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Product Sheets

Wastewater Treatment Equipment & Services

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Product Sheets
Wastewater Treatment Equipment & Services

Contents

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Overview
Dissolved Air Flotation (DAF)

Wastewater Pretreatment

FRC Dissolved Air Flotation (DAF) systems remove TSS, FOG, BOD & COD from industrial and municipal wastewater. Durable stainless-steel designs with high-rate, compact, and open-tank options deliver reliable separation and compliance.

FRC Dissolved Air Flotation (DAF) systems remove Total Suspended Solids (TSS), Fats, Oils & Grease (FOG), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), and other contaminants. Available in high-rate, compact, and open-tank designs, FRC units deliver dependable separation for industrial and municipal wastewater. With stainless-steel construction, plug-and-play setup, and automated controls, our DAF systems ensure compliance while reducing costs.

DAF works by dissolving air into a pressurized recycle stream of clarified effluent. When released into the tank, microbubbles attach to solids, oils, and grease, lifting them to the surface for skimming. Clarified effluent exits for reuse or discharge. FRC high rate designs use plate packs, to boost separation efficiency, cut energy use, and shrink system footprint.

Key Features

- High-efficiency removal of TSS, FOG, BOD, and COD
- Multiple configurations: high-rate, compact, and open-tank designs
- Non-proprietary pumps with angled air dissolving tubes
- Sludge dewatering grid option for drier, denser sludge
- Corrosion-resistant stainless-steel construction with alloy options
- Fully customizable system configuration including skids, catwalks, and controls

Specifications

- **Flow Rates:** Up to 2,000+ GPM (454.2 m^3/hr)
- **Free Area:** 5 – 500+ sq ft (0.5 - 46.5 m^2)
- **Effective Area:** 35 – 3,100+ sq ft (3.3 - 288+ m^2)
- **Construction:** Stainless steel (304, 316, duplex, or custom alloys)

Applications

- Food & Beverage wastewater treatment (meat, poultry, dairy, breweries)
- Oil & Gas, petrochemical, and refinery effluent treatment
- Pulp & Paper and chemical manufacturing facilities
- Municipal wastewater pretreatment and sludge thickening
- Mining, landfill leachate, and renewable fuels industries
- Any application requiring solids, FOG, or BOD/COD reduction

Why choose an FRC DAF System?

With hundreds of installations worldwide, FRC is a leader in Dissolved Air Flotation technology. Our stainless-steel DAF systems combine efficiency, low maintenance, and reliability with non-proprietary components and engineering support—delivering complete solutions that ensure compliance and reduce costs.

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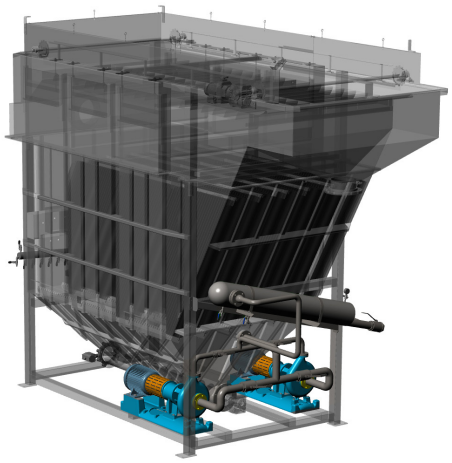
PCL-Series
High-Rate DAF System

Wastewater Pretreatment



FRC's PCL-Series DAF removes solids, oils, and FOG using high-rate flotation, crossflow plate packs, and in-tank sludge thickening for high-capacity wastewater applications.

The PCL-Series High-Rate Dissolved Air Flotation (DAF) system from FRC Systems is engineered for maximum performance in high-flow industrial wastewater environments. With a vertical, space-saving design and integrated crossflow plate packs, the PCL-Series efficiently removes Total Suspended Solids (TSS), Fats, Oils, and Grease (FOG), and other contaminants, delivering drier sludge and clearer effluent with a reduced footprint.

In the PCL-Series DAF system, clarified effluent is recirculated and saturated with air using an angled air dissolving tube and non-proprietary recycle pump. This creates a whitewater stream filled with microbubbles. When mixed with influent wastewater, the bubbles attach to suspended solids, causing them to rise. A crossflow plate pack improves separation by increasing effective surface area. At the top, floated solids are skimmed off while a dewatering grid thickens sludge, and clarified water exits below.

Key Features

- Vertical, high-built design for compact installation
- Crossflow plate pack increases separation area and solids capture
- Integrated sludge dewatering grid promotes thicker, drier sludge output
- Angled air dissolving tube for rapid whitewater generation
- Non-proprietary pumps
- Stainless-steel construction resists corrosion in harsh environments
- Fully customizable system configuration including skids, catwalks, and controls

Specifications

- **Flow Rate:** Up to 2,000+ GPM (454.2+ m^3/hr)
- **Free Separation Area:** 5.5 – 151 sq ft (0.5 - 14.0 m^2)
- **Effective Separation Area:** 32 – 3,101 sq ft (3.0 - 288 m^2)
- **Construction:** Stainless steel (304, 316, duplex, or custom alloys)

Applications

- Food and beverage processing
- Petrochemical and oil refining
- Pulp and paper industries
- High-load industrial wastewater
- Municipal pretreatment

Why choose the PCL?

