Biogest International GmbH
Wastewater Treatment Systems

represented in

Dresden, Munich, Bulgaria, Croatia, Poland

Our Office in Dresden (Germany)
Biogest International GmbH

is specialized for engineering of wastewater treatment plants for smaller projects like villages, holiday compounds, hotel areas, military installation, commercial centers and similar facilities.
Our Basic Products

are installations for wastewater treatment plants, which are produced under the trade mark BSK® like

- Surface aerators
- Decanting systems (for SB-reactors)
- Floating systems (for SB-reactors)
- Control centers (PLC with Fuzzy-Logic)

Moreover, we are engineering-partner of the German company INVENT AG. Consequently, the range of our products is also including the innovative, world-wide patented HyperClassic-Technology.
This presentation is focused to the HYPERCLASSIC-TECHNOLOGY

which was invented by the German university Nuremberg. Years of experience and improvements are the basis for an outstanding technology for mixing and aeration, which could be offered for wastewater treatment plants. Hundreds of worldwide operating installations are the proof for the impressive feature at the highest competitive level.
Mixing and Oxygen Supply are the key processes of biological treatment of wastewater. If both are not performed properly, technical, economical and process problems are unavoidable.
INNOVATIVE HYPERCLASSIC-TECHNOLOGY

Let’s Start with

Mixing

of Wastewater and Sludge
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Targets of Mixing

- Homogenization of suspensions
- Equal concentrations
- No settling of solids or flakes
- High mixing rate
- Low energy consumption
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Traditional Systems for Mixing

- High speed submersed stirrers
- Low speed submersed propeller mixers
Disadvantages of Traditional Systems

- High energy requirement
- Wear parts below water
- No homogenous mixing profile
- Settling zones (dead zones) possible
- High maintenance frequency
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The Solution:

HyperClassic Mixers
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Characteristics and Features of HyperClassic Mixers

- Completely different shape of the mixing body
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Characteristics and Features of HyperClassic Mixers

- Acceleration of liquid by specifically formed transport ribs (patented item)
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Characteristics and Features of HyperClassic Mixers

- Low speed and “soft” energy input do not destroy flakes (in contrary to high speed submersed mixers)
Self-adjusting drive shaft prevents unbalanced operation (fibres are not able to stick at the mixing body)
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Characteristics and Features of HyperClassic Mixers

Central installation guarantees symmetric mixing profile without “dead zones”. Perfect conditions for processes, which require homogenous conditions.
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Characteristics and Features of HyperClassic Mixers

→ Dry mounted motor drive for easy service and maintenance
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Characteristics and Features of HyperClassic Mixers

- Low specific energy consumption
  (standard energy density: $2 \text{ W/m}^3$)
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Characteristics and Features of HyperClassic Mixers

- Wear and service parts are **not at submersed position**. No pull-up of heavy machinery for maintenance.
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Typical Project Examples

Example No. 01: Denitrification basin of WWTP “Berlin – Schoenerlinde”
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Typical Project Examples

Example No. 02: Inlet Equalization Tank of a Brewery
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Typical Project Examples

Example No. 03: Mixing of pre-thickened sludge prior to dewatering
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Typical Project Examples

Example No. 04: SBR-Tank with Central Mixer for Denitrification (Huludao – China)
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After explaining the HyperClassic-mixers we would like to introduce the

HYPERCLASSIC-AERATION TECHNOLOGY

representing an outstanding alternative to conventional aeration systems like surface aerators, fine bubble membrane systems and injectors
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Key Targets of the System

a) Oxygen input at a high efficiency level
b) Production of fine bubbles *without* use of sensitive membranes
c) Simultaneous mixing of the aerated liquid
d) Constant distribution of fine bubbles as far as possible
e) Wearless and submersed installations
f) Easy maintenance and service
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The Basic Idea

- Rotating HyperClassic-stirrer equipped with plenty of shear ribs
- Diffusion of coarse air bubbles to micro-bubbles by *mechanical* shredding
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Most Important Advantages

Advantage No. 1

The alpha-value is high and ranges between 0.85 and 0.95. Compared with the oxygen input capacity under standard conditions, the O₂-transfer is reduced by not more than max. 15 % (membrane systems: 40 – 50 %)
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Most Important Advantages

Advantage No. 2
No clogging possible due to coarse bubble air input and production of micro-bubbles by mechanical shredding (and not by sliced membranes)
INNOVATIVE HYPERCLASSIC AERATION

Most Important Advantages

Advantage No. 3

Mixing and aeration by use of only one system. Perfect conditions for nitrification and denitrification within one biological reactor.

**Nitrification phase**
- aeration and simultaneous mixing

**Denitrification phase**
- no aeration - only mixing
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Most Important Advantages

Advantage No. 4

Easy access to the only service part of the HyperClassic-aerator (dry mounted, robust gear drive)
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Most Important Advantages

Advantage No. 5

Adjustable speed (frequency converter) for optimization of the process and for economical operation
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Most Important Advantages

Advantage No. 6

Adjustment of the blower capacity (frequency converter) in order to match the O₂-requirements of the process
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Different Sizes for Different Projects

- Stirrer diameters are available between 1.0 m and 2.5 m
- Oxygen input capacity of one aerator up to 150 kgO₂/h
Example No. 01

SBR-WWTP operating at the Black Sea coast of Bulgaria (60,000 p.e.), totally 12 HyperClassic-aerators are operating.
Example No. 02
WWTP of a large brewery in Belgium operating since 8 years for the full satisfaction of our client
Example No. 03

WWTP of the University of Tetovo (Macedonia), operating with one SB-reactor (batch operation) equipped with one HyperClassic-aerator
Example No. 04

WWTP of a yeast factory in Ukraine operating since 2 years for the full satisfaction of our client
We hope that our presentation could explain the special features of the **HyperClassic-Technology** for mixing and aeration in wastewater treatment plants.

It would be a pleasure for us to receive your enquiries for application.

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