



tank equipment for
wastewater treatment
plants

about us

1990
FOUNDED

2 Slatiňany / Hranice
BRANCHES

3 Czech Republic / Slovakia / Poland
PRESENCE

2 water management structures
technological construction equipment
ČKAIT AUTHORIZATION

our team

3 TECHNOLOGISTS
including 2× Ph.D. + SW GPS-X and SUMODynamics

2 DESIGN ENGINEERS

7 PLANNERS

6 ASSEMBLY TEAMS

our services

600+

completed constructions, reconstructions, and upgrades of wastewater treatment plants

250+

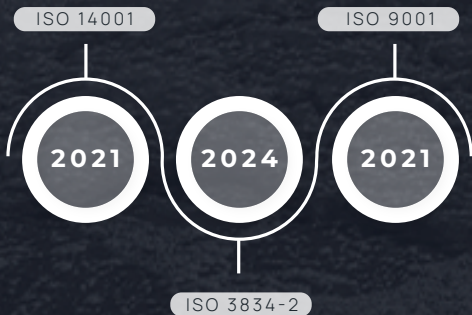
completed pumping station projects

180+

completed water reservoir projects

120+

completed constructions and reconstructions of drinking water treatment plants





2026

PRESENT

We design and equip water and wastewater treatment plants with modern technologies for drinking water treatment and wastewater purification. We provide complete delivery of process equipment, installation, and project execution. Our technologies are supplied for both new installations and the reconstruction of existing treatment plants.

Our scope of supply can also include complete technological outfitting of tanks and structures, including the design of optimal solutions with respect to hydraulics, operation, and long-term reliability.

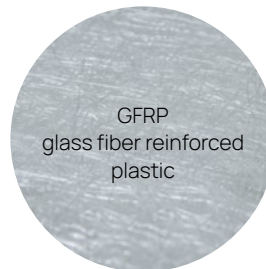
In addition to technologies for innovative compressed air mixing, gravity sludge sedimentation, lamella clarification, aeration, and other solutions from manufacturers we exclusively represent in the Czech Republic, Slovakia, and Poland, we also utilize our own production of steel, stainless steel, and plastic components for both standardized and customized designs.

material design

Materials for the manufacture of WWTP equipment are selected with regard to long-term operation in demanding environments. Key components in contact with water or sludge are made from corrosion-resistant materials, primarily stainless steel, PVC, and polypropylene (PP), ensuring high resistance and long service life.

For specific applications, we also use plastics and composites. Load-bearing and access structures are made of carbon steel with appropriate surface protection (hot-dip galvanizing, metallization, coatings).

During the design of individual solutions, we also use CFD flow simulations to optimize hydraulics and achieve maximum efficiency of the proposed technologies.



construction

Drive systems for tank equipment are designed according to the type and size of the tank. For circular tanks, a central or peripheral drive is standard for the rotational movement of scraping mechanisms and suction systems. For rectangular tanks, we use travelling systems with the motor mounted on the bridge, transmitting motion to rubber-lined or steel wheels and rails, or to travelling mechanisms in the form of rack and pinion systems. Both types of drive can be equipped with forced drive via a rack and pinion system.

Material and structural solutions are always optimized with a focus on reliability, minimal maintenance, and efficient operation, while also taking into account project economics and the appropriate combination of materials.



solid rubber wheel



rail with rack and pinion

material	application	properties
stainless steel		
AISI 304	<ul style="list-style-type: none"> • standard environment • less aggressive water 	<ul style="list-style-type: none"> • standard for tank equipment
AISI 316 / 316L	<ul style="list-style-type: none"> • higher standard for tank equipment 	<ul style="list-style-type: none"> • higher resistance to chlorides (aggressive environments)
Duplex, Super duplex	<ul style="list-style-type: none"> • aggressive environments, industrial wastewater 	<ul style="list-style-type: none"> • high corrosion resistance • high strength
structural steel with protective coating		
hot-dipped galvanized steel	<ul style="list-style-type: none"> • bridges, walkways, structures above water level 	<ul style="list-style-type: none"> • not corrosion-resistant, but protected
epoxy / polyurethane coatings		
plastics and polymers		
PP (polypropylene)	<ul style="list-style-type: none"> • piping 	<ul style="list-style-type: none"> • chemically resistant
PVC (polyvinyl chloride)	<ul style="list-style-type: none"> • lamellas 	<ul style="list-style-type: none"> • does not corrode
PVC-U (unplasticized polyvinyl chloride)	<ul style="list-style-type: none"> • tank equipment 	
	<ul style="list-style-type: none"> • baffles 	
PE (polyethylen)	<ul style="list-style-type: none"> • partition walls • chemical storage tanks 	
composites		
	<ul style="list-style-type: none"> • small tanks (chemicals, sludge) 	<ul style="list-style-type: none"> • high chemical resistance
	<ul style="list-style-type: none"> • sludge storage 	<ul style="list-style-type: none"> • low weight
	<ul style="list-style-type: none"> • walkway grating 	<ul style="list-style-type: none"> • resistance to H₂S
GRP / GFRP (glass fiber reinforced plastic)	<ul style="list-style-type: none"> • walkways above tanks • handrails • aggressive environments + requirement for low weight + zero corrosion 	

grit and grease separation

technology

Grit and grease traps are used for the separation of grease and mineral suspended solids from incoming wastewater. Grease and oils are captured by a baffle and directed into a grease collection chamber. The process takes place at a controlled flow velocity, allowing heavy particles to settle while lighter organic matter remains in the water and continues to subsequent treatment stages.

