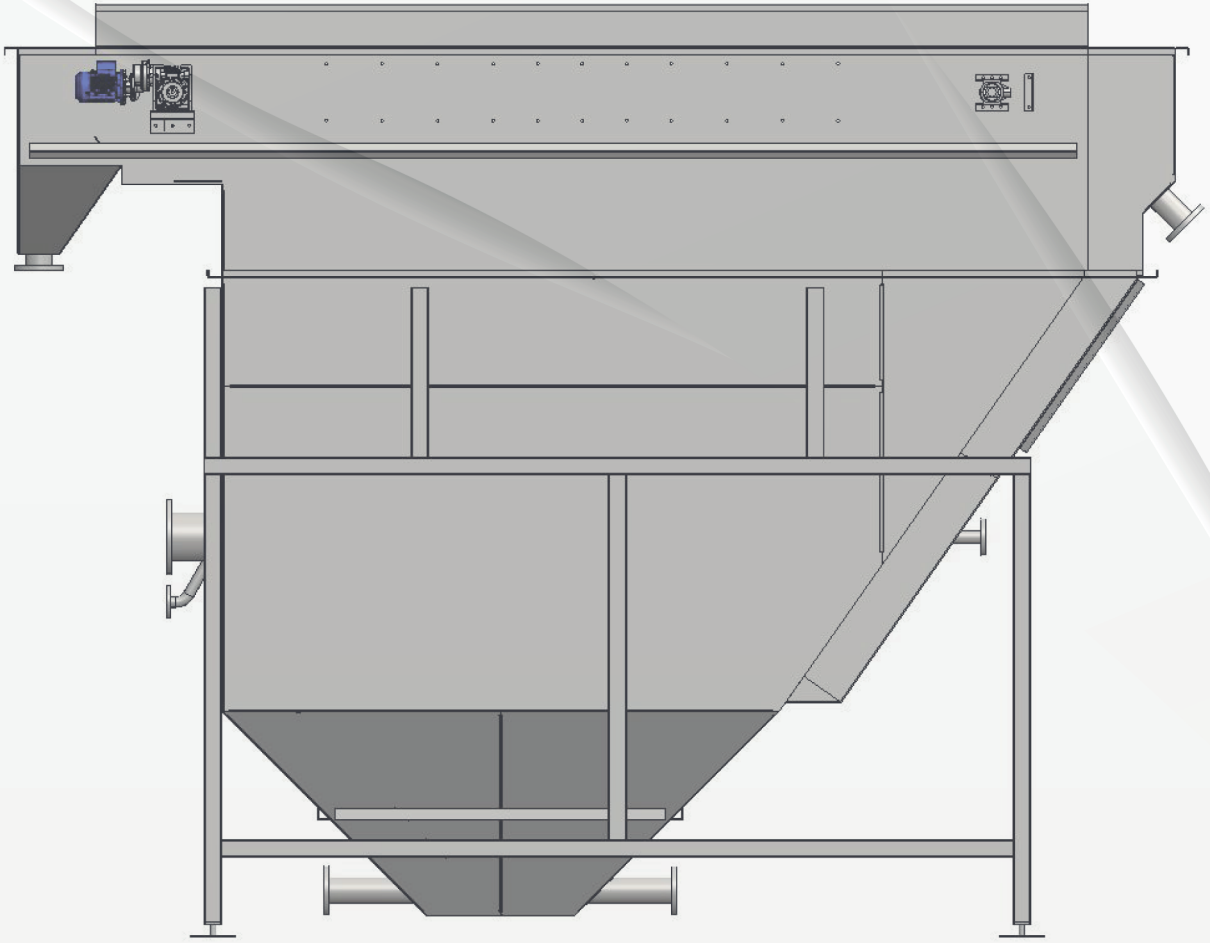


DISSOLVED
AIR
FLOTATION
UNIT

IBRIK
DAF
UNIT

GESU 
ENVIRONMENTAL TECHNOLOGIES



Gesu Aritma Sistemleri SAN. ve TIC. LTD. STI.
BURSA LEATHER SPECIALIZED AND MIXED OIZ
Badirga Dist. 11 St. No:6 Nilufer, BURSA / TURKEY



info@gesu.com.tr
www.gesu.com.tr



+90 224 483 59 39
+90 224 483 59 37

DISSOLVED AIR FLOTATION (DAF)

