



SCALEWATCHER SU ARITMA SİSTEMLERİ VE YAPI SAN TİC.LTD ŞTİ  
WATER AND WASTEWATER TREATMENT SYSTEM



Yeşilköy Mah.Atatürk Cad. EGS Business Park B2 Blok No:12 Kat:Zemin D.No:1  
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# OUR ACTIVITIES

## Turnkey Construction Projects

### ENGINEERING & PROJECT MANAGEMENT

Project experience is of utmost importance when selecting the appropriate engineering solutions and processes, designing a plant according to the selection and planning and carrying out the implementation.

Scalewatcher Turkey differentiates itself from its competitors with its experience and ability to plan and manage large scale projects on time and budget. Accomplished engineering team gives special attention to operational easiness and effectiveness, quality and plant safety when designing and implementing projects.

### CIVIL WORKS

Civil work projects are designed and implemented in most cost-effective ways. With its experienced civil engineering and construction team, construction sites are managed very closely and efficiently with a great emphasis on occupational safety.

### MECHANICAL WORKS

Equipment Procurement: According to project design, Scalewatcher Turkey chooses and procures high-quality and performance mechanical equipment for long lasting operation and low maintenance. The manufacturing company of Scalewatcher Turkey custom designs, manufactures and supplies specific mechanical equipment for environmental projects of Scalewatcher Turkey Piping and Installation Works: With its dedicated and specialized installation team and under the supervision of experienced site engineers, Scalewatcher Turkey finishes installation works of equipment and environmental plants in Turkey and abroad on a timely and problem free basis.

### ELECTRICAL WORKS

The design of plants' electrical projects are carried out by experienced electrical and automation engineers. To achieve operational easiness high-tech electrical equipment and cutting-edge automation systems are utilized.

### Plant Operation and Maintenance Projects

Plant management and operation services are given both for projects delivered and for existing plants of our customers. Plants, whose civil, mechanical, and electrical installation works are completed, are started-up by a specialized team, who is dedicated only to start-ups and initial management.

### Build-Operate-Transfer (BOT) Projects

BOT projects create alternative ways of financing for Municipalities and Organized Industrial Regions to build wastewater treatment plants. Customers rely on Scalewatcher Turkey for building and operation of such plants specially designed for their needs and for providing problem-free continuous operation for years. BOT wastewater treatment plants offer a full range of environmental solutions including but not limited to sludge dewatering and sludge drying. Scalewatcher Turkey is proud to undertake the first BOT project for wastewater treatment plant for an Organized Industrial Region in Turkey, TUZLA O.I.R.

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## **Our Activities**

### **Wastewater Treatment**

Municipal Wastewater Treatment.  
Industrial Wastewater Treatment

### **Water Treatment**

Potable and Process Water Treatment  
Desalination (UF + RO)  
Water Recovery

### **Solid Waste Treatment**

Separation, Composting and MBT Plants,  
Biogas Plants (animal, agricultural and solid organic waste)  
Landfill Design and Construction, Biogas Plants

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## Flue Gas Treatment

## Sludge Treatment

Stabilization  
Dewatering  
Composting  
Drying  
Incineration

## Odor Treatment

Chemical  
Biological  
Photoionization



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# Industrial Waste Water Treatment

Because of the industrial plants pollution differs from industry to industry; industrial wastewater treatment requires a high degree of technical knowledge and industry experience. In parallel with developments in environmental technology, Scalewatcher Turkey apply proven, new and advanced treatment processes according to the needs and characteristics of wastewater.

Choosing the right technology in the design of treatment plants is the most important starting point. Scalewatcher Turkey which have hundreds of plant experience almost in all industries is a trusted company in industry as proving oneself on the right technology choice.

Scalewatcher Turkey has experiences in wastewater treatment of wide variety industries as food, beverage, paper and pulp, textile, chemical, petro-chemical, mining, energy, automotive. Scalewatcher Turkey incorporates staffs which apply various technologies and give engineering design, civil, mechanical, electrical, automation, commissioning and operation services according to customer needs.

## **Scalewatcher Turkey offers solutions for**

Aerobic Systems  
Anaerobic Systems  
Highly efficient Anaerobic Sludge Bed Reactors  
Membrane Bioreactor (MBR)  
Nitrogen and Phosphorus Removal  
Multimedia Filtration  
Membrane Filtration Systems.