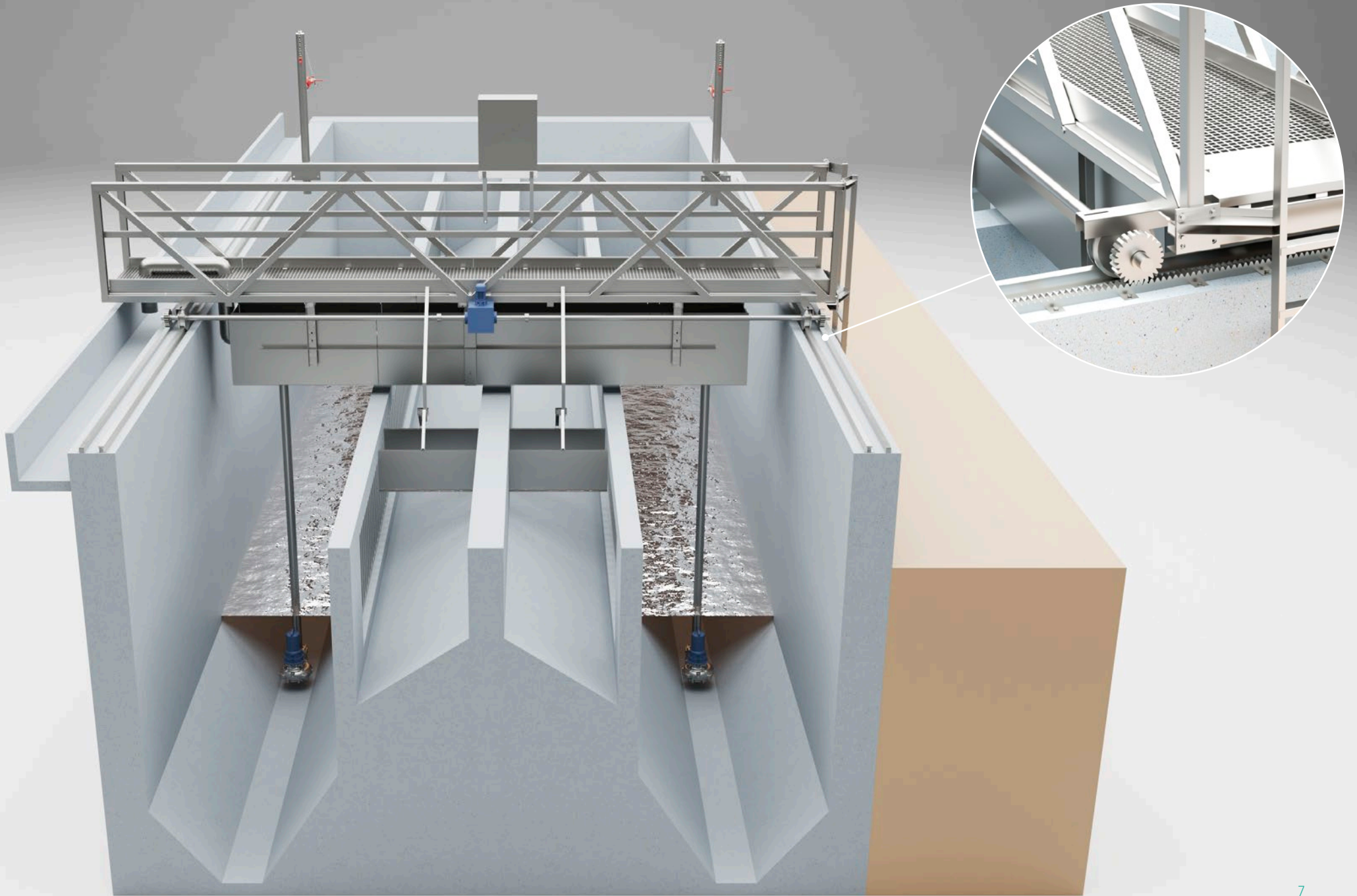
We place emphasis on high-quality material design, resistance to aggressive environments, and ease of maintenance.

construction

Our grit and grease traps are designed as tanks with controlled hydraulic conditions for the selective sedimentation of heavy particles and grease collection. The design ensures uniform distribution of inflow, stable flow conditions, and efficient removal of sediment from the bottom of the tank. They are designed with easy access for the removal of settled solids and separated grease, minimizing operating costs and supporting long service life.

