

FlexBio

SBR-MBR-plant

Container-based, turnkey, compact system solution

We deliver and provide service worldwide!

**Mechanical-biological wastewater treatment
for municipal and industrial wastewater**



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FlexBio SBR-MBR plant

Sustainable, efficient and flexible - the perfect solution for modern wastewater treatment!

Modular container solutions for industrial and municipal wastewater treatment

Our compact, modular containerized systems offer a turnkey solution for effective wastewater treatment. The systems integrate mechanical pre-treatment, SBR or MBR technology and sludge dewatering and are ready for use immediately after delivery.

APPLICATION AREAS

Our container solutions are particularly suitable for :

- hotel facilities
- Commercial enterprises
- Agriculture
- Settlements up to 1000 inhabitants

As a container solution

Our container solutions are particularly suitable for:

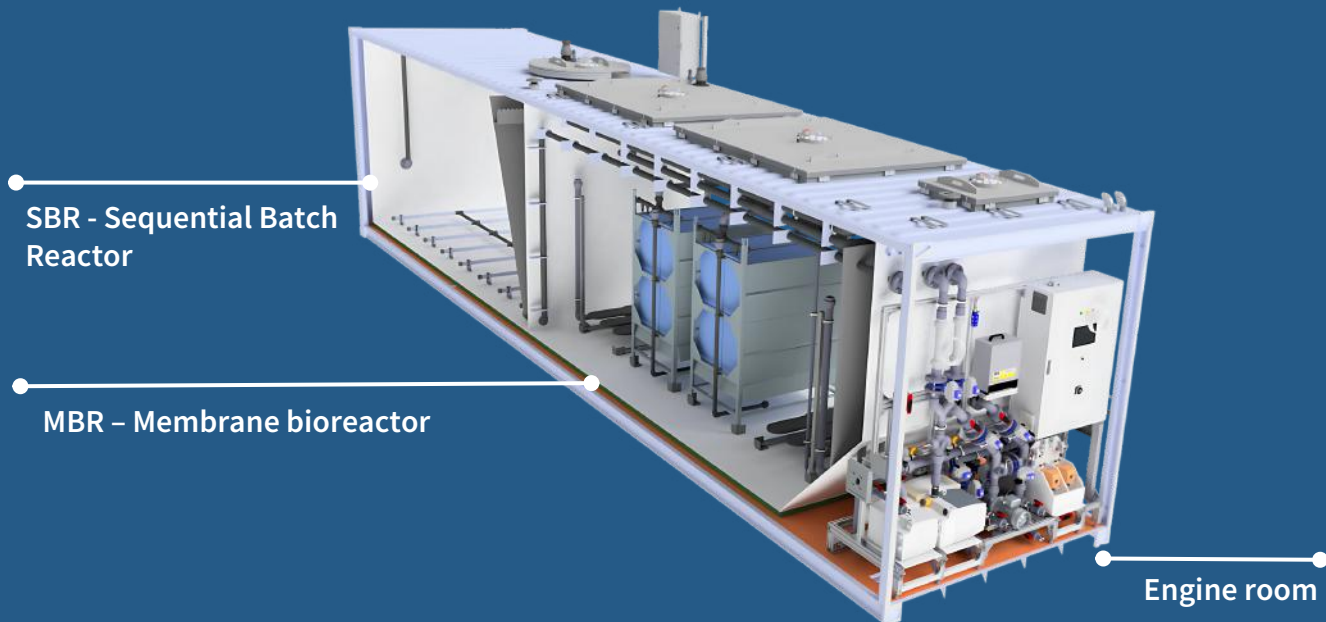
- From 25 to 1,000 population equivalents
- From 5 to 150 m³/d
- Customised and flexible
- Expandable
- Quick and easy installation
- Plug & Play

Also possible in combination with anaerobic technology!



Ideal combination of SBR and MBR technology in wastewater treatment!

