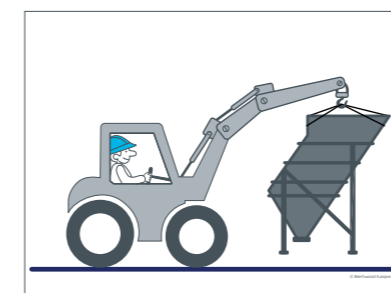
- Advantages:**
- Better separation performance than conventional parallel plates thanks to TUBEdek® modules
 - Volumes and surfaces are perfectly coordinated
 - Low installation costs
 - Tiniest footprint - space savings of up to 90% are possible
 - Sludge drainage through hydrostatic pressure - no pump energy required
 - Low maintenance



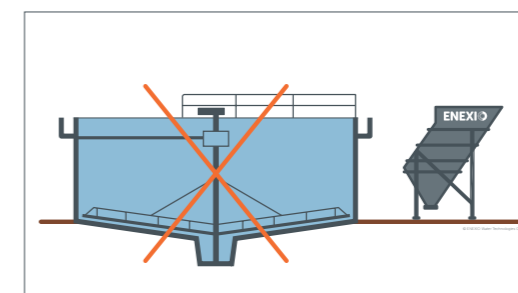
Free-standing separators from Brentwood are grouped into five sectors:

- 1 Inlet area
- 2 Thickening and sludge storage zone
- 3 Separation zone with TUBEdek® lamellas
- 4 Clarified water zone with launder(s) or pipes
- 5 Sludge removal

Advantages of Brentwood separators



Setup via forklift or crane



Space saving of up to 90% compared to conventional sedimentation tanks



Choice between rectangular or round shape to make maximum use of the available space

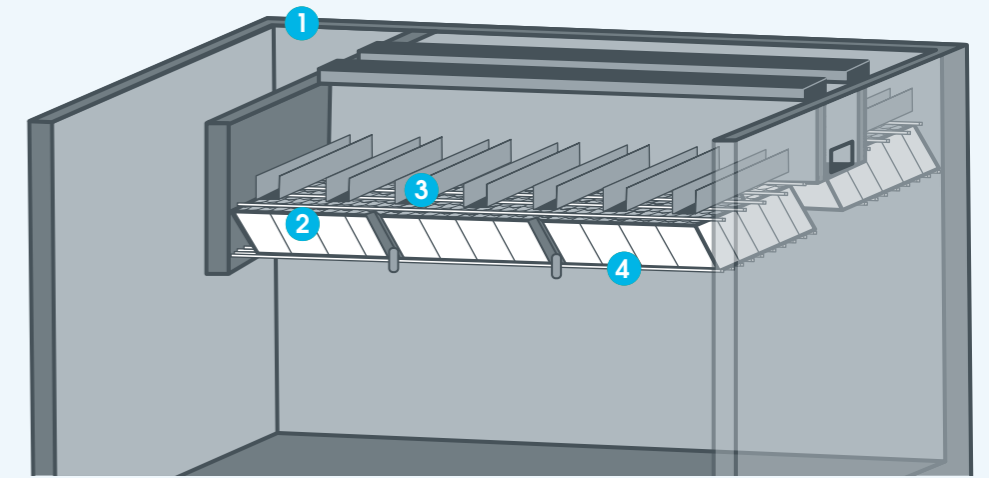


DRINKING AND PROCESS WATER PURIFICATION SEDIMENTATION AFTER PRECIPITATION AND FLOCCULATION

TUBEdek® improves the settling process

Sedimentation tank Example configuration

- 1 Tank
- 2 TUBEdek® modules
- 3 Launderers
- 4 Support structure



BRENTWOOD EXPERTISE FOR THE PERFECT CONFIGURATION

Brentwood has equipped systems with capacities of up to 14.5 m³/s with TUBEdek®. The size of the plants demands particular care and expertise when it comes to designing the tanks. Our many years' experience in arranging the individual tanks, designing the pipework and flow speeds and choosing the TUBEdek® blocks guarantee the ideal solution.

The efficiency of water treatment through precipitation and flocculation is determined by the properties of the flocculate produced.

Therefore it is important to maintain the properties of good flocculate throughout the entire system, and especially in the separator modules. The TUBEdek® blocks from Brentwood play a particularly crucial role in this.

The V-shape of the sedimentation planes supports the thickening process and removal of the separated sludge, even for lightweight flocculate. As a result, throughput speeds of over 15 m³/m²/h are achieved.

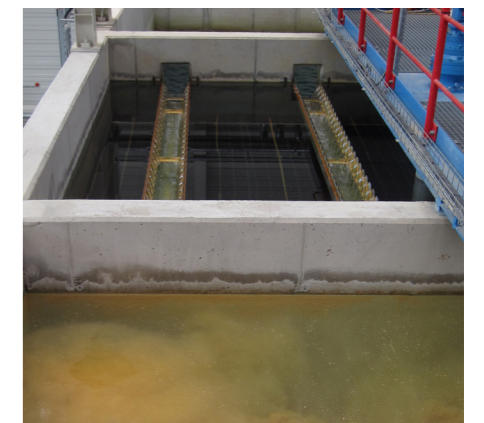
Example applications



Front left segment with TUBEdek®
(remaining segments without)



Desalination plant - completely corrosion-free
GRP/plastic fittings



Water purification for power plant



TUBEDEK® IN MUNICIPAL WASTEWATER TREATMENT

Comprehensive expertise and references with significant magnitudes of scale

Secondary sedimentation tanks
Activated sludge plant



MUNICIPAL WASTEWATER TREATMENT

TUBEdek® parallel plate separators are frequently used in municipal wastewater treatment.

