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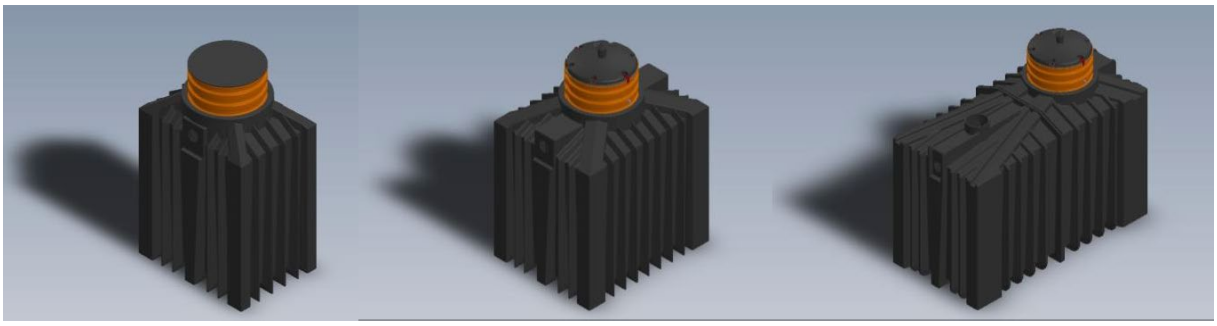
Data sheet ClearFox® FBBR Module AP



Description fixed bed biological reactor (FBBR) module

ClearFox® FBBR modules are fully equipped bioreactors with a high-quality PE shape. All equipment is preinstalled in a cubical tank, such as aeration membranes, distributor system, blank holders and all support for positioning grid tube blocks in order to get a high-performance bioreactor for waste water treatment.
The shape of the tank and most of the equipment is made by rotomoulding in one piece, out of high resistible polyethylene or stainless steel 1.4571. The modules are designed for installation in client's tank (concrete chambers, steel frame systems, HC sea containers (i.e. ClearFox® containerized container modules). Interfaces to client are designed for a fast and simple plug & play connection onsite.
Two modules can be connected for a water flow in series, for a parallel installation the water has to be splitted. Included in the scope is a blower and airsplitters (pro rata), which are suitable to the number of units and the kind of connection.
Client must provide mechanical screened wastewater (≤ 3mm). To reduce TSS a clarifying unit after the modules is advised.
According to client's requirements (inlet concentration, effluent requirement, carbon and/or nitrogen removal) inside the modules there are different bio carriers implemented.
The design is according to DWA guidelines, the cleaning efficiency is approved in field tests, made by external wastewater institutes. Test reports and certificates for static, performance, origin, DWA guidelines are available on request.

- **optional** with a – **outside horizontal around** - steel frame for **onfloor** installation of the tank in steel bar 80 mm x 40 mm (underground **inside** reinforcement is standard)
- **optional** domeshaft access
- in-/ outlet connection, DN100
- Water depth about 1,40 cm

Equipment parts:

Module	FBBR1250	FBBR2250	FBBR3500
Tank:	**1250 l Tank**	**2250 l Tank**	**3500 l Tank**
Measures: (l,w,h) in cm (with outside frame)	90/122/171 (106/138/171)	154/122/171 (170/138/171)	243/122/171 (259/138/171)
Required space:	1,25 m³	2,25 m³	3,5 m³
Transport weight:	130 kg	200 kg	250 kg
Max. operation weight:	1300 kg (with water filling)	2300 kg (with water filling)	3550 kg (with water filling)
Inlet connection:	DN 100	DN 100	DN 100
Outlet connection:	DN 100	DN 100	DN 100
blower:	115 W	250 W	350 W
Entry:	Lid (60 cm diameter)	Lid (60 cm diameter)	Lid (60 cm diameter)

Performance rate per tank @ 20 hours equalised feeding

Carbon reduction

Performance specific surface area of media 100-150 [m^2/m^3]	1250 l	2250 l	3500 l
Max. feedrate [m³/d]	6,6	11,1	18,3
PE	44	74	122
Carbon reduction (COD) [kg/d]	4,4	7,4	12,2

Carbon reduction and nitrification

Performance specific surface area of media 100-150 [m^2/m^3]	1250 l	2250 l	3500 l
Max. feedrate [m³/d]	2,7	4,6	7,6
PE	18	31	51
Carbon reduction (COD) [kg/d]	1,8	3,1	5,1
Nitrification (NH4-N) [kg/d]	0,18	0,31	0,51

(50g BOD/p.e.; 100g COD/p.e.; 10g N/p.e.)

The specific surface depends on the concentrations of the inflow. The degradation is calculated for municipal/domestic concentrations; higher concentration, as for industrial applications will give

higher performance rates.
Units in series are working with an higher treatment efficiency, that results in an higher degradation per day.
Nitrification requires COD reduction in advance. It must be secured, that after every reactor the TSS are reduced by clarifying.

Benefits for ClearFox® FBBR modules

fast startup, cost saving in installation, small footprint	flexible against underload and overload
modular system, adaptable at every application	industrial as well as municipal wastewater
high performance with high quality, Made in Germany	stable and very robust process technology