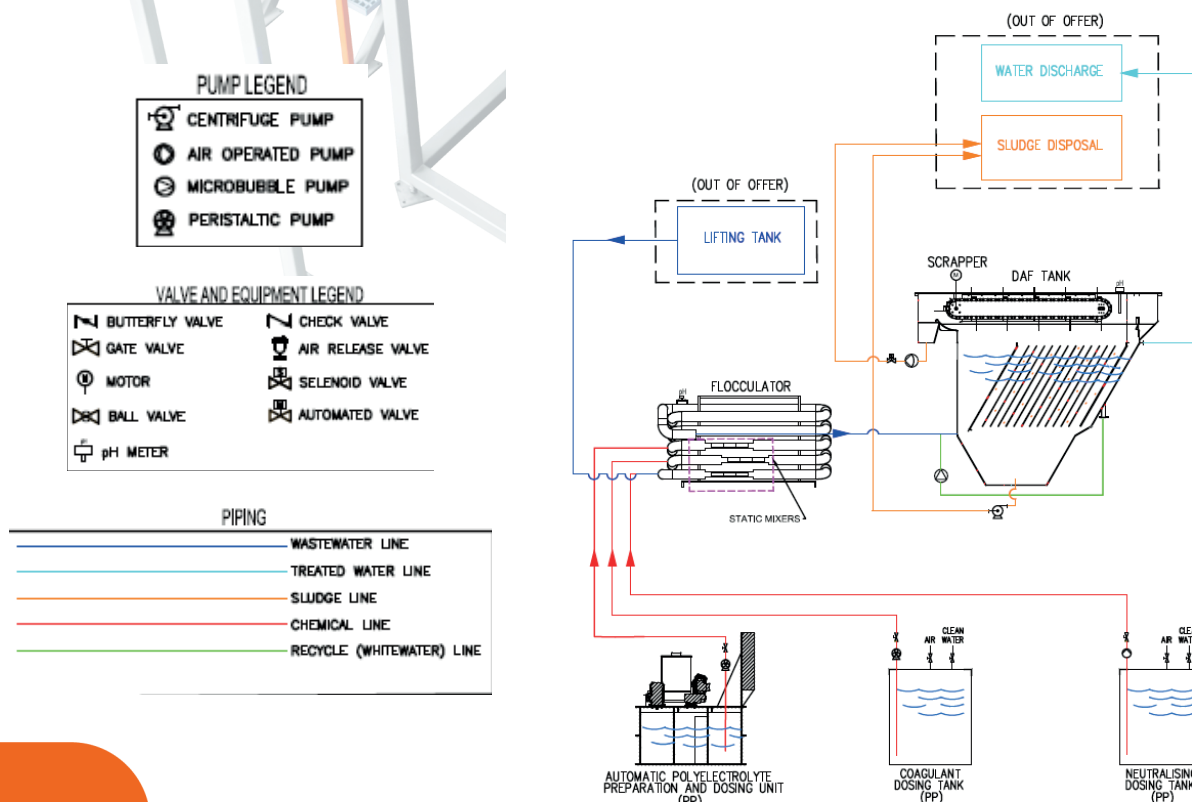
IBRIK Dissolved Air Flotation (DAF) Units offer a compact and efficient wastewater treatment solution by utilizing flotation principles to remove suspended solids (SS), biochemical oxygen demand (BOD5), and oils and greases (O&G). These units are space-saving and can be tailored to various industries, serving as complete chemical treatment plants, pre-treatment facilities, or combined flotation and mechanical treatment plants. They come in rectangular portable structures made of carbon steel or stainless steel, circular shapes with polypropylene material, and can even integrate with reinforced concrete structures. Selection of the appropriate IBRIK DAF Unit depends on factors like daily wastewater and sludge volumes, suspended solids levels, dry matter quantity, and operating hours, with customization based on industry-specific needs and sample analysis results.

IBRIK DAF Units are categorized into five main sub-machines:

- IBRIK DAF Tank
- IBRIK Pipe Flocculator
- IBRIK Polyelectrolyte Preparation Unit
- IBRIK Coagulant Dosing Tank
- IBRIK Neutralization Dosing Tank

Each machine is cataloged as a standard within itself, but it is also possible to create customized solutions for the company and industry needs with **IBRIK DAF Units**.