## **Pre-Treatment**

Screening with grille  
Sand & Oil Separation  
Primary Sedimentation  
Coagulation, Flocculation, Sedimentation  
Dissolved Air Flotation (DAF) System

## **Biological Treatment**

Activated Sludge System  
Wide Aeration Systems  
Membrane Bioreactor (MBR)  
Biological Nutrient Removal Process (BNR)

## **Sludge Treatment**

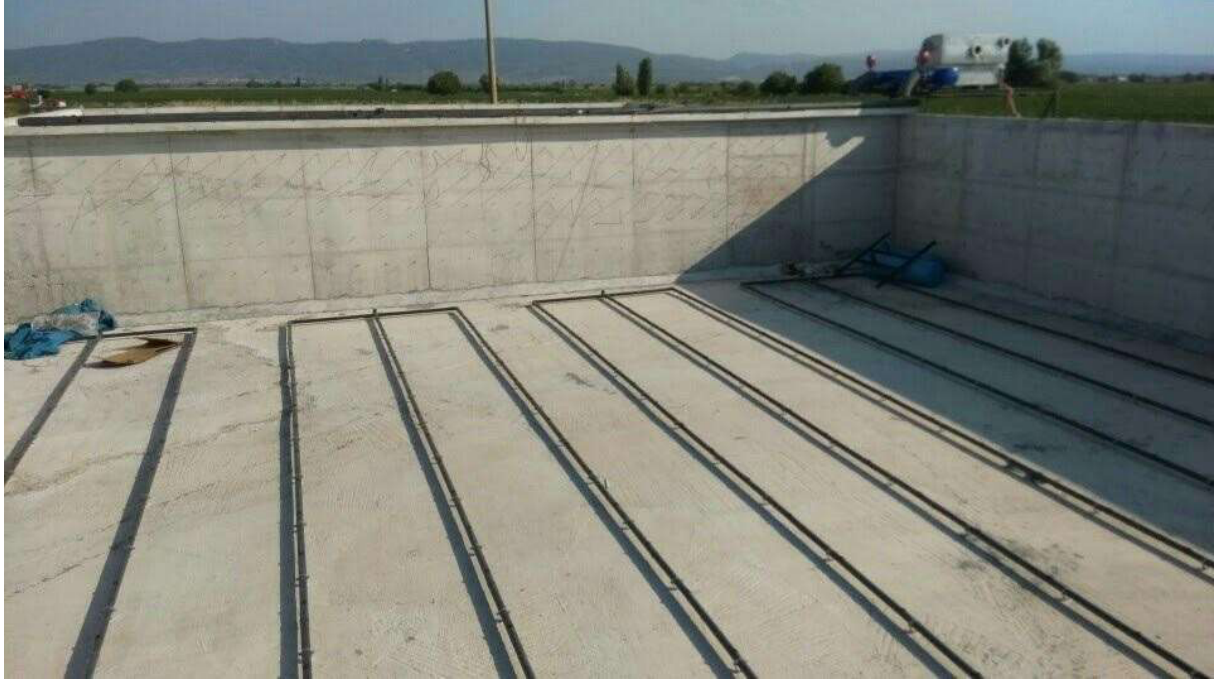
Sludge Stabilization and Sludge Digestion (Aerobic, Anaerobic)  
Sludge Thickening (Gravity Thickening, Mechanical Thickening, Flotation Thickening)  
Sludge Dewatering (Belt Press, Filter Press, Centrifuge Decanter)  
Sludge Drying

## Advanced Treatment Processes

Disinfection (Chlorination, UV, Ozonation )

Media Filtration

Membrane Filtration



## Biological Treatment Process

### Anaerobic Treatment Process

Anaerobic treatment process which is suitable for industrial wastewater with high levels of pollution is implemented as the first stage of biological treatment. Thus, the design capacity of aerobic process is reduced, energy and field conservation are provided for all plants. Arbiogaz has been applied proven technologies as Completely Mixed Anaerobic Reactor, Anaerobic Filter Reactor, Anaerobic Contact Type Reactor, Upflow Anaerobic Sludge Bed Reactor (UASB), Expanded Granular Sludge Bed (EGSB) in more than 30 plants.

