

JAEGER - BioCube™

Increased BOD Removal up to 60% by Volume
Enhanced Ammonia Removal / Nitrification at reduced Sludge Age



JAEGER BioCube™ - Self-weighted Retrievable Fixed Film Biofilm Reactors (FFBR) and Integrated Fixed film Activated Sludge Systems (IFAS) - Combined biomass – suspended and fixed.



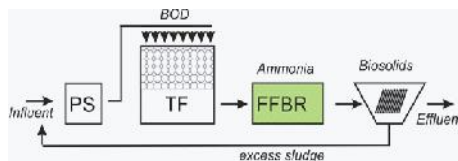
JAEGER BioCube™ a Self-weighted Retrievable fixed film stationary media module pre-engineered as a high rate air-lift reactor for enhanced BOD and/or Ammonia removal. **JAEGER BioCube™** consist of a vertical channel biofilm support media in honeycomb arrangement combined with **JAEGER OxyStrip™** strip diffusers for optimized air supply and uniform scouring of excess biomass.

JAEGER BioCube™'s hydraulic design creates a rolling flow pattern around the cube and supplies the active biomass with oxygen and substrate and prevents growth of inactive biomass, clogging and red-worms at the same instant. **JAEGER BioCube™**'s increases activated sludge reactor BOD removal capacity by up to 60% by volume compared to conventional suspended biomass reactors.

JAEGER BioCube™ - Applications

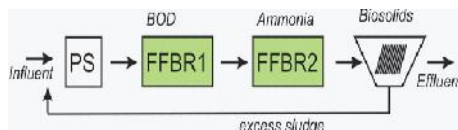
→ FFBR Post treatment of trickling filter → effluent

Trickling filters designed for BOD removal cannot easily upgraded for nitrification. A downstream FFBR system provides ammonia removal. Moreover, a submerged FFBR enhances the settle-ability of the biosolids in most cases. Since Trickling filters already have a clarifier, only the FFBR system needs to be integrated between the TF and the settler



→ FFBR system as sole biological treatment

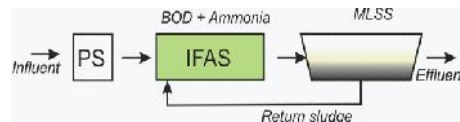
FFBR system may also be used as a sole biological treatment downstream of a primary settler. The first stage is designed for BOD removal, followed by nitrification unit.



PS = Primary settling; MLSS = Mixed liquor suspended Solids

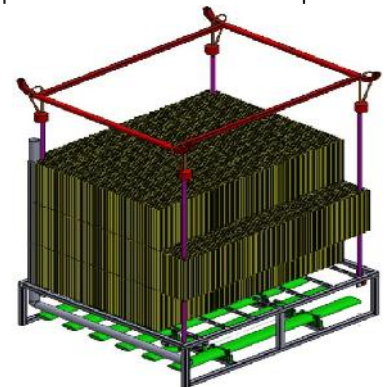
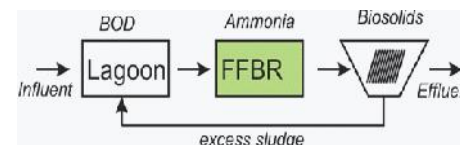
IFAS system

IFAS systems are commonly used for upgrades of existing activated sludge systems. Typically the aerated reactor is converted to an additional biofilm reactor with high biomass concentration, since biofilm and suspended biomass share the same reactor volume. Depending on the initial situation, significant upgrades in treatment efficiency can be accomplished.



→ FFBR Post treatment of lagoon effluent

Typical Lagoon effluents are low in solids and BOD but cannot provide ammonia removal in most cases. A downstream FFBR system provides nitrification. The generated solids concentration is low and can be separated with tube settler or conventional clarifier.

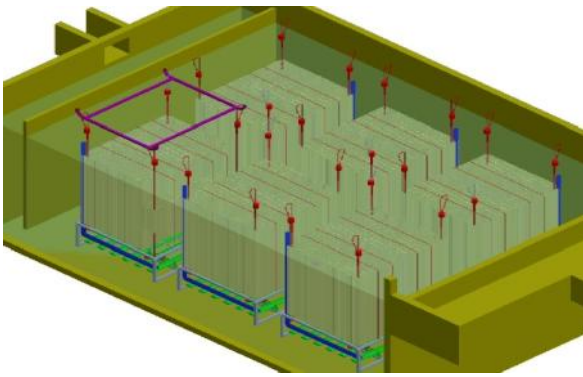


The **JAEGER BioCube™** module has a standard size of 6' [1.85m] wide x 7' [2.15m] deep x 6' [1.85m] or 8' [2.45m] high subject to side water depth. It contains up to 336 ft³ [9.5 m³] of biofilm support media for BOD or Ammonia / Nitrogen removal. The Media is a high load vertically honeycomb and large surface area structure:

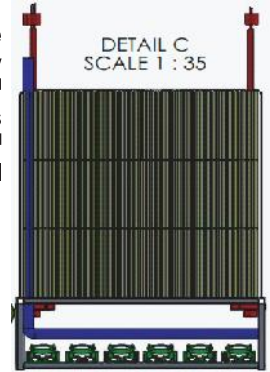
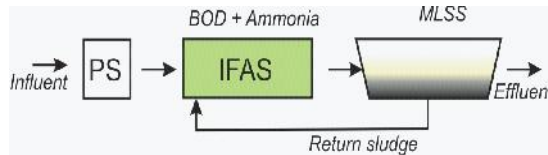
	Media	Typical removal capacity per module
BOD removal	46 ft ² / ft ³ [150 m ² /m ³]	80 lbs. BOD/day [36.6 kg/d]
Ammonia removal	73 ft ² / ft ³ [240 m ² /m ³]	5 lbs. Ammonia / N per day [2.3 kg/d]

Standardized and scalable lagoon ammonia removal concrete tank & **JAEGER Bio Cube™** ablock design solutions are available customized to local lagoon WWT conditions.

