Biogest International GmbH

Wastewater Treatment Systems

represented in

Dresden, Munich, Bulgaria, Croatia, Poland

Our Office in Dresden (Germany)

Company`s Profile

What we did

- **Foundation** of „Biogest Systemkläranlagen GmbH“ in 1976
- **More than 500** wastewater treatment plants were realized worldwide by the Biogest-group until now

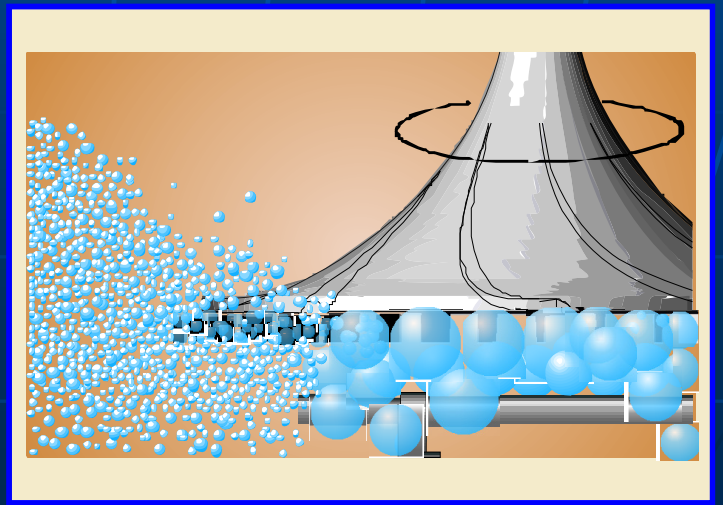
What we offer

- **Planning and construction** of wastewater treatment plants – especially compact systems (SBR) – individually adapted to specific project conditions
- **Development and fabrication** of innovative products for wastewater treatment in the field of wastewater treatment plants

Introduction of Innovative Products for Wastewater Treatment

➔ **Compact pretreamtent stations** with automatic screen, solids washing and dewatering press and patented sand trap with integrated grease separator

➔ **Aeration systems,** type „HyperClassic“ for trouble-free fine bubble aeration



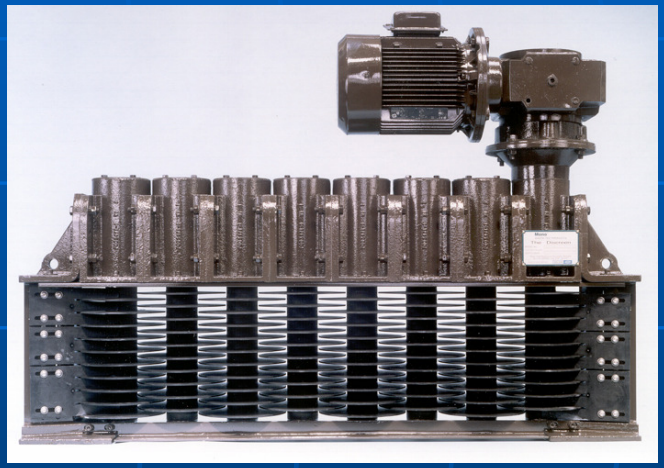
Introduction of Innovative Products for Wastewater Treatment

➔ **BSK®-Decanters** for discharge of purified wastewater (SBR-technology)