### Aerobic Treatment Process



Aerobic treatment systems are applied single or following the anaerobic treatment according to customer needs and characteristics.

Arbiogaz has been applied processes which provide nitrogen and phosphorus removal together with conventional carbon removal and nitrification / denitrification successfully.

### **Organized Industrial Zone Wastewater Treatment Plants**

The most important factor in the industrial wastewaters treatment; is to construct the pollution profile suitable for each wastewater and to determine the wastewater characterization examining the source points of wastewater from different industries. Accordingly, considering the local conditions of the industry or Organized Industrial Zone, the most appropriate treatment solutions are determined by Scalewatcher Turkey

Wastewater treatment plant design and turnkey plant installation are carried out by Scalewatcher Turkey in food metal, textile, dairy products etc ... industries and Organized Industrial Zones incorporating all of these industries.

Organized Industrial Zone Wastewater Treatment Plants generally consist of units given below;

Physical Treatment

Chemical Treatment

Anaerobic Biological Treatment

Aerobic Biological Treatment

Sludge Thickening and Dewatering

Sludge Drying

In design of industrial wastewater treatment plants or process choice, solutions are developed considering the parameters like minimum operation cost, waste reduction (sewage sludge) optimization, land use, investment cost, efficient operation of the system.

In this regard, Scalewatcher Turkey has established a wastewater treatment plants in Organized Industrial Zone and they are successfully working.



## Domestic Wastewater

Day by day increasing the importance of need for protecting water resources and reduction of water consumption has revealed necessity of treatment of wastewater occurs as a result of the requirements of normal life activities. Therefore, as a consequence of strict laws and regulations local authorities inevitably invest in construction of domestic wastewater treatment plants.

Scalewatcher Turkey aims to provide perfect combination of high treatment efficiency, low operation cost and easy operation in both small towns and larger cities. For this reason, in addition to conventional processes Scalewatcher Turkey applies many advanced treatment processes such as aerobic and anaerobic biological processes, membrane bio-reactor (MBR), nitrogen and phosphorus removal, multimedia filtration and membrane filtration. Scalewatcher Turkey also designs and builds sludge dewatering and sludge drying system to minimize by-products of treatment plant.

### Municipal Treatment Plants

Groundwater, surface water resources and marine waters are polluted with wastewaters. Wastewater treatment plants are constructed to prevent this pollution. Scalewatcher Turkey builds wastewater treatment plants in order to treat domestic wastewaters occur in metropolitan cities, towns and small communities.

Design of the treatment plants is based on discharge standards specified in the regulations and production standards such as TSI, DIN, etc. Scalewatcher Turkey successfully implements biological treatment methods contain extended aeration activated sludge, batch aerobic treatment system, membrane technologies in wastewater treatment plants that are designed according to these

standards. Nitrogen (nitrification and denitrification) and phosphorus (biological and chemical) removal is also provided in advanced wastewater treatment plant that are using these processes. Disinfection of treated water from wastewater treatment plant is ensured by filtration, ultrafiltration, chlorine, ozone or UV (ultraviolet) oxidation to provide to discharge to sensitive receiving environments, use for irrigation purposes or recovery for service water in treatment plants.

#### Applied Technological Solutions

Scalewatcher Turkey has been serving in the field of Environmental Technologies since 2011 has the experience and knowledge about domestic wastewater treatment with references below.

### **Municipal waste water treatment plants**

#### **Organized Industrial Zone wastewater treatment plants**

#### **Applied processes in Municipal wastewater treatment;**

##### **1. Physical processes**

- a. Screens
- b. Grit and grease removal
- c. Primary sedimentation
- d. Flotation (DAF, microflotation)

##### **2. Chemical processes**

- a. Chemical phosphorus removal
- b. Chemical phosphorus recovery

##### **3. Biological processes**

###### **a. Suspended growth processes**

- i. Activated sludge system
  1. Carbon removal
  2. Nitrification
  3. Denitrification
  4. Biological phosphorus removal
  5. Solid-liquid phase separation by final sedimentation tank
  6. Sequencing batch reactors (SBR)
  7. Solid-liquid phase separation by Membrane bioreactors (MBR)

