



BSK®-Turbines
(Surface Aerators)



BSK®-Decanters
(SBR Effluent Systems)



Wastewater
Treatment Plants

Products and Services

- **Biological Wastewater Treatment Plants**
- **SBR Equipment**
- **Aeration Systems**
- **Control Panels for WWTPs**





WWTP of a clinical center in Riad (1985 - 20,000 p. e.)

- Reconstruction concepts
- Maintenance and repair

Tradition Combined with Innovation: 30 Years' Experience and Plenty of Smart Ideas

Our knowledge of wastewater treatment and aeration systems is based on many projects, successfully designed and completed by us over a number of decades, both in Germany and worldwide.

Brief and Clear: Our Business Profile

Biological Wastewater Treatment Plants

- For housing developments and villages
- For industrial facilities
- Space saving compact design
- Indoor solutions, neutral appearance
- Turn key construction
- Customised solutions
- Upgrading, redesign and refurbishment

Equipment for Wastewater Treatment Plants

- BSK® surface aerators (turbines)
- BSK® effluent decanters (SBR)
- Fine-bubble aeration
- Mixing equipment
- Equipment for analyzing and control

Consulting & Service

- Concept plant design
- Detailed plant design



SBR-WWTP of the village Virje (Croatia)



BSK®-Decanter of the WWTP Rumenka (Serbia)



SBR-WWTP of the city of Koprivnica (100,000 p. e.)

We specialise in individual solutions "tailor-made" to the demands of specific project requirements. Some of these WWTP projects are described in detail by our "case histories" as well as photos, which are part of this bulletin. For more information several leaflets, CD presentations and final effluent test result reports which are available on request.

For more information:
Info-Bulletin No. 015





SBR-WWTP of Hoxberg (Germany)

- Customized plant design, adapted to specific local conditions
- Support of local consultants with general and detailed engineering
- Delivery of the complete “technical package” with outstanding German quality
- Straight forward civil construction for easy realization at customers’ site
- High-efficiency treatment results in low investment and operation costs

A Promising Future for Smaller Wastewater Treatment Plants: We have the Solutions

An important activity of our company’s business is to design and construct smaller wastewater treatment plants, which are typically required by communities, villages, tourist areas, industrial zones and similar projects. Plenty of worldwide references and more than 3 decades of experience are the current foundation for plant-concepts, which offers low investment costs, economic operation combined with high effluent quality standards.

Our activities have expanded beyond the German market. We work with customers and consultants worldwide to produce wastewater treatment plants, which are individually designed and equipped to project specific requirements using high-quality German equipment – promising a straight forward, high level operation over a long life-time.

We are active in several countries through our own offices or distributors. All are highly motivated to meet the requirements of our customers:



WWTP of Ebratshofen (Germany)



SBR-WWTP of Sopo (China)

- Supervision of assembly and start-up-assistance, as well as intensive training of local personnel
- Process proving to demonstrate process compliance with the client’s specification



SBR-WWTP of a tobacco factory in Bitola (Macedonia)

For more information:
Info-Bulletin No. 010





SBR-WWTP of the city of Amreya (Egypt)

SBR-Technology: Flexible Operation – Easy Extension on Demand

The “activated sludge technology” for wastewater treatment has a history of more than 100 years and is still the most important and successful treatment concept. Based on its outstanding advantages, a fascinating variation of traditional “continuous-flow-plants” was created: The “Sequenced Batch Reactor Technology” (SBR) offers not only high treatment efficiency, outstanding flexible operation, particularly compact structures, but also perfect conditions for modular “step by step” extension.

For more than 30 years we have offered SBR plants on a turn-key basis or as a package of “engineering and equipment”. Our SBR components like aeration systems (BSK® turbine) and effluent discharge systems (BSK® decanters) is not only a typical component of our own WWTPs, but is also requested for third party projects.



SBR-WWTP of the city of Hisarya (Bulgaria)

More than 100 reference plants worldwide demonstrate the success of our SBR technology:

- **Space-saving, well designed compact buildings**
- **“Tailor-made”, project-dependent plant layout**
- **Single or multi-stream design**
- **Nitrification, denitrification and phosphorus removal to high standards**
- **Low investment and operation costs**
- **Corrosion-free equipment (stainless steel and fibreglass)**



SBR-WWTP of the city of Durdevac (Croatia)



SBR-WWTP of Provadia (Bulgaria)

Several “case histories” are available – in addition to detailed bulletins describing the BSK® products for SB reactors.

For more information:
Info-Bulletin No. 010





WWTP of Münchwies (Germany)

Experienced and Still one of the Best: Compact "Continuous Flow" Treatment Plant

Although we promote the SBR technology owing to its excellent advantages, for many projects it is preferable to use the "continuous flow process". Beginning in the early 70s our company realised plenty of these biological wastewater treatment plants, which are successfully operating in villages as well as for industrial facilities (automotive factories, breweries, tanneries etc.).

The German term "Kombibecken" (combined tanks) describes the characteristic shape of our "continuous flow concept": the combination of two concentric tanks. The inner tank forms the final clarifier, while the ring-like outer basin represents the aeration tank.

The size of our "Kombibecken" is not limited: starting from small plants for housing compounds and ending with diameters of up to 30m for cities, tourist areas or factories.