Thanks to their modular design and adaptability to specific project requirements, our grit and grease traps provide a reliable and efficient solution for protecting downstream WWTP equipment.

application	function	tank equipment
equipment for grit chambers	selective sedimentation of heavy particles (grit, gravel) and separation of FOG (fat oil grease)	<ul style="list-style-type: none">• inlet structure (flow distribution)• aeration system (for aerated grit chambers)• bottom grit collection (channels / hoppers)• grit pumps• surface skimming and grease collection• outlet system• bridge / support structure• drive unit (motor, gearbox)



primary clarifiers

technology

Primary clarification is used to remove settleable suspended solids from mechanically pre-treated wastewater. In primary settling tanks, the flow velocity is reduced, allowing gravitational sedimentation to occur. The objective is to separate settleable suspended solids and partially remove grease and floating materials from the surface.

The process is based on the density difference between water and suspended particles.

The technological solution varies depending on the tank geometry: **In rectangular tanks**, sedimentation occurs under longitudinal flow conditions, with sludge transported to the sludge hopper by chain scrapers, scraping mechanisms, or suction systems.

In circular tanks, the influent is introduced at the center, creating radial flow, and sludge is collected either by a rotating scraper mechanism directing it to a central hopper or by a suction system from the bottom.

In addition to equipment design, we also provide optimized overall tank layout, including inlet structures, deflectors, and supernatant withdrawal systems. These designs are supported by **3D modelling and CFD simulations**.

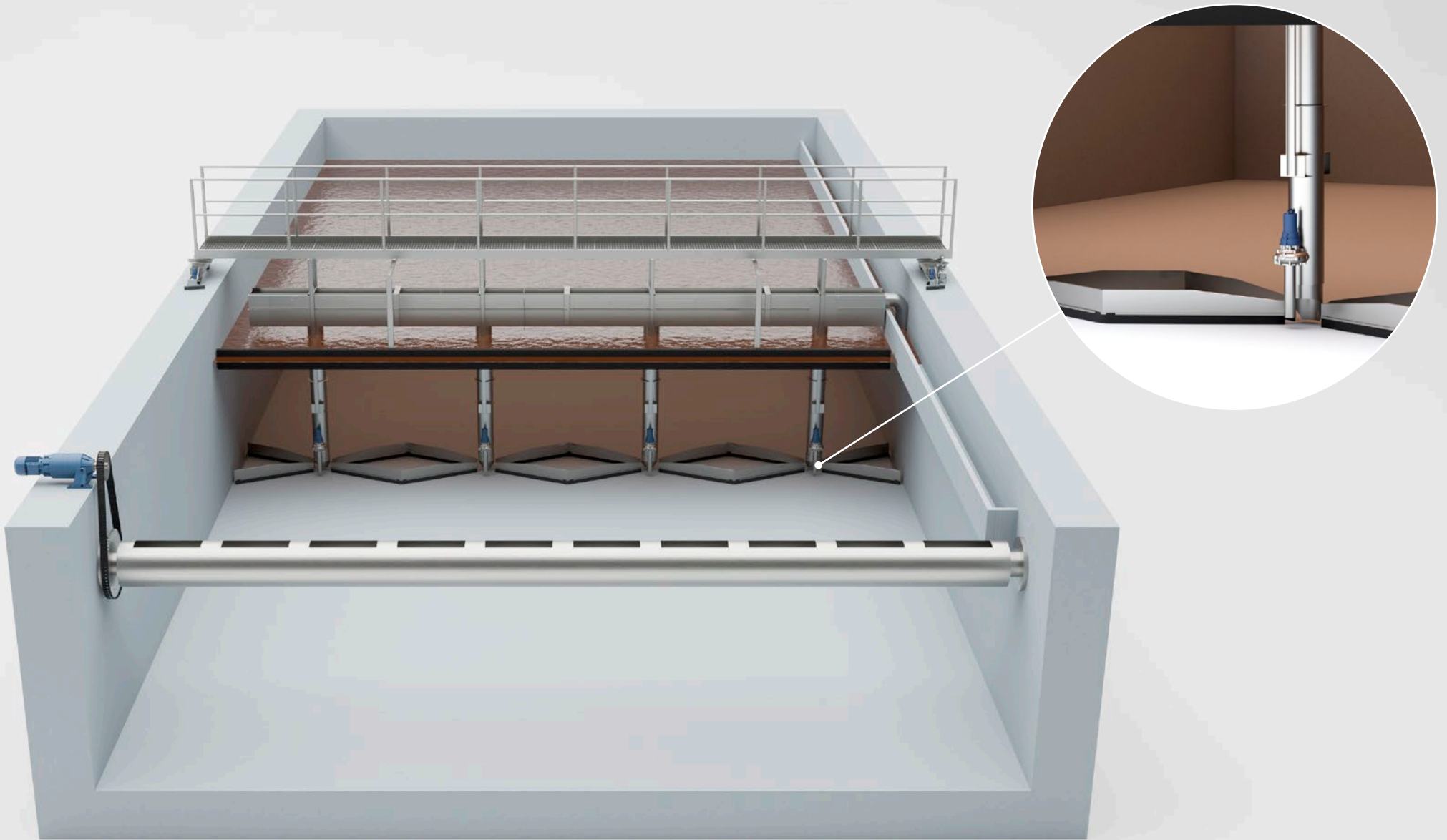
construction

Primary clarifiers are designed as circular or rectangular structures with an emphasis on uniform influent distribution and calm hydraulic conditions for primary clarification. The design minimizes short-circuiting and supports efficient removal of suspended solids. Tank construction is typically carried out in reinforced concrete or steel, depending on project requirements and operating conditions. The equipment usually includes a sludge scraping system for transporting settled sludge to the sludge collection area and its subsequent removal for further treatment.