###### **b. Attached growth processes**

- i. Trickling filter
- ii. Biodisc
- iii. Moving bed bioreactor (MBBR)
- iv. Integrated Fixed-Film Activated Sludge (IFAS)
- v. Aerobic granular sludge systems (Nereda)

###### **c. Anaerobic processes**

- i. Completely mixed reactors
- ii. High-rate anaerobic granular systems (UASB, IC, ECSB, EGSB)
- iii. Anaerobic membrane processes (ANMBR)

#### **4. Processes using for residual pollutants**

- a. Filtration
- b. Membrane separation (MF, UF, NF, RO, EDI)
- c. Electrodialysis
- d. Adsorption (activated carbon adsorption...)
- e. Ion – exchange
- f. Distillation

#### **5. Disinfection**

- a. Chlorination
- b. Ultraviolet radiation
- c. Ozone disinfection
- d. Peracetic acid disinfection

#### **6. Wastewater recovery**

#### **7. Sludge treatment**



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# Water & Process Water

## Water Treatment

Water has an importance to sustain life.

97.5% of all water on the Earth is found as salt water in oceans and seas, 2.5% as fresh water in lakes and rivers. Considering %90 of fresh water is found at the poles and underground, the amount of fresh water accessible for human use is less.

Protection and efficient usage of this limited water resources, construction of plants which provide water quality needs of human life and industry is carried out using water engineering.

Scalewatcher Turkey which has been serving in the field of Environmental Technology since 2011, construct

Municipal Drinking Water Treatment Plants

Package Drinking Water Treatment Plants

Industrial Water treatment plants.

Water Treatment Plant process is prepared by expert approach for each plant considering the characteristics of water resource and water quality needed.

Used Technologies are;

## Coagulation-Flocculation-Sedimentation

- \*\* Compact or separate systems
- \*\* Circular, rectangular or lamella sedimentation units
- \*\* Chemical dosing units

## Filtration

- \*\* Open slow sand filters
- \*\* Open rapid sand filters
- \*\* Vertical and horizontal pressure sand filters
- \*\* Upflow self-cleaning filters
- \*\* Ultrafiltration, membrane filters
- \*\* Disc filters
- \*\* Cartridge filters

## Lime-soda water softening process

Water softening with ion exchange resins

Reverse Osmosis (RO) to reduce the ionic charge

Electrodeionization (EDI)

Cascade aerators to iron and manganese removal

Activated carbon filter to reduce organic load

## Disinfection

- \*\* Chlorination
- \*\* Ozonation
- \*\* UV systems

## **Water Recovery Plants**

### **Water Reuse**

Due to decreasing of clean water resources in the world and increasing of water cost, reuse of wastewater came to the fore. After passing through the filtration and disinfection systems, the effluent of domestic wastewater treatment plants is used to green field irrigation in our plants for a long time.

Grey water which is domestic wastewater without toilet waste consist of household dishwashers, washing machines, showers, bathtubs and saunas, is treated biologically in lower cost and reused. Industrial wastewater can be also reused after treatment or using advanced treatment technologies as a crude, and then used as production process water in industry.

Physical, chemical and biological conventional treatment processes can be used for reuse, in addition, if necessary according to the requirements of the process, membrane technologies such as,

### **Microfiltration**

### **Ultrafiltration**

### **Reverse Osmosis (RO) or**

**Special chemical processes are used.**



# LAMELLA CLARIFIER SYSTEMS

**Our company founded in 2010 started its business life by getting country distributorships of environmentally friendly treatment systems.** With our first distributorship, Scalewatcher Electromagnetic Water Treatment technology, eco-friendly designs are offered for bacterial contamination, sediments, rust, zebra mussels and etc. without the need to use chemicals in utility services and processes lines.

With our own production channel-type lamella clarifier and trapezoidal lamella clarifier systems, chemical usage, power and labor loss issues have been solved increasing settling effect in potable water, wastewater treatment, process water, river water, mine processing waters and cooling tower water conditioning systems with an environmentally-friendly approach.

Our company offers project design, manufacturing and applications for trapezoidal and channel type lamella plates, biological and chemical package treatment systems, CFS treatment systems, fresh water treatment systems, wastewater treatment systems, marine water treatment systems, river water treatment systems and potable water treatment systems.

