

# WASTE WATER TREATMENT



PROCESS TECHNOLOGY  
VESSELS & APPARATUSES



**ELKUCH GROUP**



“For decades at the highest level”

## “ELKUCH designs and builds environmentally efficient industrial plants for emission-reducing and resource-saving wastewater and sludge treatment”

### QUALITATIVELY SUPERIOR SYSTEMS, EQUIPMENT AND RELEVANT CONTAINERS MADE OF STEEL AND STAINLESS STEEL

As an internationally operating company, ELKUCH AG supports its customers with innovative solutions and first-class service in a wide range of industries. For decades, customers have trusted in the professional guidance and reliable support of our employees. ELKUCH stands for quality, reliability and handshake quality in industrial plant engineering.



### INDUSTRIAL PLANT ENGINEERING

By industrial plant engineering in the field of wastewater and sludge treatment, we understand the overall responsible combination, planning and integration of different machines and services, which aim at the construction of functional plants or partial components of such plants. In this context, an industrial plant is nothing else than a system for the realization of an industrial process, which includes different, interconnected, process steps.

#### Our services

- Feasibility studies
- Hydraulic calculations
- Process engineering planning
- Detail engineering
- Mass determination
- Cost estimation
- Project management
- Commissioning
- Process training
- Automation
- Delivery of equipment
- Service

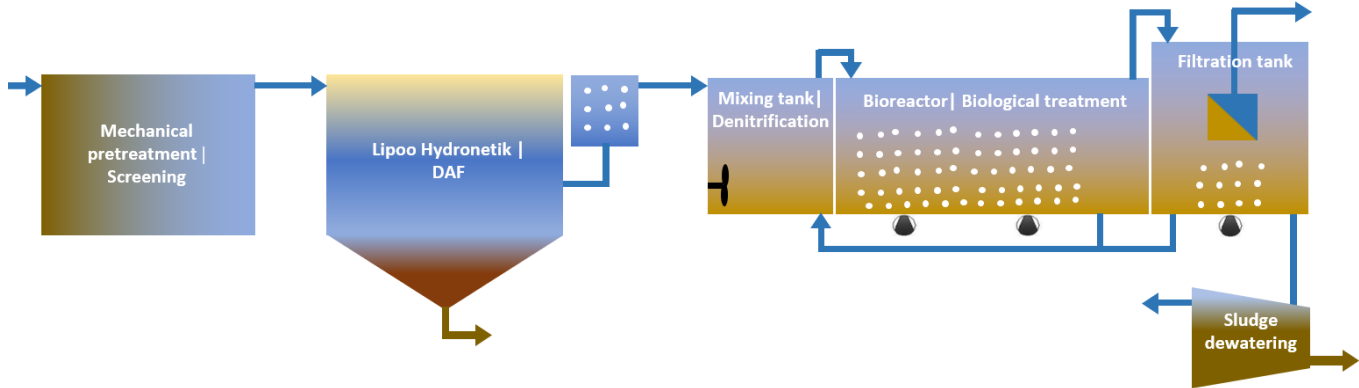


- Design
- Support
- Engineering
- Production
- Assembly
- Maintenance

# “For a better environment with clean Water”

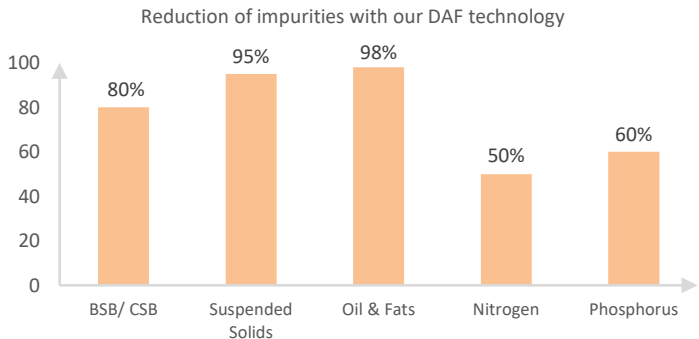
## Example Food Production Industry

Wastewater from the food production is usually characterized by high loads of COD, BOD5, fats and solids. These parameters largely determine the level of wastewater charges and heavy polluter surcharges, which will continue to rise in the coming years. The goal must therefore be to reduce and treat the wastewater on site as much as possible in order to achieve the lowest possible loads or even to meet the direct discharge criteria. Elkuch has developed a special concept to treat any wastewater in the food production industry.