JAEGER BioCube™ - Typical (IFAS) Block Reactor Design



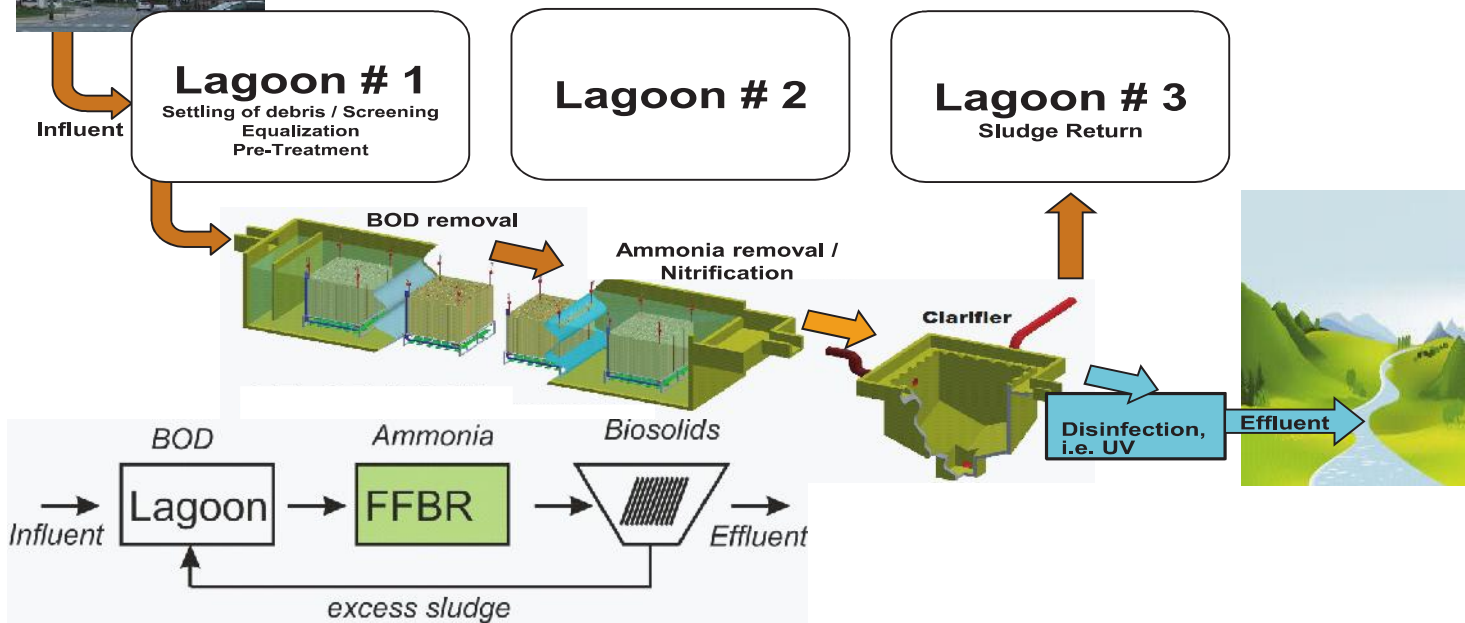
The JAEGER BioCube™ fixed film stationary media module rest on a high strength stainless steel frame and is secured by cables. The frame houses up to 6x 2m long JAEGER OxyStrip™ strip diffusers underneath the media module. Lifting cables connect to a lifting rig frame used for multiple JAEGER BioCube™ modules allowing for a compact, cost-effective, easy to install and maintain WWT system.



JAEGER BioCube™ - Lagoon Ammonia Removal - FFBR Post treatment of lagoon effluent



JAEGER BioCube™ provides a compact, simple, easy to manage WWT solution i.e. to rural municipalities and industrial process plants to enhance their existing lagoon based WWT process and to meet today's more stringent ammonia discharge limits.



Gummi-Jaeger AERATION LLC Distributor



Gummi-Jaeger AERATION LLC, USA
 4175 Mulligan Dr.
 Longmont, CO 80504 U.S.A.
 Phone: +1-970-535-0554
 Fax: +1-970-535-0945
 info@jaeger-aeration.com
www.jaeger-aeration.com

Gummi- Jaeger AERATION LLC is the waste water treatment industries pioneer of EPDM fine bubble membrane diffusers. We created the world's first fine bubble rubber membrane diffuser in **1975**. In the United States and worldwide, customers have benefited from Gummi-Jaeger wastewater diffuser products since the early 1980s. Gummi-Jaeger was instrumental in the initial design, rubber chemistry, perforation patterns for high SOTE of the majority of today's well know fine bubble diffuser suppliers. **Gummi-Jaeger AERATION LLC** is a third generation business and originated in Germany. **We produce domestically here in Colorado USA since 1994** membranes, assemblies, and components for original equipment manufacturers (OEMs) and supply fine bubble aeration equipment solutions to municipalities and industrial clients up to the top of the aeration tank. We are the industry's only full line supplier who offers fine bubble membrane disc, tubular, and strip diffusers / aerators equipped with EPDM, Silicone and/or Polyurethane membrane materials.

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