All equipment in contact with wastewater or sludge is typically **made of stainless steel** to ensure high corrosion resistance. Load-bearing and access structures can be made of **carbon steel** with hot-dip galvanizing or protective coatings, and/or stainless steel.

Chain scraper systems are designed for high resistance to corrosion and abrasive wear and consist of high-strength plastic chains, composite scraper blades, and stainless steel shafts. The scraper blades are equipped with durable polymer sliding elements to reduce friction, and guide components are optimized for long-term, reliable operation.

Material selection is always carried out with a focus on minimal maintenance requirements and long-term performance. **A comprehensive monitoring system is standard**, including load control and alignment monitoring of the entire system. **Our chain scrapers can also be equipped with an electronic system for monitoring proper chain tension**.



Tank equipment variant:

rectangular primary clarifier with a suction system and surface skimming of scum into a tilting scum trough.

application	function	tank equipment
Rectangular primary clarifiers with chain scraper systems	<ul style="list-style-type: none"> continuous sludge scraping towards the sludge hopper or to a sludge withdrawal system from a flat bottom continuous skimming of scum from the tank surface towards the trough 	<ul style="list-style-type: none"> chains scrapers + lamellas tilting scum trough (skimmer)
Rectangular primary clarifiers with a suction travelling bridge	<ul style="list-style-type: none"> sludge suction from the bottom via suction pipes during bridge movement uniform sludge withdrawal along the entire tank length without accumulation scum removal from the surface 	<ul style="list-style-type: none"> suction travelling bridge surface skimmer blades + scum trough (skimmer) tilting scum trough (skimmer)
Rectangular primary clarifiers with a scraper travelling bridge	<ul style="list-style-type: none"> scraping of settled sludge from the bottom during longitudinal bridge movement transport of sludge to the sludge hopper or to a sludge withdrawal system from a flat bottom uniform sludge removal along the entire tank length without accumulation scum removal from the surface 	<ul style="list-style-type: none"> travelling bridge / support structure scraper blades surface skimmer blades tilting scum trough (skimmer)
Circular primary clarifiers with a travelling scraper bridge	<ul style="list-style-type: none"> radial scraping of settled sludge from the bottom towards the central sludge hopper continuous skimming of scum from the surface towards the scum trough (skimmer) 	<ul style="list-style-type: none"> EDI (energy dissipating inlet) deflectors motor + gearbox shaft / column inlet pipe / channel scraper blades surface skimmer blades + scum trough (skimmer) travelling bridge / support structure with radial arms
Circular primary clarifiers with a travelling suction bridge	<ul style="list-style-type: none"> suction removal of settled sludge from the bottom continuous skimming of scum from the surface towards the scum trough (skimmer) 	<ul style="list-style-type: none"> EDI (energy dissipating inlet) deflectors motor + gearbox suction piping system + suction nozzles for bottom sludge removal surface skimmer blades + scum trough peripheral outlet launders with saw-tooth weirs travelling bridge / walkway support structure



Equipment variant:

circular primary clarifier with a fixed walkway bridge and centrally driven bottom scraper blades and surface skimmer blades.

secondary clarifiers

technology

Secondary clarifiers are used for the gravitational separation of activated sludge and the final polishing of wastewater after biological treatment. The flow velocity is reduced in the tank, allowing activated sludge flocks to settle and ensuring separation of sludge from treated water.

The objective of the process is efficient sludge separation, return of activated sludge to the biological process (RAS), and removal of excess sludge (WAS) from the system. At the same time, scum is removed from the surface, and treated water is evenly collected via outlet weirs or submerged perforated pipes. The tank design and equipment are developed with a focus on stable hydraulic conditions, minimization of short-circuiting, and gentle handling of activated sludge.