The PCL-Series delivers reliable, high-rate separation with excellent sludge handling and energy efficiency, making it the ideal choice for demanding industrial and municipal wastewater applications.

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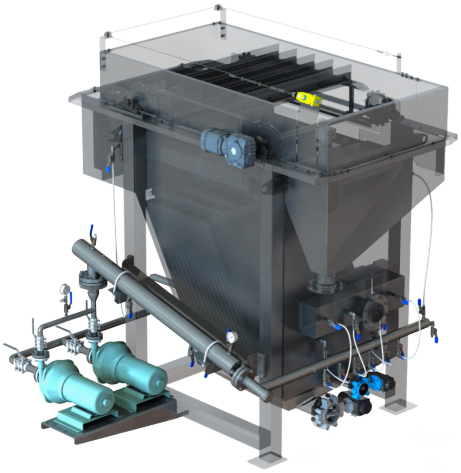
PCCS-Series
Compact DAF System

Wastewater Pretreatment



The PCCS-Series is a space-saving DAF system that can ship in a 20-ft ISO container—ideal for remote, temporary, or small-scale wastewater applications.

The PCCS-Series Compact DAF from FRC Systems is a high-efficiency, solution for suspended solids and FOG removal. Designed to ship in a standard 20-foot ISO shipping container, it's the go-to option for remote, mobile, or space-constrained industrial wastewater treatment needs.

The PCCS-Series DAF uses a non-proprietary pump and angled dissolving tube to generate whitewater microbubbles, introduced into the main wastewater stream inside a compact tank. By blending high free area for flow with high effective surface area for bubble-particle contact, the system optimizes solids and FOG separation. A motorized skimmer removes surface sludge into a hopper, while clarified water exits from the tank bottom. Its compact form allows for rapid deployment and high treatment efficiency in small or mobile applications.

Key Features

- Compact design fits inside a 20' ISO shipping container
- Easy to transport and quick to install
- Angled air dissolving tube enables fast whitewater generation
- Non-proprietary pumps
- Stainless-steel construction resists corrosion in harsh environments
- Fully customizable system configuration including skids, catwalks, and controls

Specifications

- **Flow Rate:** Up to 150+ GPM (34.1 m^3/hr)
- **Free Separation Area:** 8 – 45 sq ft (0.7 - 4.2 m^2)
- **Effective Separation Area:** 35 – 252 sq ft (3.3 - 23.4 m^2)
- **Construction:** Stainless steel (304, 316, duplex, or custom alloys)

Applications

- Remote and temporary wastewater treatment
- Packaged or export systems
- Industrial TSS and FOG removal
- Pilot-scale installations

Why choose the PCCS DAF?

Mobility, ease of setup, and reliable treatment performance make the PCCS-Series the compact DAF system of choice for industrial users facing space or location constraints.

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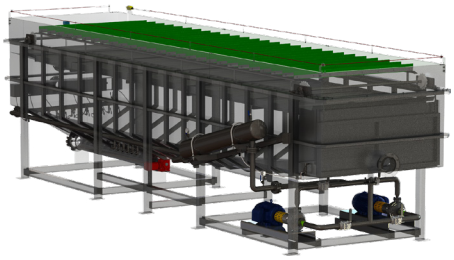
PWL-Series
Open-Tank DAF System

Wastewater Pretreatment



FRC's PWL-Series DAF handles heavy solids with a counter-current skimmer, large flotation surface, and sludge dewatering grid for efficient solids removal.

The PWL-Series DAF system from FRC is purpose-built for high-solids wastewater streams. Its low-built, rectangular design provides a large surface area for effective flotation, while the counter-current skimmer and dewatering grid maximize sludge dryness and simplify maintenance.

Wastewater flows horizontally through the open-tank PWL system while whitewater, created in an angled dissolving tube, introduces microbubbles that bind to suspended solids. These solids rise to the surface and are removed using a skimmer that moves in the opposite direction of flow, minimizing sludge carryover. The system's built-in dewatering grid thickens sludge in place. This open configuration handles heavy solids efficiently and allows for easy inspection and maintenance.

Key Features

- Low-profile rectangular tank ideal for high solids
- Counter-current skimmer minimizes sludge carryover
- Integrated sludge dewatering grid promotes thicker, drier sludge output
- Angled air dissolving tube enables fast whitewater generation
- Non-proprietary pumps
- Stainless-steel construction resists corrosion in harsh environments
- Fully customizable system configuration including skids, catwalks, and controls

Specifications

- **Flow Rate:** Up to 1,020+ GPM (231.7 m^3/hr)
- **Free Separation Area:** 14 – 510 sq ft (1.3 - 47.4 m^2)
- **Construction:** Stainless steel (304, 316, duplex, or custom alloys)

Applications

- Meat and poultry processing
- Rendering and slaughterhouses
- High-solids food and beverage facilities
- Mining and industrial wastewater
- Municipal waste activated sludge thickening

Why choose the PWL DAF?