➔ **Surface aerators** according to the francis turbine design

Introduction of Innovative Products for Wastewater Treatment

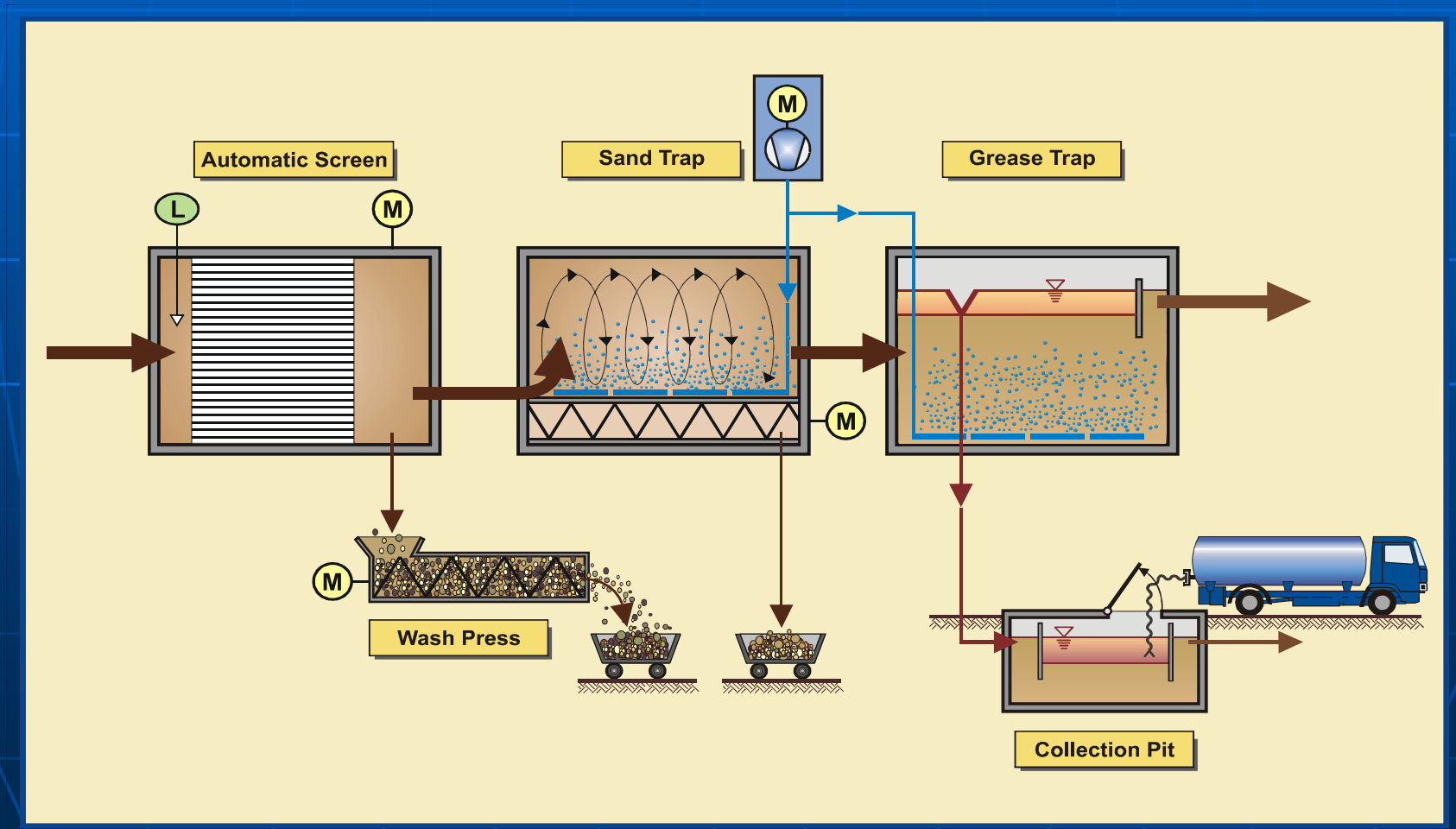
➔ **Disc-Screen** for removal of solids out of wastewater



➔ **Heavy-duty crusher** („Muncher“) for macerating of coarse solids in sewage or sludge