WWTP of the Adam Opel AG (Germany)

The most important features are:

- **Compact, space-saving structure**
- **Flexible adaptation to untypical plant load**
- **High oxygen input efficiency**
- **Separated systems for aeration (fine-bubble membranes) and mixing (submersed propeller-units)**
- **Excellent performance of nitrification and denitrification**



WWTP of Gersheim (Germany)



WWTP of the rendering plant Detmold (Germany)

- **Submersed outlet pipe (no overflow weir)**
- **Reliable operation through use of stainless steel components**

For more information:
Info-Bulletin No. 047





BSK®-Turbines – WWTP Körkwitz (Germany)

**Reliable Aeration at Highest Performance Level:
BSK®-Turbines (Surface Aerators)**

The outstanding performance characteristic of BSK®-Turbines for aeration of biological reactors is successfully demonstrated by thousands of applications worldwide. Based on the traditional shape of the famous "Crown-surface aerators", developed by our Swiss partner (BSK-Norm A.M.C. AG) and sold to plenty of wastewater treatment plants worldwide, we have now successfully improved the capacity of aeration and mixing, offering now seven remarkable features:

- **Completely made of stainless steel (AISI 304 or AISI 316)**
- **Corrosion resistant, no wear or tear**
- **High mixing capacity, vertical flow pattern**
- **Outstanding oxygen input capacity**
- **Non-clogging impellers**



BSK®-Turbine as a 3D model

- **Clockwise and counter-clockwise operation possible**
- **Available with integrated macerator**

BSK®-Turbines are available with diameters beginning at 900 mm and ending with 3,150 mm. They can be installed at floating systems (SB-reactors or sludge storage tanks) or at fixed bridges (overflow-reactors).

Our scope of supply is not limited to the BSK®-Turbine itself. We offer also complete aeration systems including gear drives, which are produced by famous German manufacturers that consider the high-level BSK® specification –



BSK®-Turbines of a paper factory in Spain

resulting in long bearing lives, service factors of > 2.0 and electrical motors with high efficiency (IE3). Our customers can be assured of the best quality and minimum operation costs.

For more information:

- IN 004-98 General Info**
- IN 005-99 Technical Info**
- IN 007-02 Type "ZK"**





BSK®-Decanter of the WWTP Kaisten (Switzerland)

Perfect Final effluent Discharge from SB Reactors: BSK®-Decanting "Technology"

For more than 20 years we have design and constructed SBR treatment plants for many projects with great success. This pioneering feat combined with convincing advantages of this operation mode of activated sludge treatment plants are the reason, that SBR WWTPs became an important position. However, these advantages must be supported by properly working technical equipment.

In addition to reliable mixing and aeration system (i. e. BSK®-Turbines) a perfect discharge of the final effluent represents a key element of SB Reactors to achieve outstanding process results.

Biogest International® GmbH has developed a so called "decanting system", which offers many advantages (compared with other discharge systems) and guarantees, that the SBR process runs perfectly. Using a specially designed inlet pipe, connected to a maintenance-free twisting link, the final



BSK®-Decanter of the WWTP Sharjah (UAE)

effluent is discharged free of turbulence and without disturbing the sludge blanket.

The key features of the BSK® decanters are:

- **Step-by-step lowering - synchronized with the water level**
- **No discharge of floating sludge**



BSK®-Decanter of the WWTP Durdevac (Croatia)

- **Maintenance-free submersed rotating joint**
- **Completely manufactured in stainless steel (AISI 304/316)**
- **Parking position above maximum water level**
- **Integrated emergency overflow**
- **Heavy-duty electrical winch, mounted at the tanks rim for easy access**

BSK® decanting systems are available with different pipe diameters and for hydraulic discharge capacities of up to 500 l/s. Even though the decanters' design is based on a standard configuration, each BSK®-Decanter is designed according to individual project conditions.

For more information:
Info-Bulletin No. 065





Control panel of the WWTP Svilengrad (Bulgaria)

Software and operating programs are created in our dedicated department – based on a close cooperation with our customer. Installation, start-up, process proving and after sales service is a clear goal of our engineers.



Inner view of the control panel of a WWTP

The "Brain" of each Wastewater Treatment Plant: The Electrical Control System

The best process idea is useless, if it is not organised and controlled by a reliable, intelligent and flexible control system. Furthermore, a balanced integration of hardware and software is a necessary requirement for proper plant operation.

Consequently, we have established our own manufacturing line for control panels, which guarantees conformity of our technical equipment with an adapted plant control. Upon our customers' request we can provide a SCADA system for visualisation and remote maintenance.

Our control panels are equipped exclusively with components of manufacturers, which are represented worldwide (i.e. Siemens, Phoenix, Endress & Hauser, etc.). Due to this international standard, local maintenance and repair could be easily achieved – including in less developed countries.



Frequency converter of an electrical drive system



View of the control panel

Subject to change without notice.

Copyright © Biogest International® GmbH - www.biogest-international.de

Biogest International® GmbH
Berthold-Haupt-Str. 37
D - 01257 Dresden, Germany

Phone: + 49 351 / 3 16 86 -0
Fax: + 49 351 / 3 16 86 -86

E-mail: info@biogest-international.de
Internet: www.biogest-international.de



IN 006-10 UK Edition: 05.2016