Built for tough, solids-heavy wastewater, the PWL-Series excels in performance, service life, and operator convenience—making it the preferred solution for demanding industries.

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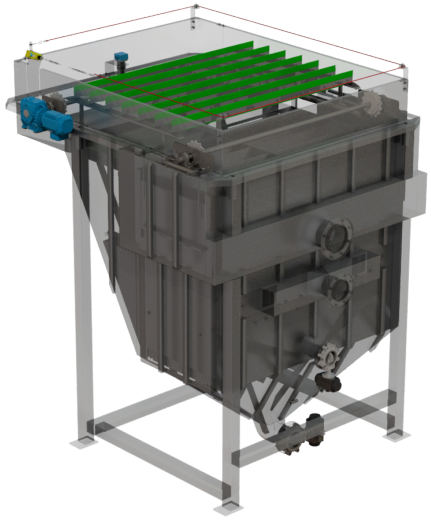
Corrugated Plate Interceptor (CPI) Oil & Water Separator

Wastewater Pretreatment



FRC's CPI Separator uses corrugated plates for gravity-driven oil and solids separation—ideal for refineries, terminals, and food processors.

FRC's Corrugated Plate Interceptor (CPI) is a high-efficiency oil-water separator designed to outperform traditional API separators by leveraging corrugated plate technology. The CPI system delivers superior separation of oil, water, and solids in a compact footprint with minimal operator intervention—making it ideal for industrial and petrochemical wastewater streams.

Influent oily wastewater enters the CPI separator and flows across inclined corrugated plate packs that slow the flow and promote phase separation. Due to density differences, solids settle to the bottom while oil droplets rise and coalesce on the plate surfaces. Skimmers remove the oil to a recovery trough, and sludge is discharged via augers. This gravity-based method efficiently separates immiscible phases, delivering cleaner effluent without the need for high-pressure or chemical inputs.

Key Features

- High-efficiency separation using inclined corrugated plate packs
- Compact design compared to traditional separators
- Stainless-steel construction resists corrosion in harsh environments
- Minimal moving parts for low maintenance
- Available with static or rotating oil skimmers
- Gas-tight cover options for volatile environments
- Fully customizable system configuration including skids, catwalks, and controls

Specifications

- **Flow Capacity:** Up to 6,000+ GPM (1,363+ m^3/hr)
- **Free Separation Area:** 5.5 – 151 sq ft (0.5 – 14 m^2)
- **Effective Separation Area:** 32 – 3,101 sq ft (2.97 - 288.1 m^2)
- **Construction:** Stainless steel (304, 316, duplex, or custom alloys)

Applications

- Oil and gas production wastewater
- Petrochemical and refinery effluent
- Produced water and frac flowback
- Food processing and meat/dairy operations
- Transportation terminals and bulk handling facilities
- Renewable fuels and LNG plants

Why choose a CPI?

FRC's CPI separator is a modern upgrade to outdated API systems—offering faster separation, better space utilization, and robust stainless-steel construction. With scalable designs and low-maintenance performance, it's the preferred choice for reliable oil-water separation across diverse industrial applications.

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F-Series
Flocculator

Wastewater Pretreatment

FRC Flocculators enhance solids separation with static mixing, air injection, and zero energy input—optimizing chemical use before DAF systems.

FRC's Flocculators are energy-free, inline mixing systems that promote effective coagulation and flocculation before dissolved air flotation. With no moving parts and minimal maintenance, they enhance solids removal while reducing chemical usage.

FRC's F-Series flocculators operate as inline static mixers. As wastewater passes through, coagulants and flocculants are introduced at designated injection ports. The internal pipe layout includes wide-radius bends and inline mixing zones, promoting gentle chemical mixing and optimal particle collision without mechanical shear. Air injection ports can also be used to introduce microbubbles. This setup prepares wastewater for DAF by creating large, stable flocs that separate efficiently during flotation.

Key Features

- Non-mechanical static mixing design
- Air injection ports for microbubble introduction
- Wide-radius bends protect floc integrity
- Chemical dosing and sampling ports allows for easy testing & optimization
- Built from corrosion-resistant HDPE, PVC, or stainless-steel

Specifications

- **Flow Capacity:** Up to 4,000+ GPM (908+ m^3/hr)
- **Construction:** PVC, HDPE, stainless-steel (304, 316)

Options & Accessories

- Custom diameters and flanged ends
- Sampling and monitoring ports
- Skid-mounted assemblies
- SCADA-ready control panels

Applications

- Pretreatment for DAF systems
- Industrial chemical conditioning
- Sludge thickening and dewatering prep
- Municipal wastewater pretreatment

Why choose an FRC Flocculator?