Compact Pretreatment Station with Patented Sand Trap

Functional Scheme



Compact Pretreatment Stations with Patented Sand Trap

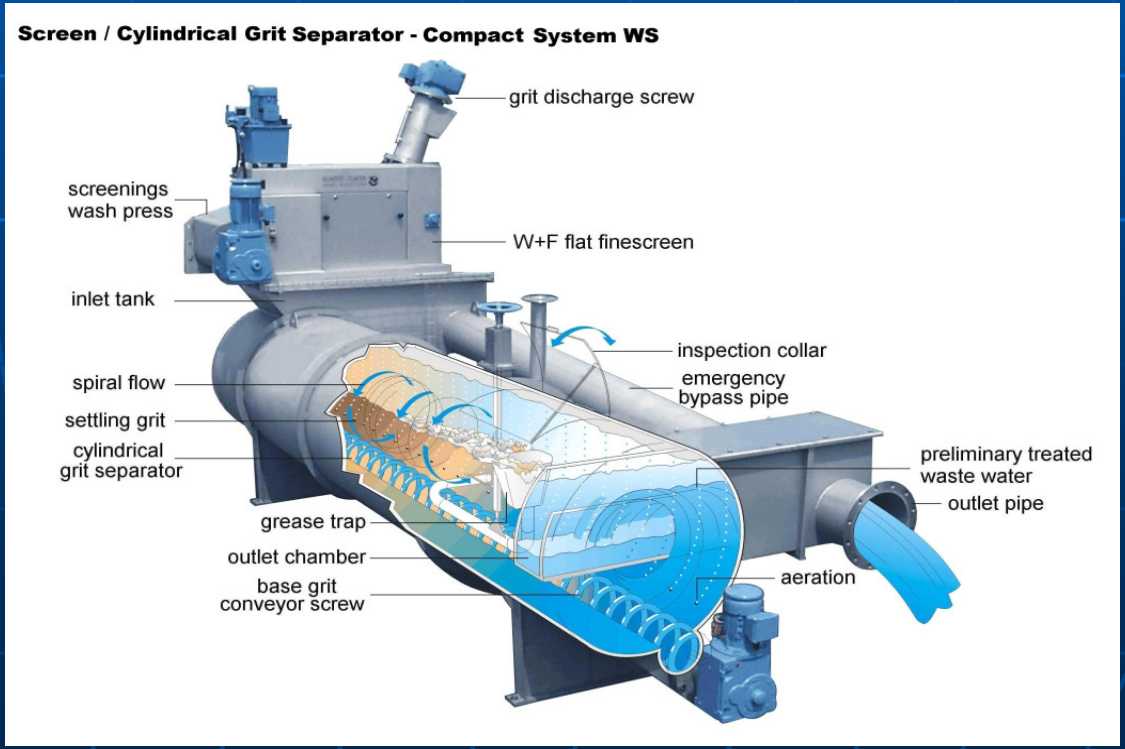
Advantage 1: Robust fine screen with slot widthes between 1-10 mm

Compact Pretreatment Stations with Patented Sand Trap

Advantage 2: Return of organic components by intensive washing before dewatering of the solids

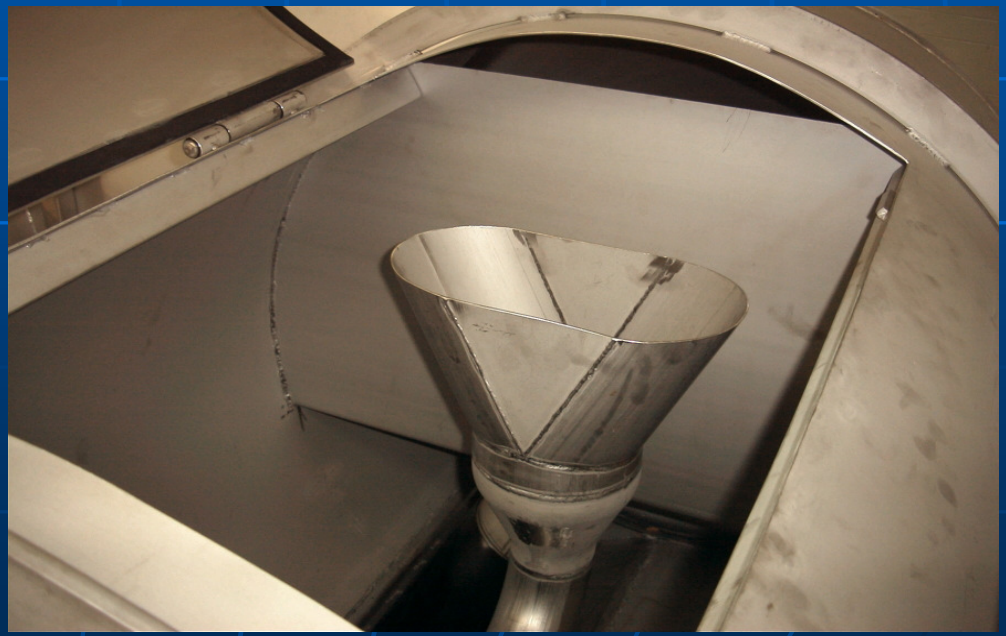
Compact Pretreatment Stations with Patented Sand Trap

Advantage 3: **Exceptionally short construction combined with perfect separation of sand and grease by patented drum flow** (grain diameter Ø 0.20 mm => 95 % separation)