FLOW CHART OF IBRIK DAF UNIT



IBRIK DAF THEORY

GESU Environmental Technologies ensures effective solid-liquid separation in IBRIK DAF Units through coagulation and flocculation processes facilitated by the IBRIK Pipe Flocculator. They determine the optimal coagulant chemical and dosage through laboratory analyses or past experience. Neutralization is conducted to stabilize pH levels before coagulant dosage, ensuring efficient ion balance for wastewater processing. Polyelectrolytes are then added to enhance buoyancy characteristics, strengthening floating tendencies and promoting waste particle aggregation. This expertise ensures reliable solutions for wastewater treatment, minimizing errors and achieving efficient performance.

In IBRIK DAF units, the aim is to float particles with a similar specific gravity to water, achieved by using low-density gas bubbles like air. Chemicals enhance particle buoyancy, but excessive chemical use leads to increased costs. GESU Environmental Technologies optimizes bubble size and chemical selection to improve efficiency. Undesirable particles are removed from the surface using scrapers, with scraping direction crucial for maintaining efficiency. IBRIK DAF tanks use scraper reducers with frequency converters for adjustable speed, maximizing efficiency based on sludge characteristics.

Advantages**Economic and Reliable Design**

Low Maintenance and Operating Costs

Fast-Design Principle

Custom Compliance with Specifications

Mobile, Portable, and Compact Trunk

Wide Capacity Range

Quick Assembly and Disassembly

Control and Monitoring via SCADA

Remote Intervention Capability**Application Domains****Chemical Industry**

Paint Industry

Textile Industry

Leather Industry

Slaughterhouse Industry

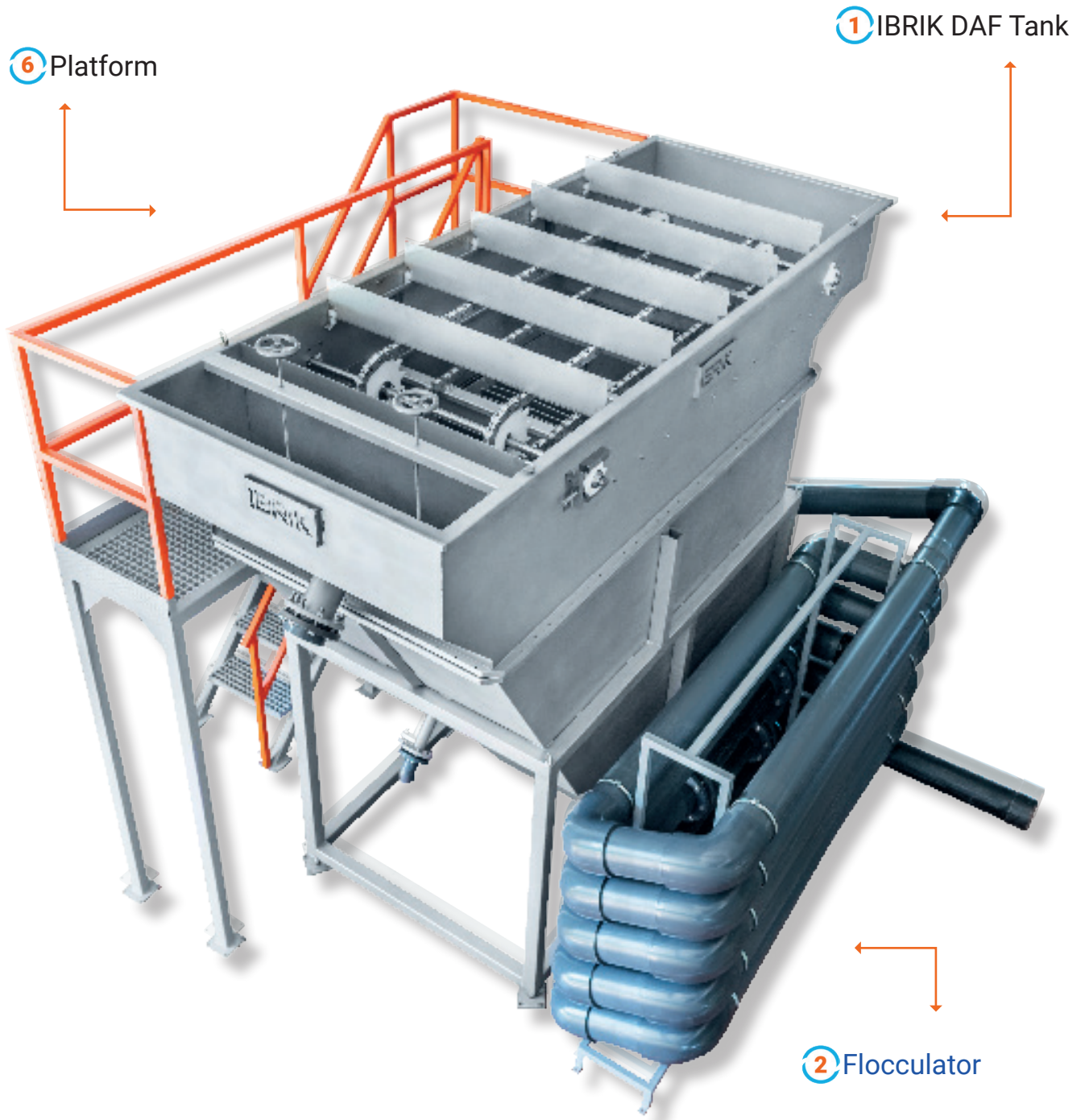
Food Industry

Coating Industry

Wastewater Treatment Plants

Petroleum & Oil Refinery

Seawater Desalination Plant

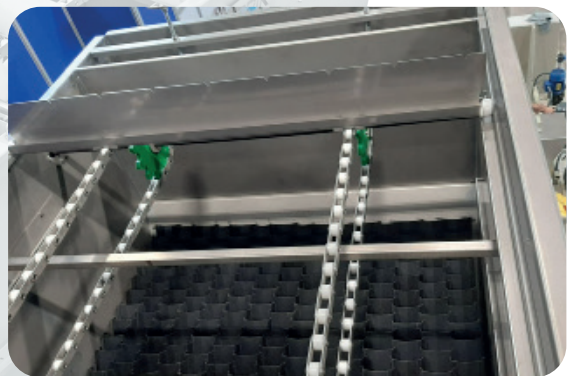


IBRIK DAF TANK

The “IBRIK DAF Tank” serves as the main reaction tank of the IBRIK DAF Unit. The IBRIK DAF Tank has two essential internal components. These can be expressed as the lamella pack and the micro-bubble generator, respectively.

IBRIK LAMELLA PACK

IBRIK DAF Tanks utilize inclined lamella packs to enhance solid-liquid separation. Wastewater flows through these packs in a cross-flow configuration, reducing the distance required for flotation and increasing mass transfer rates. The compact volume of IBRIK DAF Units and their ability to solve wastewater issues efficiently are attributed to the effective use of lamella packs. Units without lamella packs require significantly more space and retention time.