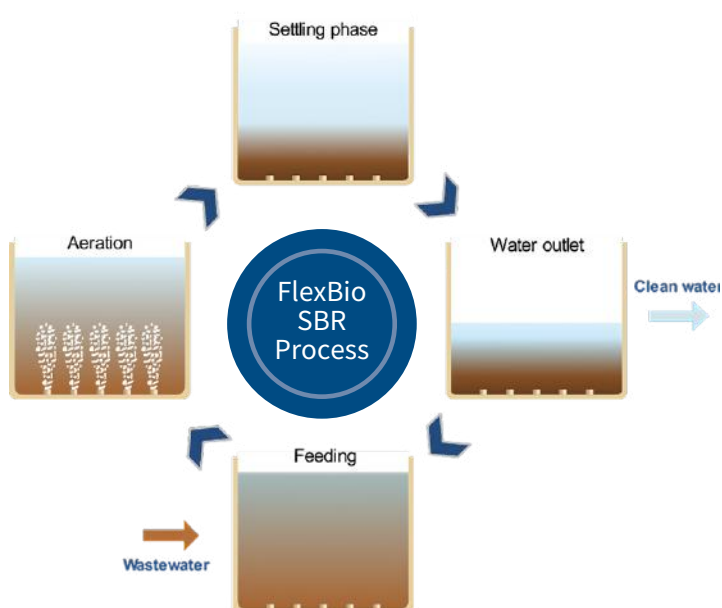
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Why is SBR the best choice?

SBR technology offers highly efficient, flexible and space-saving wastewater treatment, optimised operational reliability and low investment costs - ideal for sustainable and economical solutions!

The fully automatic solution for biological wastewater treatment!



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Process

Functional description of the FlexBio SBR-MBR-plant

Solid separation

Thanks to its compact design and high-quality screening technology, it reliably removes solids, reduces the sludge load and improves downstream cleaning processes. The automated self-cleaning, low-maintenance operation and high throughput capacity make it an economical and sustainable solution for modern wastewater treatment plants and industrial applications.

SBR - Sequential Batch Reactor

Our containerised SBR systems offer a space-saving, modular and powerful solution for wastewater treatment. Thanks to its cyclical operation, it enables efficient removal of pollutants, nitrogen and phosphorus - ideal for municipal and industrial applications. The compact design ensures quick installation and easy scalability, while the automated control system guarantees low-maintenance operation.

MBR - Membrane bioreactor

Our MBR system (membrane bioreactor) combines biological wastewater treatment with state-of-the-art membrane filtration - for crystal-clear wastewater and maximum efficiency. The compact containerised design enables quick installation, a minimal footprint and flexible use in industrial and municipal applications. Thanks to high sludge retention and low maintenance, the system reduces operating costs and improves water quality.

Sludge dewatering

The filter bags offer a space-saving and efficient solution for sludge dewatering in compact wastewater treatment plants. The fine filtration retains solids while the water drains cleanly - without any complex technology. The process is energy-efficient, low-maintenance and flexibly scalable, ideal for industrial and municipal applications.



Table with typical inlet and outlet values for municipal wastewater

Effluent values before and after clarification in an SBR plant and after additional treatment with MBR