Reliable, low-maintenance, and energy-efficient, F-Series flocculators improve treatment effectiveness and lower chemical costs—making them essential for any chemical pretreatment train.

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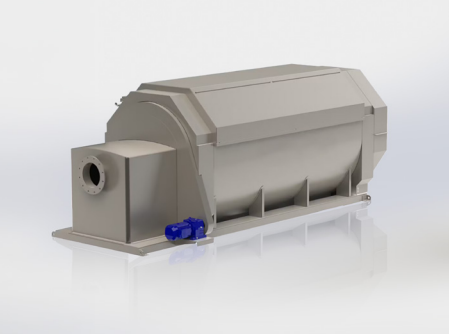
Rotary Drum Screening Systems

Wastewater Pretreatment



FRC's internally fed rotary drum screens remove coarse solids and reduce TSS/FOG to protect downstream processes like DAF or MBR.

FRC's Rotary Drum Screen Systems provide the first line of defense in wastewater treatment by removing solids and protecting downstream equipment. Engineered for industrial and municipal use, these internally fed screens offer high capture efficiency, durable stainless-steel construction, and automated low-maintenance operation across a wide range of flow rates and applications.

Wastewater flows into a headbox and spreads across the internal surface of a rotating drum screen. Solids are trapped on the screen's surface while liquid passes through the openings. As the drum rotates slowly, solids tumble, dewater, and are discharged from the bottom. An automatic spray bar periodically cleans the screen without continuous water flow. This slow-speed, internally fed process improves capture rates and protects downstream systems like DAFs and membranes from overload.

Key Features

- Internally fed drum design for high solids retention
- Slow drum rotation for enhanced solids dewatering
- Stainless-steel construction resists corrosion in harsh environments
- Flat-welded wedge wire or perforated plate screen media
- Automatic cleaning via low-pressure spray system
- Fully enclosed design with headbox, splash guards, and base frame
- Trunnion-mounted for long-term mechanical stability

Specifications

- **Flow Capacity:** Up to 6,500 GPM (1,476 m^3/hr) *Application dependent*
- **Screen Openings:** 250 – 2,540 microns (0.010" – 0.1")
- **Drum Sizes:** Up to 80" (2.03 m)diameter and 180" (4.57 m) length
- **Screen Media:** Wedge wire or perforated plate
- **Construction:** Stainless steel (304, 316, duplex, or duplex)
- **Standard Features:** Enclosed headbox, splash guards, chain drive, trunnion wheels, spray bar

Applications

- Food and beverage processing (meat, dairy, produce)
- Industrial manufacturing wastewater
- Primary screening for municipal systems
- Pretreatment before DAF, MBR, or clarifiers
- Cooling water and intake protection

Why choose a Rotary Drum Screen?

FRC screens deliver consistent solids removal with reduced water use and lower maintenance. Designed for durability and performance, they extend the life of downstream equipment and improve overall plant reliability—making them a critical component of any high-performance treatment system.

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Overview
Sludge Dewatering Systems

Sludge Management

FRC sludge dewatering systems cut sludge volume and disposal costs. Our Belt Filter Press and Multi-Disc Screw Press deliver drier cake with low energy use and reliable performance.

FRC sludge dewatering systems provide cost-effective solutions for reducing sludge volume and disposal costs. Our Belt Filter Press and Multi-Disc Screw Press handle diverse sludge types, delivering drier cake with lower utility use and simple operation. Built from stainless steel with automated controls, they improve efficiency, cut hauling costs, and ensure compliance.

Belt Filter Press: Sludge moves through gravity thickening and pressure stages on porous belts. Rollers squeeze out water, producing a consistent, drier cake.

Multi-Disc Screw Press: Flocculated sludge enters a screw with fixed and moving discs. As it rotates, water drains while sludge compresses into a high-solids cake. The self-cleaning design minimizes maintenance and water use.

Key Features

- Two proven dewatering technologies: Belt Filter Press & Multi-Disc Screw Press
- High solids capture rate with drier cake for reduced disposal volume
- Low energy and water consumption compared to conventional systems
- Stainless-steel construction resists corrosion in harsh environments with custom alloys available
- Easy integration with DAF, MBBR, or MBR wastewater systems
- Fully customizable system configuration including skids, catwalks, and controls

Specifications

- **Belt Filter Press Flow Rates:** Up to 350+ GPM (79.5 m^3/hr)
- **Belt Widths:** 0.5 – 3.0 meters
- **Multi-Disc Screw Press Flow Rates:** Up to 440+ GPM (100 m^3/hr)
- **Dry Solids Capacity:** Up to 4,000 lbs-DS/hr (1,814 kg DS/hr)
- **Construction:** Stainless steel (304, 316, duplex, or custom alloys)

Applications

- Food & Beverage wastewater treatment (dairy, meat, poultry, breweries)
- Municipal wastewater plants and sludge handling facilities
- Petrochemical, pulp & paper, and chemical industries
- Mining and landfill leachate treatment
- Any facility requiring reduced sludge hauling and disposal costs

Why choose a sludge dewatering system from FRC?