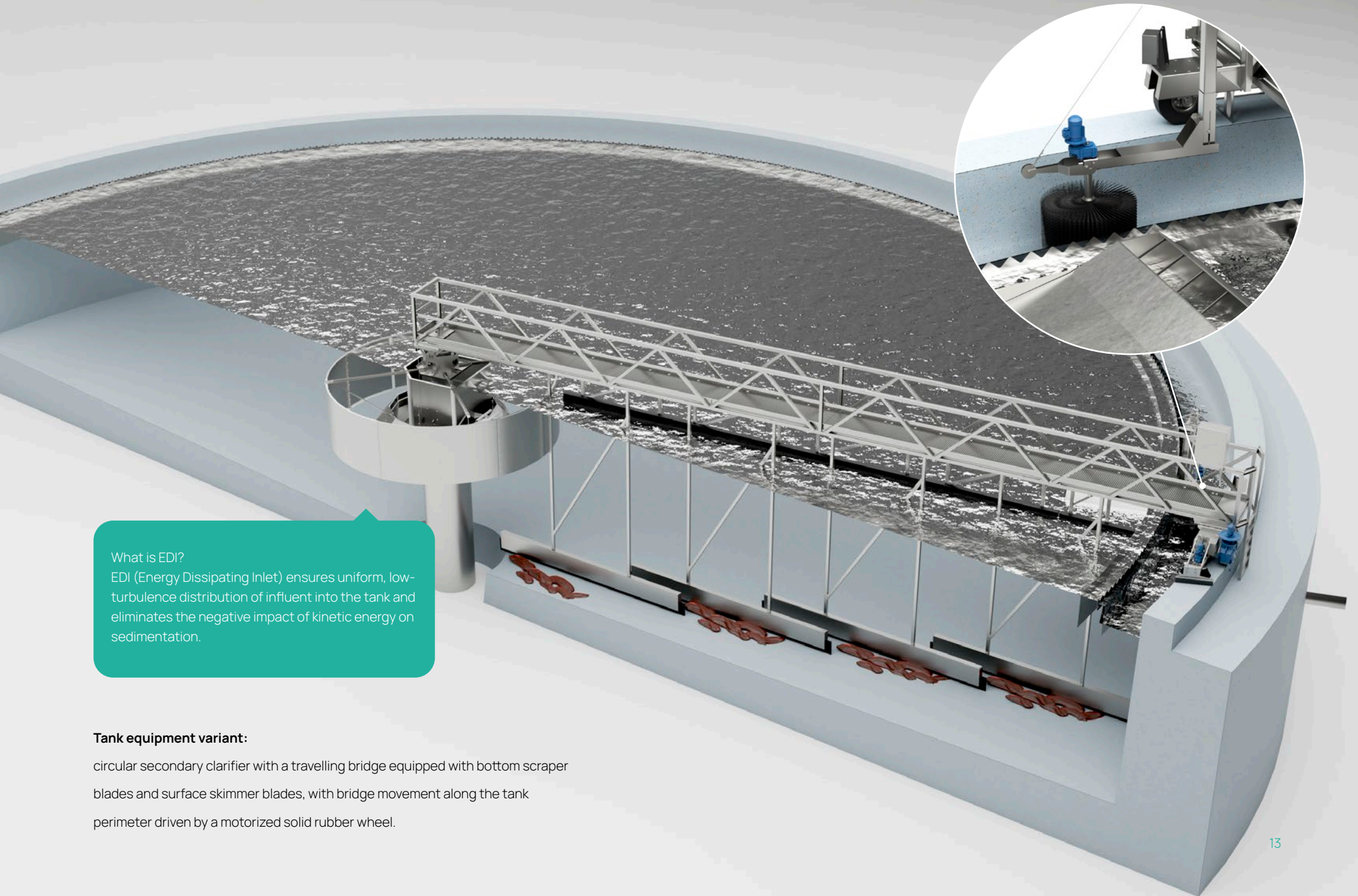
Secondary clarifiers are typically implemented in various configurations (circular, longitudinal, or Dortmund-type), with an emphasis on uniform influent distribution, optimized retention time, and efficient sludge removal.

construction

Secondary clarifiers are designed as circular or rectangular tanks. The design focuses on hydraulic optimization, minimization of short-circuiting, and uniform collection of treated water.

The tanks are equipped with central or longitudinal inlet, baffles, outlet launders with weirs, and a sludge zone for collection and removal of activated sludge. The structure can be made of reinforced concrete or steel. The standard bridge walkway is made of carbon steel with surface protection by metallization or hot-dip galvanizing with a final coating. Launderers, edges, baffles, flocculators, scraping equipment, scum removal systems, supernatant outlets, and all permanently submerged parts are made of stainless steel.

Tanks can be designed as steel or reinforced concrete structures and are adapted to specific operating conditions, including indoor and outdoor installation. In the case of Dortmund-type equipment, the design consists of a deep tank body with a conical bottom, inlet system, sludge zone with a central hopper, and an outlet system at the top. This arrangement allows the combination of clarification and thickening functions within a single unit.



What is EDI?

EDI (Energy Dissipating Inlet) ensures uniform, low-turbulence distribution of influent into the tank and eliminates the negative impact of kinetic energy on sedimentation.

Tank equipment variant:

circular secondary clarifier with a travelling bridge equipped with bottom scraper

blades and surface skimmer blades, with bridge movement along the tank

perimeter driven by a motorized solid rubber wheel.

circular secondary clarifiers

application	function	tank equipment
Circular secondary clarifiers – central drive, fixed bridge	<ul style="list-style-type: none"> • separation of activated sludge from treated water • sedimentation of activated sludge flocks 	<ul style="list-style-type: none"> • inlet structure (center well / EDI) – central column and drive, radial arms, scraper blades
Circular secondary clarifiers – travelling scraper bridge	<ul style="list-style-type: none"> • return of activated sludge to the process (RAS) • waste activated sludge removal (WAS) • scum removal from the surface using surface skimmer blades and a scum trough 	<ul style="list-style-type: none"> • travelling bridge • radial scraper arms • bottom scraper blades • surface skimmer blades • central sludge hopper • sludge withdrawal (RAS/WAS) • skimmer + surface skimming + scum trough • peripheral outlet launders • saw-tooth weirs • baffles against short-circuiting
Circular secondary clarifiers – travelling suction bridge		