## Filtration - DAF - MBR

Wastewater from the production area is usually collected in a holding tank. From there, the wastewater is pumped to the screening plant, where solids such as hair, fruit pieces, rice, packaging material and small glass pieces are removed. The mechanically pre-treated wastewater is then fed to our DAF technology. This can be operated with or without a chemical stage, depending on requirements. The chemical storage tanks, flocculant treatment station and dosing equipment can also be supplied by Elkuch. Depending on the requirements of the wastewater treatment plant, the wastewater can now be fed to the treatment step.



With the membrane activated sludge process, Elkuch also offers a compact and efficient treatment stage. The wastewater is biologically cleaned and separated from the activated sludge by means of an ultrafiltration membrane, so that direct discharge quality can be achieved without any problems. The flotat sludge mixture can be dewatered to a dry matter content of up to 35%, which greatly reduces the volume of flotat sludge. Disposal costs are thus decisively minimized.



## Waste Water Treatment

### “High quality products”

Elkuch systems have a compact design and are tailored to the individual requirements of each production plant. The wastewater treatment systems we design and manufacture provide excellent wastewater quality and reduce BOD/COD, suspended solids, oils and fats, nitrogen and phosphorus. We support you throughout the entire process life cycle: from the feasibility study to preliminary planning, design, construction phase and commissioning. Elkuch is also your partner for worldwide service and maintenance.

### INNOVATIVE SOLID SEPARATION

#### Solid / Liquid Separators

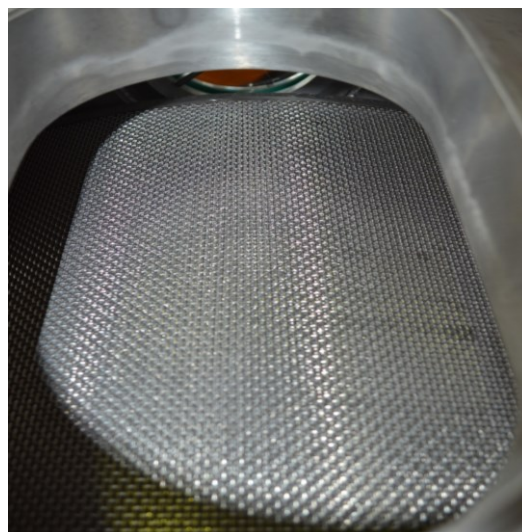
Wherever liquid media have to be freed from solids for reuse, the high-quality HP separators are used.

The solid-liquid separators from ELKUCH are used for applications where liquid media circulate in open or closed systems and must be separated from solid foreign matter. Especially for fibre particles filtration, the HP separators are perfectly suited.



#### UNIQUE SELLING POINTS

- Economical and efficient filtration of liquid media
- Adjustable water loss due to intelligent control
- Reduction of settleable solids & heavy metal contamination
- Robust mechanical construction
- Self-cleaning drums and intelligent control system
- Suitable for pre- and post-filtration
- In water treatment plants (microfiltration, biochemical plants, etc.)
- High performance with low space consumption
- Low operation and maintenance costs