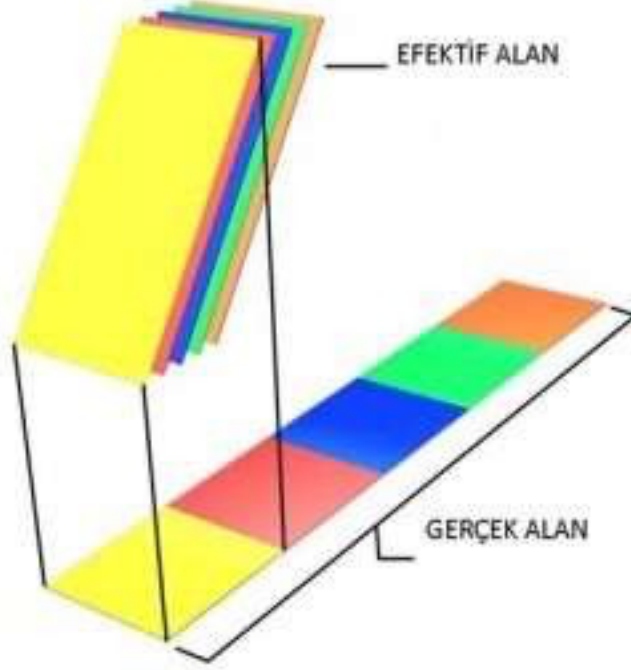
Our PVC channeled lamella manufactures – sludge, sand and silts, chemical sediments and flocculants that are present in water form solids that must be removed from water. The most economical solution to eliminate this contamination is parallel plate precipitators.

SW lamella clarifiers are based on this physical principle. They consist of single profiles mounted on a module forming several adjacent tubes and multiple sedimentation planes. This design increases settling area by 6 to 15 times per square meter. Therefore, using SW Lamella plates decreases your investment, chemical and maintenance costs requiring smaller settling tanks and pools.

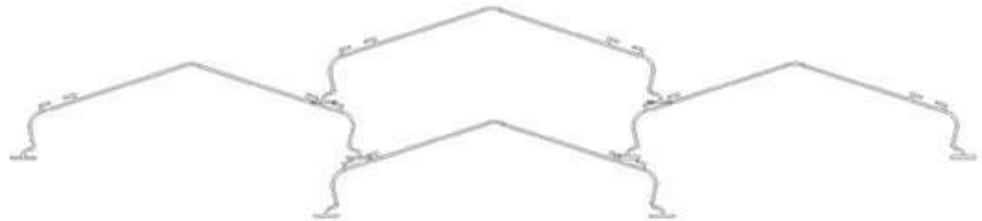
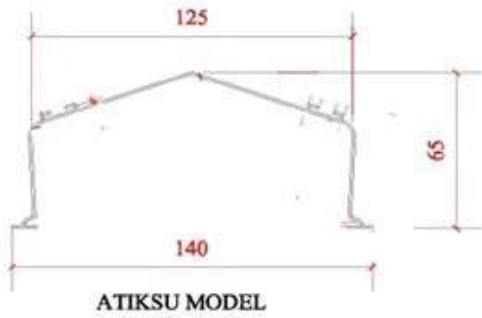
## **Flexible applications for any kinds of sedimentation pools**

Our systems with various plate arrangements enable optimization in sewage and fresh water treatment facilities. Our lamella clarifier plates manufactured in various sizes and at various angles (60-55 degrees) are adjustable for any process requirement and tank geometry by changing the angle of inclination.

Sedimentation area we calculate during design phase is determined according to Lamella arrangement angle. Actual effective area is determined by arranging our Lamella Modules at 55 or 60 angles. Our Lamella plates for Wastewater Treatment processes are arranged at 60 degrees to form a lamella block with a volume of 1 m<sup>3</sup> provide an effective area of 11 m<sup>2</sup> while this value can be increased to 13 m<sup>2</sup> in 55-degree arrangement.