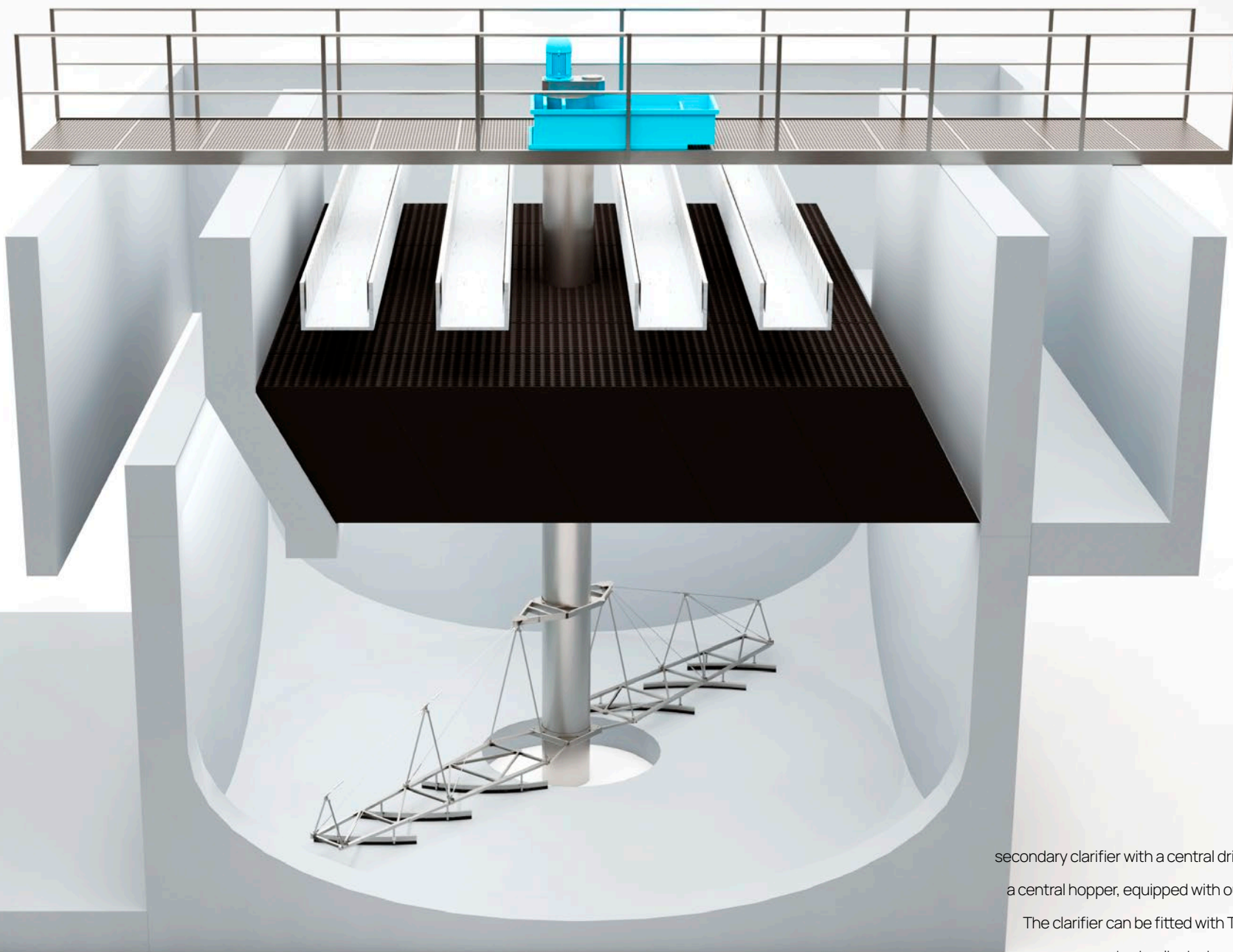
rectangular secondary clarifiers

application	function	tank equipment
rectangular secondary clarifiers – chain scraper system	<ul style="list-style-type: none"> • continuous scraping of sludge towards the sludge hopper or to a sludge withdrawal system from a flat bottom • continuous skimming of scum from the tank surface towards the scum trough (tilting trough) 	<ul style="list-style-type: none"> • chains + lamellas
rectangular secondary clarifiers – travelling suction bridge	<ul style="list-style-type: none"> • sludge suction from the bottom via suction pipes during bridge movement • uniform sludge withdrawal along the entire tank length without accumulation • scum removal from the surface using surface skimmer blades and a scum trough 	<ul style="list-style-type: none"> • travelling suction bridge / support structure • surface skimmer blades
rectangular secondary clarifiers – travelling scraper bridge	<ul style="list-style-type: none"> • scraping of settled sludge from the bottom during longitudinal bridge movement • transport of sludge to the sludge hopper or withdrawal system • uniform sludge removal along the entire tank length without accumulation • scum removal from the surface 	<ul style="list-style-type: none"> • travelling bridge / support structure • surface skimmer blades



Tank equipment variant:

rectangular secondary clarifier with a chain scraper system, providing continuous bottom scraping and surface skimming of scum into a tilting scum trough.