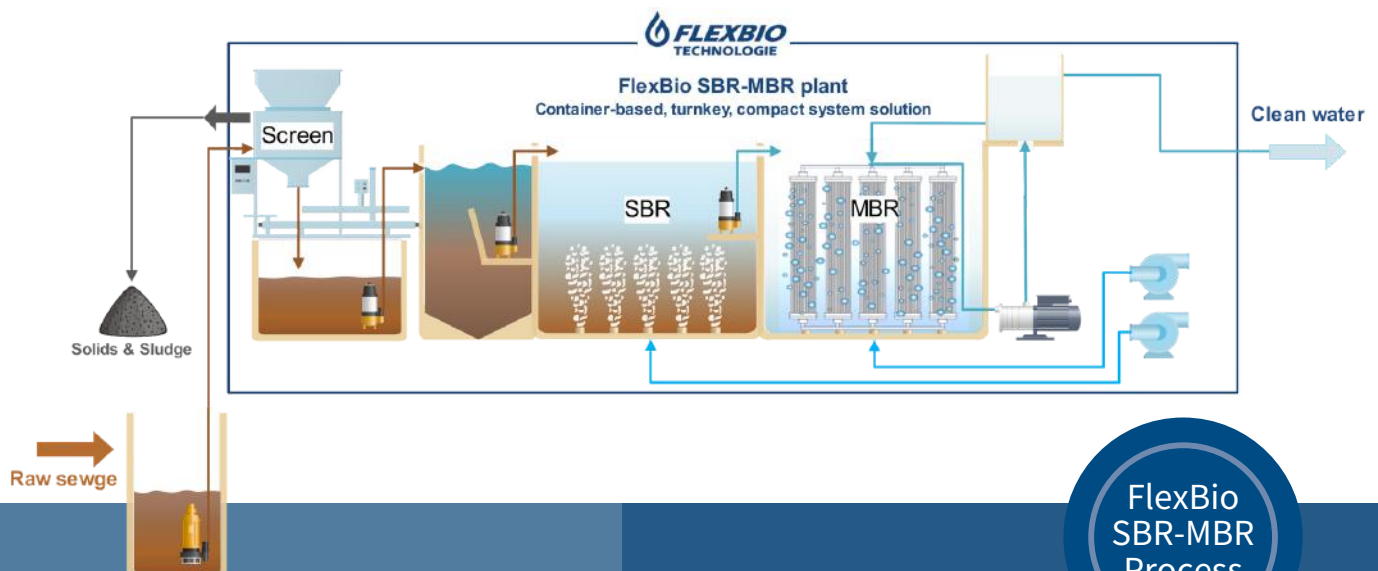
Parameters	Inlet	Outlet after SBR	Outlet after SBR+MBR
Chemical oxygen demand (COD)	250-700 mg/l	< 50 mg/l	< 30 mg/l
Biochemical oxygen demand (BOD5)	150-400 mg/l	< 10 mg/l	< 5 mg/l
Total nitrogen (TN)	40-80 mg/l	< 10 mg/l	< 5 mg/l
Chemical oxygen demand(NH ₄ -N)	20-50 mg/l	< 1 mg/l	< 0,1 mg/l
Total phosphorus (TP)	6-15 mg/l	< 1 mg/l	< 0,05 mg/l
Suspended solids (TSS)	150-350 mg/l	< 10 mg/l	< 1 mg/l
pH value	6,5-8,5	6,5-8,5	6,5-8,5
Faecal coliforms (CFU/100ml)	10 ⁶ -10 ⁸	10 ³ -10 ⁴	< 10 ¹ (partly not detectable)
E. coli (CFU/100ml)	10 ⁶ -10 ⁷	10 ³ -10 ⁴	< 10 ¹ (partly not detectable)
Enterococci (CFU/100ml)	10 ⁴ -10 ⁶	10 ³ -10 ⁴	< 10 ¹
Micropollutants (e.g. drug residues, pesticides)	Up to µl range	Reduction by approx. 30-50%	Reduction by 80-99%, depending on substance class

Additional notes on the table data

- These values are typical average values and can vary depending on the load of the wastewater and the operating mode of the SBR system.
- SBR already reduces some of the germs and micropollutants, but only MBR technology can filter out almost all suspended solids and microorganisms.
- MBR achieves almost germ-free water through membrane filtration (pore size typically 0.1-0.4 µm).
- Micropollutants such as hormones, pharmaceutical residues and pesticides are largely retained by MBR, although some substances can only be almost completely eliminated with additional activated carbon or ozone treatment.

Why MBR is the best choice?

- Perfect water quality for reuse & environmental protection
- Removal of over 99 % of suspended solids and bacteria (no pathogens)
- Microplastics & micropollutants are greatly reduced
- Up to 50 % smaller than conventional activated sludge processes
- Ideal for decentralised systems & space-constrained situations
- Also works with strong load fluctuations
- Expandable & modular - perfect for future requirements