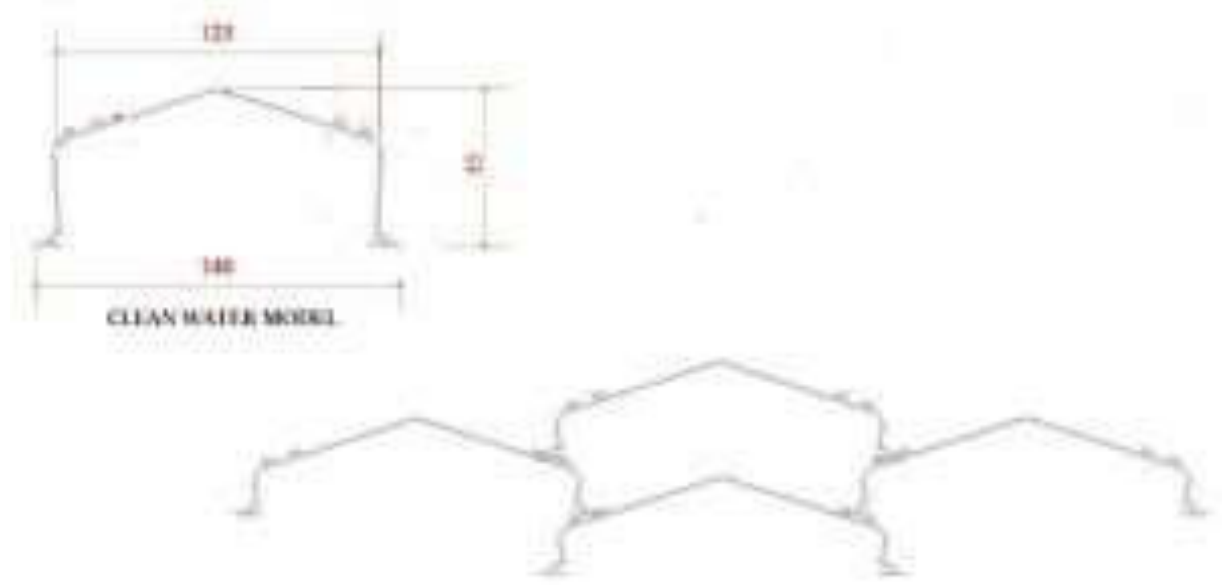


#### Lamella Dimensions -MODEL SW-65- WASTE WATER TREATMENT PLANT





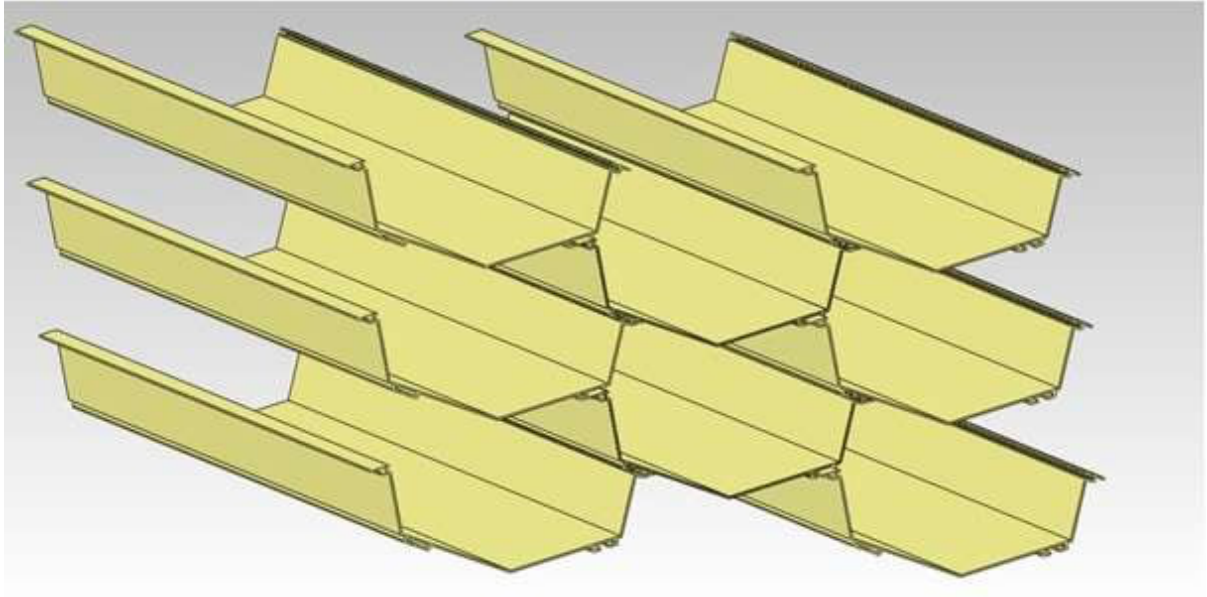
## Lamella Dimensions -MODEL SW-45- RİVER WATER TREATMENT



## Engineering Support

We would like to support you in choosing the Lamella system you need with our expertise in application. Request support from us when designing your sedimentation tanks or treatment plant.