Tank equipment variant:

secondary clarifier with a central drive and scraping of settled sludge to a central hopper, equipped with outlet launders with saw-tooth weirs.

The clarifier can be fitted with TecnoTec lamella modules, based on hydraulic design, to increase sedimentation capacity.



Tank equipment variant:

Dortmund-type equipment for a conical tank with a walkway bridge structure and outlet launders with saw-tooth weirs.

sludge thickening tanks

technology

Sludge thickening tanks are used to reduce the volume of excess sludge from WWTPs and serve as an intermediate step before further treatment (stabilization, dewatering).

The process is based on gravitational sedimentation – sludge particles settle to the bottom, while the separated water is returned to the treatment process. This increases the solids concentration, typically from approx. 0.5–1% to 3–6%, and optimizes subsequent technological steps.

The equipment typically includes a slow-speed mixing or scraping mechanism, which promotes water release from the sludge, prevents crust formation, and enables continuous transport of thickened sludge to the outlet. The tank design takes into account sufficient retention time and minimized hydraulic loading.

construction

Sludge thickening tanks are implemented in various design configurations, most commonly as circular tanks with central inlet and peripheral outlet. They are simple, operationally reliable, and highly cost-effective, representing a proven solution for sludge handling at wastewater treatment plants.

They can be designed as stainless steel / carbon steel tanks or reinforced concrete tanks with the required technological equipment. Their design provides uniform inlet distribution, calm hydraulic conditions for sedimentation, and efficient separation of supernatant in the upper part of the tank.

application	function	tank equipment
sludge thickening tanks	<ul style="list-style-type: none">• thickening of primary or excess sludge by gravitational sedimentation• separation of supernatant from thickened sludge• reduction of sludge volume prior to further treatment (e.g. anaerobic digestion, dewatering)	<ul style="list-style-type: none">• steel / stainless steel tank structure• inlet structure (sludge distribution)• bottom scraping (central drive, radial arms, scraper blades)• sludge hopper with conical bottom• thickened sludge withdrawal• supernatant outlet (weirs / launders)• mixer / thickening mechanism (radial rake)• bridge / support structure / stairs / ladders• drive unit (motor, gearbox, control system)



Tank equipment variant:

Circular sludge thickening tank with a centrally driven thickening mechanism (rake), providing bottom scraping towards the central sludge hopper. The equipment includes outlet launders with saw-tooth weirs for supernatant withdrawal.

lamella separators

technology

Lamella separators are used for the efficient removal of suspended solids in both drinking water treatment and municipal and industrial wastewater treatment. They utilize an increased separation area through inclined lamella plates, enabling high efficiency at reduced volumes and significantly lowering the footprint compared to conventional sedimentation tanks.

They are particularly suitable for applications with limited space, increased hydraulic loading, or for the intensification of existing treatment lines.