FRC sludge dewatering solutions deliver reliable performance at low lifecycle cost. Our Belt Filter Press and Screw Press reduce sludge volume, cut disposal costs, and provide long-term compliance savings.

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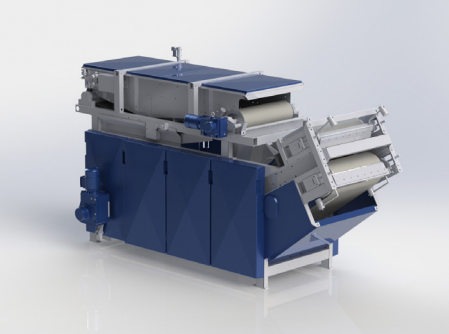
Sludge Dewatering System
Belt Filter Press

Sludge Management



FRC's stainless-steel belt press reduces sludge volume with stacked dewatering zones and continuous belt cleaning for low-maintenance operation.

The FRC Belt Filter Press is a high-throughput, automated dewatering system designed to reduce sludge volume and handling costs in industrial and municipal wastewater treatment. With a compact, vertically stacked design, this press delivers consistent, dry sludge cakes with minimal operator intervention—making it ideal for facilities processing oily, fatty, or particulate-rich sludge.

Conditioned sludge enters the belt press and moves through a series of dewatering zones. It first passes through the gravity drainage zone, where free water drains out. Then it moves into a wedge zone and is gradually compressed between two belts. In the final stage, high-pressure rollers extract the remaining water, producing a dry sludge cake. The belts are continuously cleaned with automated spray bars, allowing for consistent, unattended operation and reduced maintenance.

Key Features

- Vertically stacked gravity and pressure zones for space efficiency
- Continuous dewatering with automated belt cleaning
- Stainless-steel construction resists corrosion in harsh environments
- Available in widths from 0.5 to 3.0 meters
- Integrated control system with HMI and PLC
- Compatible with flocculators, polymer systems, and wash water modules

Specifications

- **Flow Capacity:** Up to 350+ GPM (79.5 m^3/h)
- **Effective Belt Width:** 24" – 120" (600 – 3,000 mm)
- **Effective Dewatering Area:** 35 – 388 sq. ft. (3.3 – 36 m^2)
- **Construction:** Stainless steel (304, 316, duplex)
- **Components:** Sludge inlet, thickening belts, roller assembly, spray bar, cake discharge chute

Applications

- Municipal wastewater sludge
- Food and beverage plant residuals
- Pulp and paper processing
- Industrial and chemical manufacturing
- DAF float and clarifier sludge dewatering

Why choose a belt filter press?

FRC's belt press is a proven, efficient solution for high-volume sludge dewatering. It combines compact footprint, robust construction, and fully automated operation—minimizing water, energy, and labor costs while delivering consistently dry sludge cakes.

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Sludge Dewatering System
Multi-Disc Screw Press

Sludge Management

The FRC Multi-Disc Screw Press provides efficient, continuous dewatering with ultra-low water usage and self-cleaning discs for reliable sludge management.

The FRC Multi-Disc Screw Press offers an energy-efficient, low-maintenance solution for sludge thickening and dewatering. Designed with a self-cleaning, clog-free architecture, this press combines gravity filtration and mechanical compression into one continuous process—ideal for a wide range of industrial and municipal wastewater applications.

Flocculated sludge enters a flocculation tank and is directed into a screw chamber containing multiple fixed and moving disc rings. As the screw slowly rotates, sludge is conveyed and compressed toward a back-pressure plate. Water is squeezed out through the disc gaps, while the motion of the discs prevents clogging and maintains filtration pathways. The dry cake is discharged at the end, and filtrate is collected separately. Its low water and energy usage ensure efficient, hands-free operation.

Key Features

- Clog-resistant multi-disc design with continuous self-cleaning
- Ultra-low water consumption: ≤5 gal/hr per screw
- Quiet, enclosed operation with minimal odor
- Stainless-steel construction resists corrosion in harsh environments
- Fully customizable system configuration including skids, catwalks, and controls

Specifications

- **Flow Capacity:** Up to 440+ GPM (100 m^3/hr)
- **Dry Solids Capacity:** Up to 3,000+ lbs/hr (1,361 kg/hr)
- **Typical Cake Solids:** 20% - 35% *Application Dependent*
- **Water Consumption:** < 5 gal/hr (< 18.9 L/hr) per screw
- **Construction:** Stainless steel (304, 316, duplex, or custom alloys); optional tungsten carbide coating
- **Components:** Screw assembly, disc modules, spray bar, sludge inlet, filtrate and cake outlets

Applications

- Industrial and municipal biosolids
- Food and beverage processing sludge
- Chemical and pharmaceutical waste streams
- DAF float thickening and dewatering
- Facilities with variable sludge flow or loading

Why choose a screw press?