IBRIK MICRO BUBBLE GENERATOR

The IBRIK Micro Bubble Generator is crucial for DAF systems, improving flotation efficiency by rapidly forming dissolved air. This reduces transition time and cuts costs. Unlike traditional methods, IBRIK’s generator mixes air with wastewater to create micro bubbles, enhancing contaminant removal. Its compact design and ability to produce smaller bubbles make it versatile for different wastewater types. GESU Environmental Technologies, with in-house spare part manufacturing, leads in micro bubble system utilization.



IBRIK PIPE FLOCCULATOR

Flocculators are vital in DAF units for floc aggregation in wastewater, facilitating chemical mixing. Even without chemicals, they promote stable floc formation through wastewater interaction with polyelectrolytes. Traditional flocculators are designed for large systems, but pipe-type flocculators, like IBRIK Pipe Flocculators, are preferred for accurate mixing in DAF units, reducing chemical consumption. IBRIK Pipe Flocculators, compatible with IBRIK DAF Units, minimize chemical usage, fostering sustainable partnerships with clients. Key components include the IBRIK Static Mixer Group and IBRIK pH Control Unit.



IBRIK STATIC MIXER

IBRIK Static Mixers, integrated into IBRIK Pipe Flocculators, enable precise chemical dosing in DAF units. Positioned based on chemical reaction times, they ensure efficient coagulation, neutralization, and flocculation within the flocculator. The number of static mixers correlates with the chemical type. Designed for turbulent flow, IBRIK Static Mixers optimize mass transfer, preventing settling and loss of flotation tendency. This results in reduced chemical usage, cost efficiency, and improved effluent quality, without additional energy consumption.

IBRIK PH CONTROL UNIT

The IBRIK pH Control Unit, integrated into the IBRIK Pipe Flocculator, optimizes chemical usage in DAF units by evaluating data from clean water outlets and flocculators. This automatic system adjusts chemical dosing based on wastewater discharge characteristics, reducing chemical consumption and maximizing customer satisfaction. Optional sensors for clarity, odor, and TSS further enhance system stability and foresight, reinforcing GESU Environmental Technologies' commitment to zero-error discharge guarantees for industrial structures.