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Process

Specification of complete wastewater treatment in a compact containerised design

Model	Compact SBR-75	Compact SBR-150	Compact SBR-MBR-50	Compact SBR-MBR-100
Brief description	Complete, biological wastewater treatment	Complete, biological wastewater treatment	Complete, biological wastewater treatment	Complete, biological wastewater treatment
Medium (municipal wastewater)	Raw sewage	Raw sewage	Raw sewage	Raw sewage
Construction	20 ft container	40 ft container	20 ft container	40 ft container
Mechanical solids separation	Yes	Yes	Yes	Yes
Biological purification (SBR)	Yes	Yes	Yes	Yes
Sludge dewatering	Yes	Yes	Yes	Yes
Ultrafiltration (MBR)			Yes	Yes
Maximum throughput	10 m ³ /d	20 m ³ /d	7,5 m ³ /d	15 m ³ /d
Population equivalent	75 PE	150 PE	50 PE	100 PE
Excess sludge production	2.0 kg DM/d	4.0 kg DM/d	1.5 kg DM/d	3.0 kg DM/d
Power connection	2.5 kW/400V/3 Ph, N, PE	3.5 kW/400V/3 Ph, N, PE	3.5 kW/400V/3 Ph, N, PE	4.5 kW/400V/3 Ph, N, PE
Dimensions L/W/H	6.5 m/2.45m/3.2m	12.5 m/2.45m/3.2m	6.5 m/2.45m/3.2m	12.5 m/2.45m/3.2m
Weight empty / filled	7.5 t/33.3 t	10.1 t/55.8 t	8.5 t/34.9 t	11.5 t/56.5 t

Other combinations and system sizes available on request!

Modular container solutions for industrial and municipal wastewater treatment

Depending on requirements, solutions are available in 20ft containers (up to 75 PE) or 40ft containers (up to 150 PE). For larger requirements, several containers can be combined to create plant networks with a capacity of up to 1000 PE.



Specification of modular wastewater treatment in a compact container design

Model	BasicMSS-1000	BasicSBR-250	BasicSBR-500	BasicMBR-500	BasicMBR-1000	BasicSFB-500	BasicSFB-1000
Brief description	Mechanical Pre-cleaning	Compact SBR system	Compact SBR system	Compact MBR system	Compact MBR system	Compact SFB system	Compact SFB system
Medium (municipal wastewater)	Raw sewage	Wastewater without solids	Wastewater without solids	Pretreated wastewater	Pretreated wastewater	Surplus sludge	Surplus sludge
Construction	freestanding	20 ft container	40 ft container	20 ft container	40 ft container	10 ft container	20 ft container
Mechanical solids separation	Yes						
Biological cleaning (SBR)		Yes	Yes				
Sludge dewatering						Yes	Yes
Ultrafiltration (MBR)				Yes	Yes		
Maximum throughput	150 m ³ /d	40 m ³ /d	80 m ³ /d	75 m ³ /d	150 m ³ /d	3 m ³ /d	5 m ³ /d
Population equivalent	1000 PE	250 PE	500 PE	500 PE	1000 PE	500 PE	1000 PE
Excess sludge production		8.0 kg DM/d	16.0 kg DM/d	15.0 kg DM/d	30.0 kg DM/d	100.0 kg DM/d	200.0 kg DM/d
Power connection	1.5 kW/400V/3 Ph, N, PE	3.5 kW/400V/3 Ph, N, PE	5 kW/400V/3 Ph, N, PE	3.5 kW/400V/3 Ph, N, PE	5 kW/400V/3 Ph, N, PE	0.5 kW/400V/3 Ph, N, PE	1 kW/400V/3 Ph, N, PE
Dimensions L/W/H	3.5m/1.5m/2.7m	6.5m/2.45m/3.2m	12.5m/2.45m/3.2m	6.5m/2.45m/3.2m	12.5m/2.45m/3.2m	3.0m/2.45m/2.6m	6.1m/2.45m/2.6m
Weight empty / filled	0.6 t/0.85 t	6.2 t/34.8 t	9.0 t/57.8 t	6.9 t/34.8 t	9.8 t/58.3 t	3.1 t/8.9 t	4.9 t/10.5 t

Other combinations and system sizes available on request!

We offer complete wastewater treatment from a single source - from planning and delivery to commissioning. Our trained staff will instruct and train the operators. The treated wastewater can be discharged in an environmentally friendly manner or used for irrigation purposes or as process water.



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Process

**Everything from a single source!
We deliver system solutions!**

**Modular container solutions for industrial and
municipal wastewater treatment**

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