FRC's screw press provides reliable, low-footprint sludge dewatering with minimal water, energy, and labor requirements. Its clog-free, automated operation ensures consistent cake dryness—making it a smart investment for sustainable and cost-effective sludge management.

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Overview
Biological Removal Systems

Biological Treatment

FRC biological wastewater treatment systems use MBBR and MBR technology to remove BOD, COD, and nutrients. Compact, efficient, and scalable solutions for industrial and municipal wastewater treatment.

FRC biological treatment systems use Membrane Bioreactor (MBR) and Moving Bed Biofilm Reactor (MBBR) technologies to deliver high-performance treatment in compact, reliable designs. They reduce BOD, COD, and nutrients while minimizing footprint and operator involvement. With flexible configurations and durable construction, FRC systems provide cost-effective solutions for industrial and municipal wastewater.

MBBR: Specialized plastic carrier media circulate freely in an aerated tank, providing a large, protected surface area for biofilm growth. The biofilm consumes organic matter and nutrients, naturally shedding excess biomass for removal via clarification or DAF.

MBR: Submerged ultra-filtration or micro-filtration membranes replace traditional clarifiers, filtering out biomass and suspended solids. This process produces exceptionally high-quality effluent suitable for reuse, discharge, or advanced polishing.

Key Features

- High-efficiency removal of BOD, COD, nutrients, and suspended solids
- Compact footprint compared to conventional activated sludge systems
- Resilient performance under variable flows and shock loads
- Low operator involvement with automated controls and monitoring
- Durable stainless-steel or concrete tank construction
- Scalable and upgradeable for future capacity needs

Specifications

- **Flow Rates:** Up to 10,000+ GPM (2,271+ m^3/h) depending on configuration
- **MBBR Media Fill:** 30 – 70% tank volume
- **MBR Membrane Pore Size:** 0.04 – 0.4 µm
- **Construction:** Stainless steel, coated steel, or reinforced concrete

Applications

- Industrial wastewater with high organic load
- Municipal wastewater treatment and reuse projects
- Mining, landfill leachate, and renewable fuels
- Facilities requiring nutrient removal (nitrogen, phosphorus)
- Treatment plants needing compact or retrofit solutions

Why choose biological system from FRC?

FRC provides biological treatment with proven MBR and MBBR technologies. Our systems deliver high-quality effluent in a compact footprint while reducing energy, sludge, and operator needs—helping with compliance today and scalability for tomorrow.

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Membrane BioReactor
MBR System

Biological Treatment

FRC's MBR system integrates biological treatment with membrane filtration, producing ultra-clear effluent in a space-saving configuration.

FRC's Membrane Bioreactor (MBR) system integrates biological treatment with advanced membrane separation for ultra-clear effluent. Ideal for reuse or discharge into sensitive environments, MBRs provide high-performance treatment in a compact design.

Wastewater is biologically treated in a reactor where microorganisms break down organic matter and nutrients. Instead of using a clarifier, the MBR system uses submerged ultra-filtration membranes to separate treated water from biomass. Membranes retain solids and pathogens, allowing only clean water to pass through. Sludge is wasted directly from the MBR tank. Aeration supplies oxygen and mixes the biomass, while membrane cleaning systems prevent fouling, producing high-quality effluent suitable for reuse or discharge.

Key Features

- Submerged membrane modules eliminate clarifiers
- Ultra-low TSS and turbidity and contaminants for reuse or discharge
- Compact footprint vs. conventional systems
- Sludge wasting directly from MBR tank
- Durable stainless-steel or concrete tank construction
- Excellent BOD, COD, nitrogen, and phosphorus removal

Specifications

- **Treatment Targets:** BOD, TSS, TN, TP, COD
- **Effluent Quality:** TSS < 5 mg/L (typical)
- **Reuse Potential:** Service water, irrigation, cooling tower
- **Membrane Type:** Submerged ultra-filtration

Options

- Air blowers and scour systems
- Clean-in-place (CIP) membrane cleaning
- SCADA control and automation panels
- Stainless or concrete tank configurations

Applications

- Industrial wastewater reuse
- High-quality municipal effluent
- Decentralized or mobile treatment systems
- Facilities with space or discharge constraints

Why choose an MBR system?

FRC's MBR delivers top-tier effluent quality, small footprint, and streamlined operation—making it ideal for advanced wastewater reuse and treatment compliance.

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Moving Bed BioReactor
MBBR System

Biological Treatment

FRC's MBBR system uses floating biofilm media in aerated tanks to reduce BOD, nitrogen, and phosphorus with no need for RAS or MLSS monitoring.

FRC's Moving Bed Biofilm Reactor (MBBR) is a high-rate biological treatment system that supports dense microbial growth on suspended carrier media. The result is a compact, self-regulating process that efficiently removes BOD, nitrogen, phosphorus, and COD without the operational burden of traditional activated sludge systems.