## Illustration of Application



## CFS WATER TREATMENT SYSTEM



LAMELLA SEDIMENTATION TANK



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# Disolved Air Flotation Systems

Our bioDAF units are manufactured using 304 or 316 level stainless steel, and corrosion-resistant components. We provide Chemical coagulation and chemical feed systems to enhance our DAF systems. Providing these components enhances the solid removal process. Whether these additional components are included depends on the design requirements. Industrial companies use our DAFs to meet their specific limits for wastewater compliance.

Our DAFs help our customers remove oil, grease and suspended solids. A DAF wastewater system is one of the best ways to remove solids from your wastewater. Please reach out to us, and we can discuss how a DAF system could help you.



# Scalewatcher Electromagnetic Water Treatment System

Over a century ago, the first physical water treatment devices were magnets. The very first Scalewatcher was designed and tested in the field back in 1988, using an alternating current sent through a coil wrapped around the pipe to be treated. The frequencies and amplitudes used were optimized over the years, resulting in an efficient technology for preventing and removing mineral deposits in pipe lines or other water related equipment. Pipe diameters of up to 3 m (120") can now be treated, be it steel, stainless steel or cement. However as plastic pipes are not permeable for magnetic fields the induction will be highest for this kind of pipe material. Also the so called Eddy Currents in iron or copper pipes may have an attenuating effect. Over the years the power output of the units have been increased to overcome these effects.

Another concern is the flow rate. For high flow rates the treatment time may be too short. Scalewatcher has the knowledge to overcome this, making the product best of its kind on the market today.

Units are available for indoors or outdoors and can be made to meet the demands of any ingress protection classification.

Not only scale deposits will be prevented and removed in flowing water, field reports show:

- A reduction of algae growth
- A reduction of bacteria count
- A reduction of corrosion.

Applications of the product are numerous:

- Cooling towers/chillers
- Evaporative condensers
- Water boilers
- Pipe lines
- Shell and tube heat exchangers
- Spray nozzles in agriculture or golf courses
- Swimming pools
- Ice cube makers among others.



The product will provide savings on water, energy and chemicals. It does not add anything to the water and is therefore friendly for the environment.

A return on investment of under two years is very well possible.

## **Keban Power Plant**



# STEEL MANUFACTURING



 **ES MAKİNA**

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**ES** MAKİNA

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**ES MAKİNA**

**STEEL MANUFACTURING PARTNER**

**ES MAKİNA**

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## REFERENCE

- HAŞÇELİK CHROME BAR STEEL SEDIMENTATION PROCES
- HAŞÇELİK PROCES WATER TREATMENT PLANT
- HAŞÇELİK SAND FILTER PROCES
- KARABÜK DEMİR ÇELİK VARIOS MANUFACTURING
- HABAŞ
- SİSTEM TEKNİK İBDUSTRIAL FURNACES
- ANADOLU BANK
- HABAŞ
- KARTAL BOMBE
- TCDD
- İNKA
- DORALP
- AŞTİM
- SÜTAŞ WWTP TREATMENT PLANT
- SEK SÜT WTP TREATMENT PLANT
- CİCİ SÜT WATER AND WASTE WATER TREATMENT PLANT
- MODERN KARTON WASTE WATER TREATMENT PLANT
- KEBAN POWER PLANTS
- TEK SÜT WWTP AND WATER TREATMENT PLANT
- ARMASAN PACKİNG PROCES WATER TREATMENT PLANT
- ISUZU TURKEY PROCES WATER TREATMENT PLANT
- KEAS PROCES WATER TREATMENT PLANT
- OMERLİ MUNICIPAL WATER TREATMENT PLANT
- SABANCI COMPANY COOLING WATER TREATMENT PLANT
- POLİPA AMBALAJ WATER TREATMENT PLANT