

BioAir Pilot unit Type BA-P-05/1

The Berghof tubular membranes have been successfully applied to filter various types of wastewater especially biomass from the bioreactor.

In an effort to take advantage of this experience as well as save power by operating at lower transmembrane pressure, the Berghof BioAir concept should provide even longer life than the high pressure crossflow system.

The Berghof BioAir MBR concept is an very low energy optimized process for reliable and economic treatment of low and medium strength wastewater.

BioAir Technology is a combination of cross flow technology with very low velocity, backwashable membranes and air injection to support the shearing force .

Applications

Membrane modules of the product line BioAir are suitable for the treatment of wastewater especially for biomass separation in membrane bioreactors (MBR)

Recommended sludge concentration 5 to 15 g/l in the following applications:

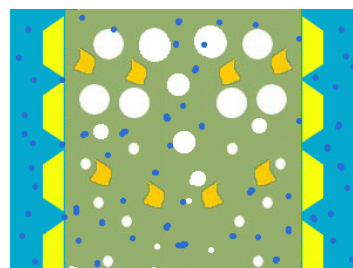
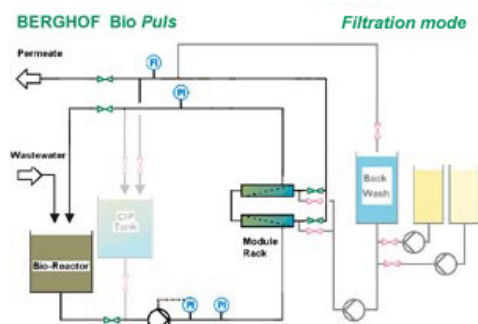
- Industrial membrane bioreactors
- Municipal membrane bioreactors

Process principle

Activated sludge from the bioreactor is pumped, at an optimized, controlled flow rate, to the bottom of the module where air is injected. This effect increase the velocity that aids scouring inside the membranes. The scouring mixture discharges out the top of each module and after degassing, is returned to the bioreactor.

The system operates on a continuous basis and is controlled by permeate pump that control the rate of flow from the membranes.

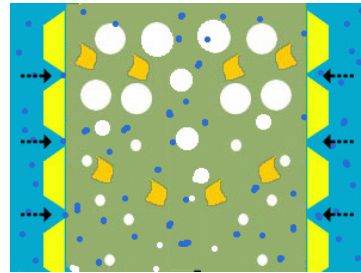
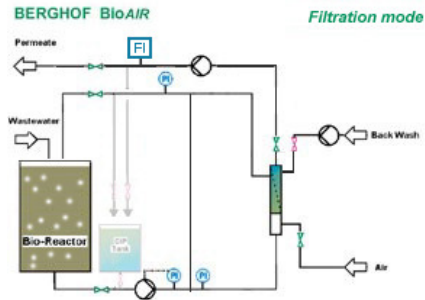
Filtration velocity	0,5 – 1 m/s including air injection
Low energy	0,7 – 1,5 kWh/m ³
Permeate flux	30 – 50 l/hm ² . (depends on application)



Membrane cleaning

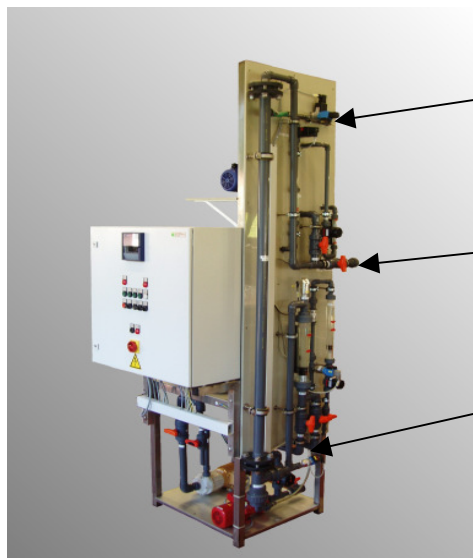
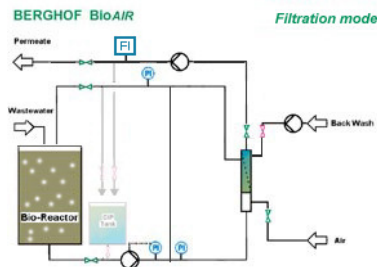
Automatic BioAir membrane backwash

The automatic backwash program for each module for removing the clogging layer on the membrane surface.



- the module was cleaned under optimal conditions
 - the TMP is bounded by an safety installation pressure control
 - the backwash frequency and the backwash time is freely programmable
- | | |
|--------------------|----------------|
| Backwash frequency | 5 - 60 minutes |
| Backwash time | 15 to 45 sec |

Backwashing has proven to be a key element in maintaining flux and minimizing TMP



Permeate

Concentrate

Feed

Technical Data

Dimensions	Length	1.300	mm
	Weidth	1.200	mm
	Height	2.200	mm
Weight	approx. 300 kg		
Piping connection	Feed	DN 25	
	Permeate	DN 20	
	Concentrate	DN 20	
	Air	DN 15	
Piping	PVC		
Electrical Connection	Connector plug 16 A 3 kW, 380 V, 50 Hz		
Data recording	complete information about the operating data with pressure, flow and temperature		

Membrane- / Module data

Module	Tubular
Module type	P13C(1,3m)-66.03-I8LE
Module quantity	max. 1
Membrane type	66.03_I8LE
Membrane area/Module	0,53 m ²
Membrane area	installed 0,53 m ²
Membrane material	PVDF
Membrane diameter	8 mm
Cut off	30 nm

Operating conditions

Capacity	depends on the application approx. 15 – 100 l/h
Circulation pump	Velocity between 0,5 – 3,0 m/s
Air injection	0,5 – 1,0 m/s
Temperature	max. 45 C
pH-Bereich	2 - 11
Operating pressure	max. 6 bar

Commercial conditions

Please ask for commercial conditions.

**Berghof Filtrations- und
Anlagentechnik GmbH & Co KG**