The MBBR process uses specialized plastic carriers suspended in an aerated tank to provide a high surface area for biofilm growth. As wastewater flows through the tank, bacteria living on the carrier media consume organic contaminants (BOD/COD) and nutrients such as nitrogen and phosphorus. Aeration keeps the carriers in motion and supplies oxygen. Excess biomass naturally sloughs off and is removed in downstream treatment. No sludge return or manual wasting is required, allowing for hands-off operation.

Key Features

- High surface area media for elevated biomass concentration
- No Return Activated Sludge (RAS) or MLSS monitoring required
- Automated, low-maintenance biological treatment
- Compact footprint with scalable tank design
- Durable stainless-steel or concrete tank construction
- Compatible with DAF or clarifier solids removal

Specifications

- **Fill Volume:** 30 – 70% of tank with carrier media
- **Construction:** Stainless-steel or concrete tanks
- **Operation:** Fully automated, no RAS or MLSS management

Options

- High-efficiency aeration blowers and diffusers
- Carrier media (see MBBR Media section)
- DO, ORP, pH, and temperature instrumentation
- SCADA-ready control panels
- Catwalks, platforms, and retrofit kits

Applications

- Industrial BOD/COD removal
- Municipal wastewater and decentralized plants
- Nutrient reduction for nitrogen and phosphorus
- Plant upgrades and retrofits with space constraints

Why choose an MBBR system?

FRC's MBBR offers robust performance with minimal operator input, making it the ideal solution for biological wastewater treatment in modern, space-conscious plants.

How can we help you? Contact us today to find your best solution.

frcsystems.com
+1 770-534-3681

A Sulzer Brand

Wastewater Treatment
Rental Systems & Pilot Testing

Services

Why choose FRC rentals?

FRC combines the industry's largest rental fleet with proven pilot testing expertise, giving you flexible access to treatment capacity and data-driven system design. Our plug-and-play equipment, rapid deployment, and expert engineering support reduce downtime, lower risk, and ensure compliance—backed by the trusted name in wastewater solutions.

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FRC offers North America's largest fleet of rental and pilot wastewater treatment systems—including DAFs, screens, presses, and CPI units. Skid-mounted, plug-and-play, and backed by expert support.

FRC Systems provides the most comprehensive fleet of rental and pilot wastewater treatment systems in North America. From emergency bypass to pilot testing for new plant designs, our modular, skid-mounted units are engineered for fast setup, reliable performance, and proven results. Whether you need temporary treatment capacity, permit compliance, or data to validate full-scale design, FRC delivers tailored solutions with full engineering support.

FRC rental and pilot systems arrive pre-wired, pre-plumbed, and fully outfitted with chemical dosing, pumps, instrumentation, and controls. After connection to site utilities, units are brought online within hours. For temporary treatment, rentals provide immediate capacity during plant shutdowns, emergencies, or compliance events. For validation, pilot systems replicate full-scale treatment in a controlled environment, measuring key performance metrics such as TSS, BOD, FOG, and sludge behavior. FRC engineers oversee setup, training, and ongoing support to ensure optimal operation.

Key Features

- Modular, skid-mounted units up to 681 m^3/h
- DAF, CPI, screens, sludge dewatering, and biological options
- SCADA-ready with integrated HMI controls
- Rapid deployment with plug-and-play installation
- Full field support from FRC engineers

Applications

- Emergency bypass and permit compliance
- Coverage during maintenance or construction delays
- Pilot testing to validate full-scale design
- Process optimization and scale-up trials
- Seasonal or remote wastewater treatment needs

Available Systems

- Dissolved Air Flotation (DAF) units
- Dissolved Gas Flotation (DGF) systems
- CPI oil-water separators
- Rotary drum screens
- Screw presses and belt filter presses
- Flocculators and chemical dosing skids

A Sulzer Brand

Lab-Based
Jar Sample Testing

Services

FRC performs jar tests to determine optimal coagulant/polymer dosing, simulate DAF performance, and reduce chemical costs.

FRC's in-house jar testing identifies the optimal pretreatment chemical strategy for dissolved air flotation and sludge dewatering. These controlled tests simulate full-scale performance to inform chemical dosing, equipment selection, and system design.

FRC performs jar testing by introducing various chemical treatments—coagulants, flocculants, pH adjustments—into small volumes of your actual wastewater. The process simulates coagulation, flocculation, whitewater interaction, and DAF flotation in a controlled lab environment. Sludge compressibility may also be tested for dewatering suitability. These tests help determine optimal chemical types, doses, and performance expectations before full-scale implementation, allowing you to fine-tune treatment and reduce chemical and operational costs.

Key Features

- Tests for coagulants, flocculants, pH adjustment
- Simulates coagulation, flocculation, DAF, and dewatering
- Analytical testing (TSS, FOG, BOD, COD) available
- Sludge compressibility analysis for equipment selection
- Final report includes polymer recommendations and dose ranges

Applications

- DAF system design and optimization
- Sludge thickening and conditioning
- Chemical program development
- Pilot system validation

Why choose FRC jar testing?

With proven lab protocols and deep application expertise, FRC's jar testing provides the clearest path to effective pretreatment, ensuring success from startup to long-term operation.