Compact Pretreatment Stations with Patented Sand Trap

Advantage 4: **Efficient grease separation by asymmetrical aeration**



Compact Pretreatment Stations with Patented Sand Trap

Summary of Advantages:

- Short construction length
- Outstanding efficient separation of solids, sand and grease
- Completely made of stainless steel – robust construction
- Turn-key delivery („plug and operate“)
- Further use of the sand (with sand washer)
- Hydraulic capacity up to 300 l/s – parallel operation of two and more stations possible

Compact Pretreatment Stations with Patented Sand Trap

Examples of Operating Systems:

01

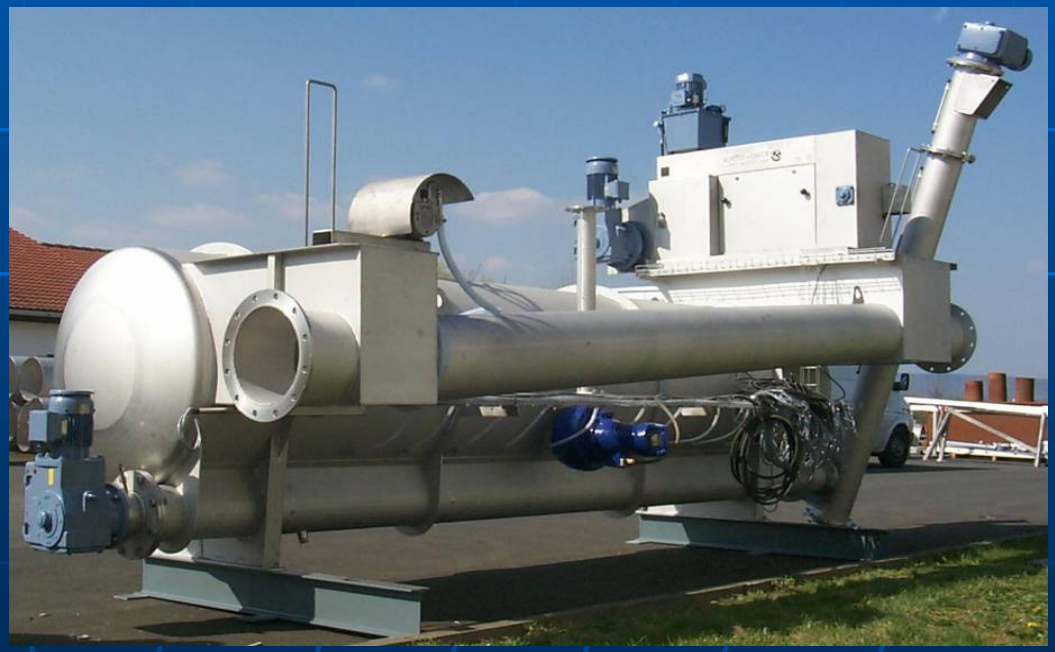
02

Compact Pretreatment Stations with Patented Sand Trap

Examples of Operating Systems:

03

04



HyperClassic-Technology for Fine Bubble Aeration

Disadvantages of conventional membrane aerators:

- → With increasing operation time decreasing O_2- supply capacity
- → Danger of clogging, caking of slots
- → Mechanically instable, chemically vulnerable
- → Low α-value, poor operating efficiency
- → Additional stirrers necessary for mixing