Primary sedimentation tanks

In the world's largest sedimentation plant in Atotonilco (Mexico City region), TUBEdek® installations ensure the efficient retention of solids. Waste water flows over the lamella separators at a rate of 27 m³/s. Automated flushing systems prevent the accumulation of sludge in the lamellas.

Activated sludge separation

In this instance, the engineering is all about the effective separation of sludge and in particular consideration of the large volume of sludge involved. This is an area that Brentwood researches extensively and has considerable expertise to offer in. We have developed special configurations that allow the installation of TUBEdek® in common, round secondary sedimentation tanks and which significantly improve the effluent quality.

Secondary sedimentation after biological fixed bed systems

In compact plants involving rotary bodies, large trickling filters or fixed bed systems, for example, only small volumes of sludge occur which can be ideally separated using TUBEdek®. The use of TUBEdek® plays a significant role in reducing the costs of such processes.

Third and fourth cleaning stage

In Germany, more and more third and fourth cleaning stages are being built to remove micro pollutants (trace substances, pharmaceutical residuals, microplastics) and residual phosphate content from wastewater with precipitation and/or activated charcoal stages. TUBEdek®, with its parallel plates, effectively separates the precipitation and activated charcoal sludge.

Example applications



Primary sedimentation with floating material launders



Drinking water plant upgrade



Secondary sedimentation after biological fixed beds – combination of trickling filters and lamella separators

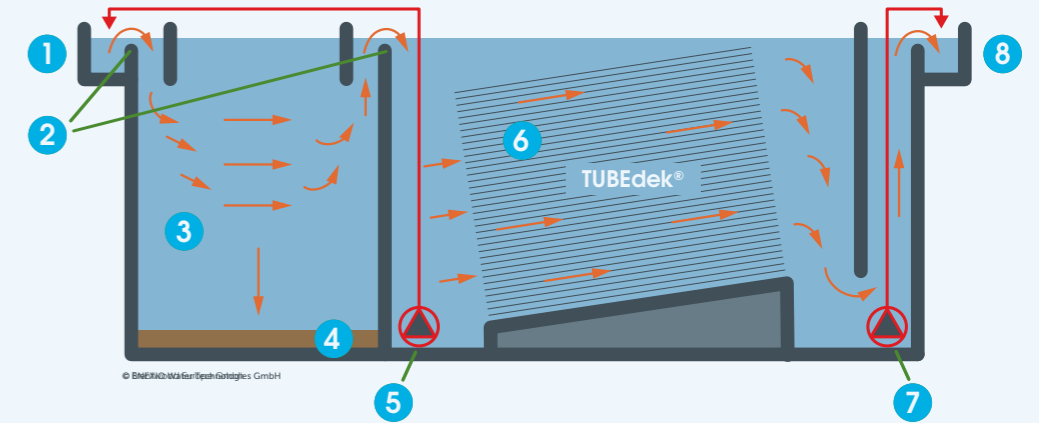


DISPENSE WITH LARGE SEDIMENTATION TANKS USE TUBEDEK®

Compact tanks with TUBEdek®

Stormwater treatment (Project example) Tank structure with TUBEdek®

- 1 Inlet channel
- 2 Baffle edge
- 3 Sand trap
- 4 Coarse materials
- 5 Circulating pump
- 6 Separation of fine materials with TUBEdek® lamella separator
- 7 Outlet pump
- 8 Outlet channel



SAVE COSTS AND SPACE IN STORMWATER TREATMENT

Heavy rainfall leads to extremely high volumes of incoming water. When conventional technology is used, large and expensive sedimentation tanks need to be built often for just a few hours a year. This is not the case with TUBEdek®: Rainwater treatment with TUBEdek® is the ideal way of cutting costs and minimizing the use of space.

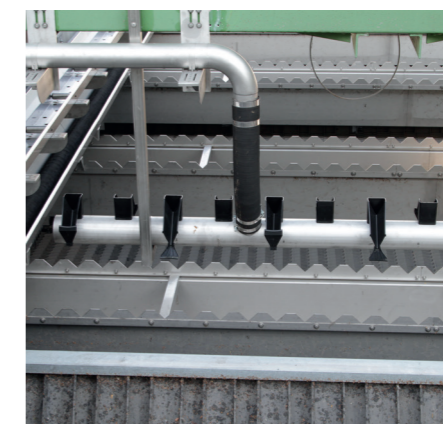
To manage the flow of water that is 5-10 times higher during rainwater treatment and to ensure the best possible distribution of water over the smallest space available, we offer solutions such as inlet grills and special segmentation of the overflow weirs.

The run-off water from streets also contains only small amounts of coarse material. During rain showers, TUBEdek® can separate and store small volumes of lots of types of solids thanks to its shallow installation angle. It doesn't get much more compact!

Example applications



Rainwater treatment plant for 2m³/s



Flushing device for lamellas used in rainwater treatment



Round tank converted to TUBEdek®