How can we help you? Contact us today to find your best solution.

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A Sulzer Brand

Genuine OEM & Aftermarket Spare Parts

FRC provides fast-delivery OEM parts to keep your wastewater systems running—available for both FRC and compatible third-party equipment.

FRC Systems offers a comprehensive inventory of genuine OEM spare parts for all our wastewater treatment equipment—including DAF systems, rotary drum screens, belt presses, screw presses, and more. Stocking the right parts reduces downtime, extends system life, and ensures continuous, compliant operation.

FRC knows the typical components in your treatment system—such as pumps, bearings, skimmer chain, belts, and valves—and maintains a ready stock of OEM replacements. When a part is needed, it's matched to your system specs and shipped rapidly. Parts are available for FRC systems and various competitor's equipment. This support ensures minimal downtime, reliable operation, and continued compliance with permit requirements, especially during scheduled maintenance or emergency repair situations.

Key Features

- OEM-grade parts for all FRC systems
- Fast shipping and emergency order support
- Support for legacy equipment and competitor brands
- Dedicated parts specialists for selection and troubleshooting
- Improves system uptime, performance, and regulatory reliability

Parts

- **DAF Systems**
  Recycle pumps, plate packs, skimmer drives, augers, valves, flow meters, pneumatic panels, bearings, chains and more
- **Belt Filter Press**
  Filter belts, scraper blades, cog wheels, gaskets, steering valves and more
- **Rotary Drum Screens**
  Drive sprockets, chains, trunnion wheels, pillow block bearings, spray nozzles and more
- **CPI Oil-Water Separators**
  Corrugated plate packs, auger drives, skimmer assemblies, drain valves and more
- **Flocculators**
  Pumps, meters, fittings, tubing, control panels, sensors and more
- **Visit our website for more details**

Why choose FRC spare parts?

Using genuine FRC parts protects your system investment, reduces risk of failure, and ensures long-term performance. Backed by fast delivery and expert support, FRC's spare parts program is your front-line defense against costly downtime.

How can we help you? Contact us today to find your best solution.

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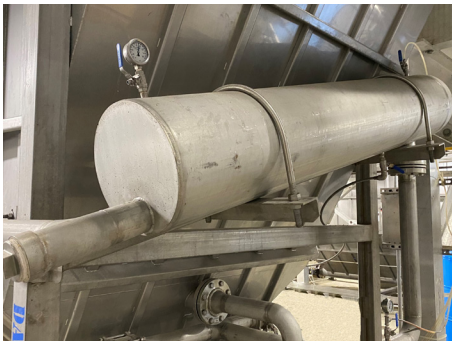
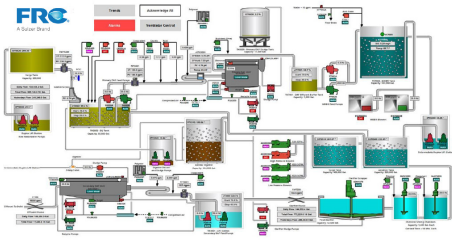
A Sulzer Brand

System Upgrades
Aeration, Automation & Retrofit Solutions

Services





FRC upgrades aging systems with modern recycle pumps, air dissolving tubes, SCADA-enabled panels, and brand-agnostic integration.

FRC Systems provides upgrade services to modernize existing wastewater treatment equipment, enhancing performance, reliability, and control. Whether upgrading outdated panels or retrofitting aeration systems, FRC brings new life to both FRC and third-party systems.

FRC assesses your current system to identify improvement opportunities in aeration, control, or automation. Upgrades may include replacing inefficient whitewater systems with angled air dissolving tubes, retrofitting proprietary recycle pumps with standard units or modernizing control panels with SCADA integration. Components are selected for compatibility and performance, and installations are completed with minimal disruption. These upgrades increase energy efficiency, reduce labor, and extend the service life of both FRC and third-party systems.

Key Features

- Retrofit aeration systems with angled air dissolving tubes
- Upgrade to non-proprietary recycle pumps
- Electrical panel modernization with SCADA/DCS integration
- Pneumatic panels with process safeguards
- Custom-engineered solutions with minimal downtime

Applications

- Under performing or aging wastewater systems
- Energy-inefficient aeration or whitewater generation
- Manual systems needing automated control
- SCADA integration and digital monitoring rollouts
- Competitor system retrofits

Upgrade Options

- **Aeration**
  Angled dissolving tubes for faster saturation and less energy use
  ANSI-standard recycle pumps with solids tolerance
- **Controls**
  PLC/HMI panels with SCADA, DCS, and remote access
  Alarming, trending, and historical data logging
- **Safety & Integration**
  Pneumatic panels with interlocks and process protection
  Integration into centralized plant systems

Why do system upgrades?

FRC's upgrades extend the life and value of your wastewater equipment. Whether improving aeration, automation, or control, our brand-agnostic solutions deliver high ROI without the cost of complete replacement.

How can we help you? Contact us today to find your best solution.

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