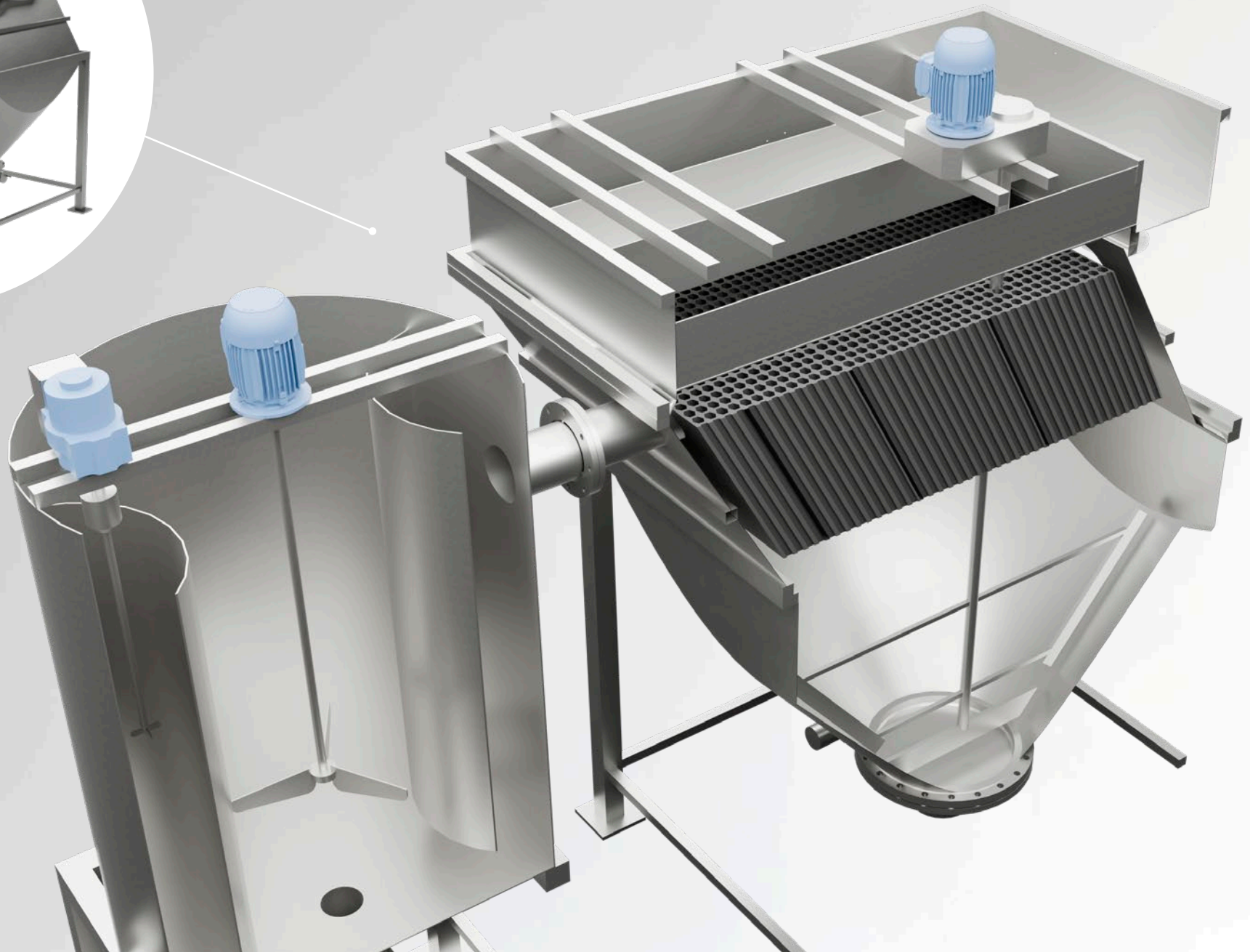
construction

Lamella separators utilize the principle of gravitational sedimentation on inclined plates, where particles settle and slide down into the sludge zone. The design includes a lamella pack, inlet and distribution system, sludge hopper, and an outlet system with weirs.

The system may also include a multi-chamber arrangement for pre-treatment with chemical dosing and mixing. The equipment is designed as a compact, modular solution that can be easily integrated into new or existing process lines.

Depending on the suspended solids load, the units can be designed with a conical bottom, a flat bottom equipped with scraping (for improved sludge thickening), or sludge removal by means of a screw conveyor.

application	function	tank equipment
lamella separators (used as secondary clarification applications)	<ul style="list-style-type: none">accelerated sedimentation using lamella platescan be equipped with a coagulation tank (coagulant dosing with rapid mixing) and a flocculation tank (slow mixing)	<ul style="list-style-type: none">lamellasdeflectorssludge collection (bottom section)outlet laundersseparator support structure



lamella sedimentation

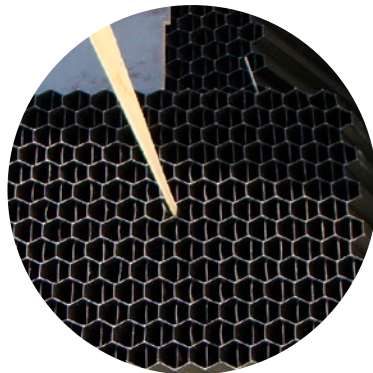
technology

TecnoTec lamella modules are designed to increase the efficiency of sedimentation processes in both water treatment plants and wastewater treatment plants. Installation into tanks increases the effective separation area, accelerating the settling of solids and increasing the hydraulic capacity of the system.

The modules are used in primary and secondary clarifiers, lamella separators, tertiary treatment stages, and stormwater retention tanks. Individual design combined with CFD simulations allows for flow optimization and the achievement of high sedimentation efficiency.

application

- clarifiers in water treatment plants
- primary clarifiers
- secondary clarifiers
- tertiary treatment
- retention tanks
- lamella separators
- in industrial WWTPs



construction

TecnoTec modules consist of a hexagonal lamella structure with high mechanical strength and a self-supporting design. The modular system allows for fast installation and easy integration into both new and existing tanks.

The materials used comply with drinking water standards, enabling their application not only in wastewater treatment plants but also in water treatment facilities. The structure is designed to be fully walkable and suitable for long-term operation in demanding conditions.

types of lamella plates	TecnoTec H-40		TecnoTec H-60		TecnoTec H-80	
material	PVC	PP*	PVC	PP*	PVC	PP*
shape	hexagonal		hexagonal		hexagonal	
maximum operating temperature	55°	80°	55°	80°	55°	80°
weight per m ³ of lamellae	90 kg	65 kg	70 kg	50 kg	50 kg	35 kg
inclination angle	60° – 55°		60° – 55°		60° – 55°	
hydraulic diameter	40 mm		60 mm		82 mm	
specific projected surface area at 60°	16,29 m ² / m ³		12,25 m ² / m ³		8,20 m ² / m ³	
specific projected surface area at 55°	18,17 m ² / m ³		13,27 m ² / m ³		9,23 m ² / m ³	
distance between walls	42 mm ± 1 mm		62 mm ± 1 mm		82 mm ± 1 mm	
standard module height	1 000 mm		1 000 mm		1 000 mm	



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