## Waste Water Treatment

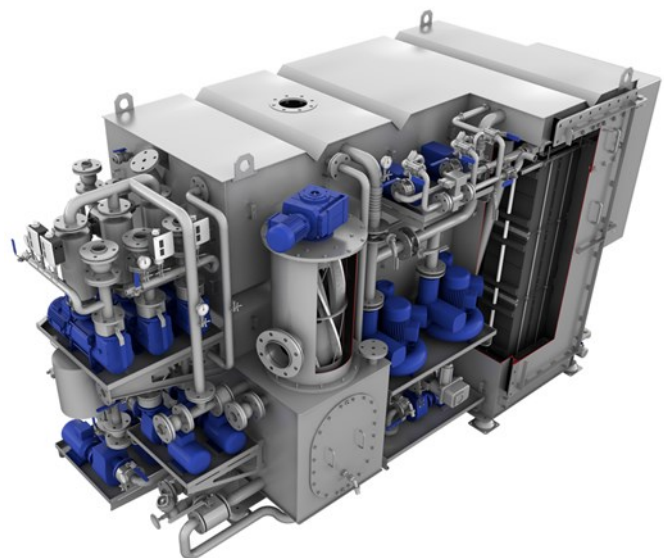


### Dissolved Air Flotation LIPOO

This impressively efficient process is a 3-stage process in which the wastewater is first fed into the holding tank, where gravity separation separates the rising and settling substances. The sludge remains at the bottom of the tank until disposal. The newly integrated dissolved air flotation system draws emulsions and suspended solids into the high-efficiency separator, where microbubbles clean the wastewater. As the water content in the holding tank is constantly reduced during the process, water disposal costs are reduced and better efficiency for biogas process plants is achieved. Odour neutralization or lifting units can be installed additionally.

### Compact Membrane Bioreactor

Membrane bioreactor processes combine the biological treatment stage with a downstream filtration unit, making a conventional secondary clarifier obsolete. In the activated sludge stage, bacteria first break down the organic pollutants and constituents of the mechanically pre-treated wastewater under aerobic conditions and convert them into biomass. In the downstream ultrafiltration stage, high-quality ultrafiltration membranes with a pore size  $< 0.1 \mu\text{m}$  separate the clear water fraction from the activated sludge. The membrane acts like a physical barrier, almost all germs and bacteria are reliably removed from the membrane. The permeate obtained is odorless and particle-free from a hygienic point of view and can therefore be reused.





## Apparatus & Vessel Construction

Elkuch builds Vessels for mineral oil storage, solvent tanks, pressure vessels for air, gases and liquids. In addition, stainless steel tanks for the chemical industry, tanks for cleaning equipment and special tanks for industrial processes. In addition, you will receive from us vessels for:

- Chemicals & Heat requirements
- Stirring and mixing vessels with heating and cooling coils or cooling jackets
- Autoclaves with quick-acting closure for pressure and vacuum operations
- Shell and tube heat exchangers
- Chimneys
- Gas scrubbers
- Reaction vessel
- Rectification columns
- Flue gas lines
- Filter boilers
- Industrial filters
- Gasometer

## Dewatering Container

For the dewatering of waste and sludge we manufacture high quality and customized containers with exchangeable dewatering cassettes. This eliminates the need for complicated replacement of filter fabrics or time-consuming cleaning. Optionally, the containers can also be equipped with integrated transport screws, so that an optimal occupancy of the containers can be guaranteed.

## Sludge Container

Our handmade rugged container for the most extreme applications has a tight swinging shutter and motorized lid. Due to the hinged lid there are no odor emissions. The high quality exterior coating in RAL colors can be made according to your choice.

## Sludge Dewatering/Weight Reduction

Our technology is used to separate solid-liquid fiber suspensions into a solid and a liquid fraction. As a compact device, it combines the functions of two separation devices, namely that of a screen and that of a press.

Both thick liquids (20% dry substance content) and thin liquids (below 0.1% dry substance content) can be optimally treated. The desired consistency of the final product can be used for further storage, as fertilizer or as a basis for compost.

## Certificates

Quality system EN ISO 9001

Melting/welding specialist company according to EN ISO 3834-2

Pressure Equipment Directive (2014/68/EU) of pressure equipment up to category IV according to module H1 based on comprehensive quality assurance with design review.

EN 1090 steel construction up to design class EXEC 3



## Waste Solutions

### Contact Waste Solutions

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