IBRIK POLYELECTROLYTE PREPARATION UNIT

The IBRIK Polyelectrolyte Preparation Unit is essential for conditioning sludge in biological treatment plants and for flocculation and sludge dewatering in chemical treatment plants. Designed for seamless integration with IBRIK DAF Systems, these units comprise four main sections: a feed tank with additional options, a fast mixing section for rapid dissolution, a slow mixing section for maturation, and a dosing section for storage.

IBRIK FEED TANK

The IBRIK Polyelectrolyte Preparation Unit simplifies the process of preparing polyelectrolyte solutions. Powdered polyelectrolyte is poured into the conical feed tank, aided by an IBRIK Vibration Module for smooth flow and an optional IBRIK Heater Module to prevent moisture buildup. A screw conveyor transfers the powder to the first compartment, where water is supplied through a separate line to facilitate solution preparation. Controlled by a frequency converter, the screw conveyor allows for variable feeding rates and solution concentrations, making the unit adaptable to different capacities.

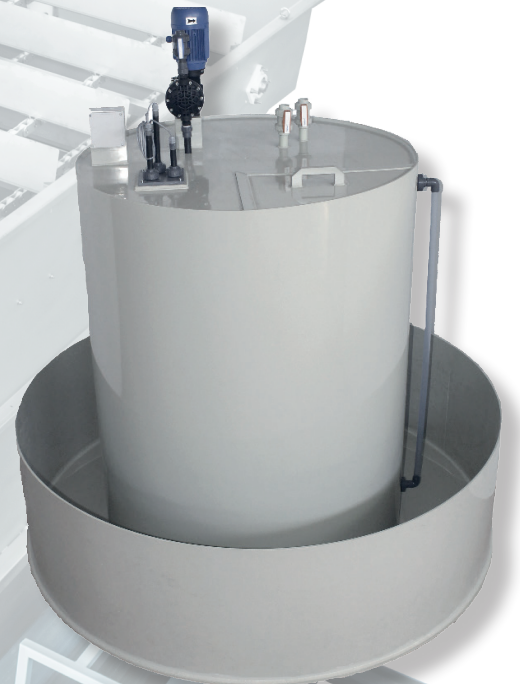


FAST-SLOW MIXER AND DOSING COMPARTMENTS

The IBRIK Polyelectrolyte Preparation Unit simplifies chemical solution preparation with three tanks: dissolution, maturation, and storage. Equipped with efficient mixers and automatic operation, it saves time and energy, reducing costs. Features include SCADA control, compact design, low maintenance, and integration with the IBRIK DAF Unit for high efficiency and low chemical consumption.

IBRIK COAGULANT DOSING TANK

IBRIK Coagulant Tanks are made of durable PP material and feature transparent and optional magnetic level sensors for easy monitoring. They are designed with load-bearing elements for structural strength and increased volume capacity. Clean water and air connections are facilitated through water and air valves. Customers have a wide range of options for dosing pump selection, offering economic advantages through partnerships with suppliers. Additionally, these tanks can quickly adapt to specified pump brands to ensure compatibility with professional industrial manufacturers' requirements.



GESU Environmental Technologies ensures efficient operation and prevents issues in IBRIK Coagulant Dosing Tanks by calculating hydraulic losses, selecting proper dosage pumps, and offering optional safety features like anti-clogging equipment. This commitment to reliability and customer satisfaction enhances pump efficiency and prevents pipeline blockages.



IBRIK NEUTRALIZATION DOSING TANK

IBRIK Neutralization Tanks are constructed from durable PP material and feature transparent and optional magnetic level sensors for easy monitoring. They are designed with load-bearing elements to ensure structural strength and increased volume capacity. Clean water and air connections are facilitated through water and air valves. Customers have a wide range of options for dosage pump selection, offering economic advantages through partnerships with suppliers. Additionally, these tanks can quickly adapt to specified pump brands, ensuring compatibility with professional industrial manufacturers' requirements.



GESU Environmental Technologies ensures operational efficiency and prevents issues in IBRIK Neutralization Dosing Tanks by calculating hydraulic losses, selecting proper dosage pumps, and integrating air vent lines to prevent air pocket accumulation. Optional safety features and anti-clogging equipment are available, demonstrating a commitment to reliability and proactive problem-solving.



REGAIN Water.
GAIN Future.