HyperClassic-Technology for Fine Bubble Aeration

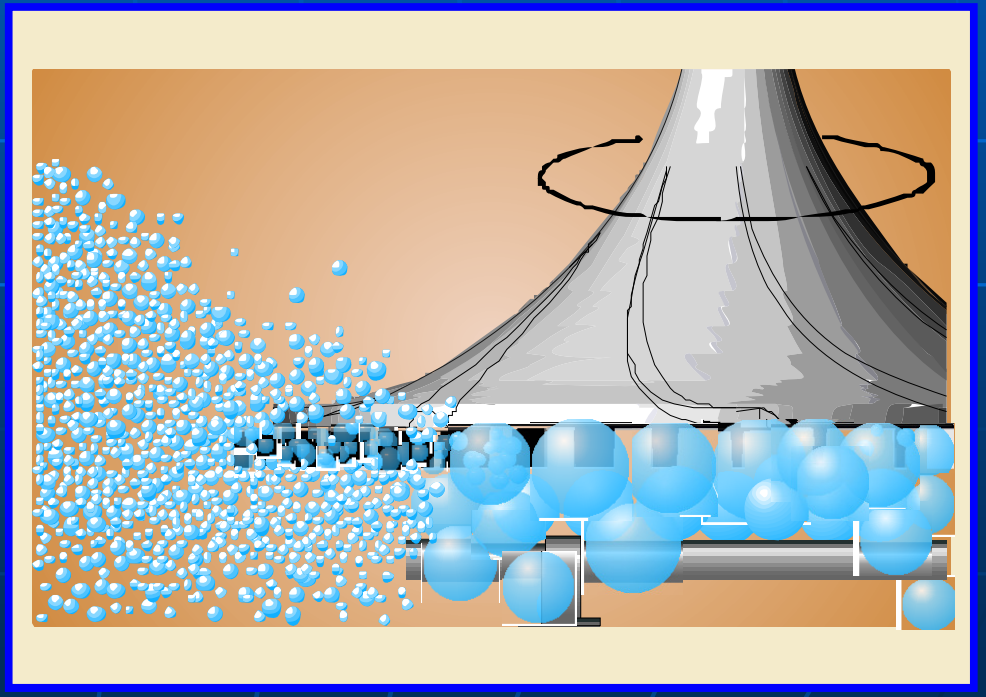
The innovative concept: the „HyperClassic-Technology“

Target 1:

Mechanical smashing of coarse air bubbles

Solution:

Rotating mixer body with special shear rips is dispersing the air



HyperClassic-Technology for Fine Bubble Aeration

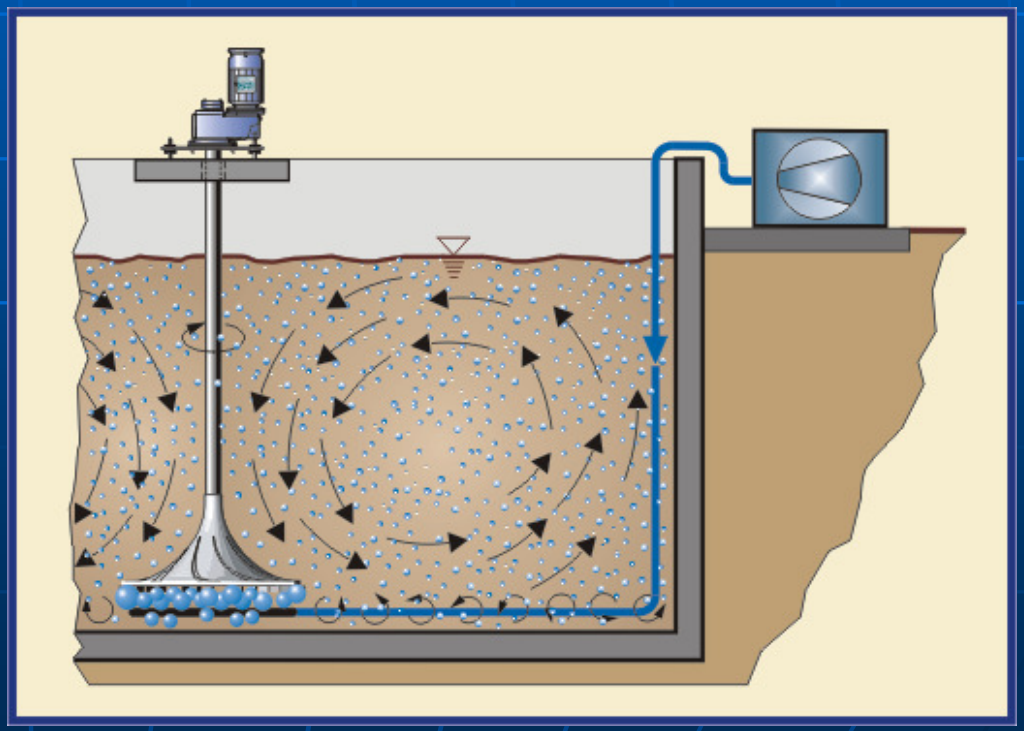
The innovative concept: the „HyperClassic-Technology“

Target 2:

Perfect mixing of the reactor contents with effective distribution of micro-bubbles

Solution:

Vertical stirrer with specially designed mixer body



HyperClassic-Technology for Fine Bubble Aeration

The innovative concept: the „HyperClassic-Technology“

Target 3:

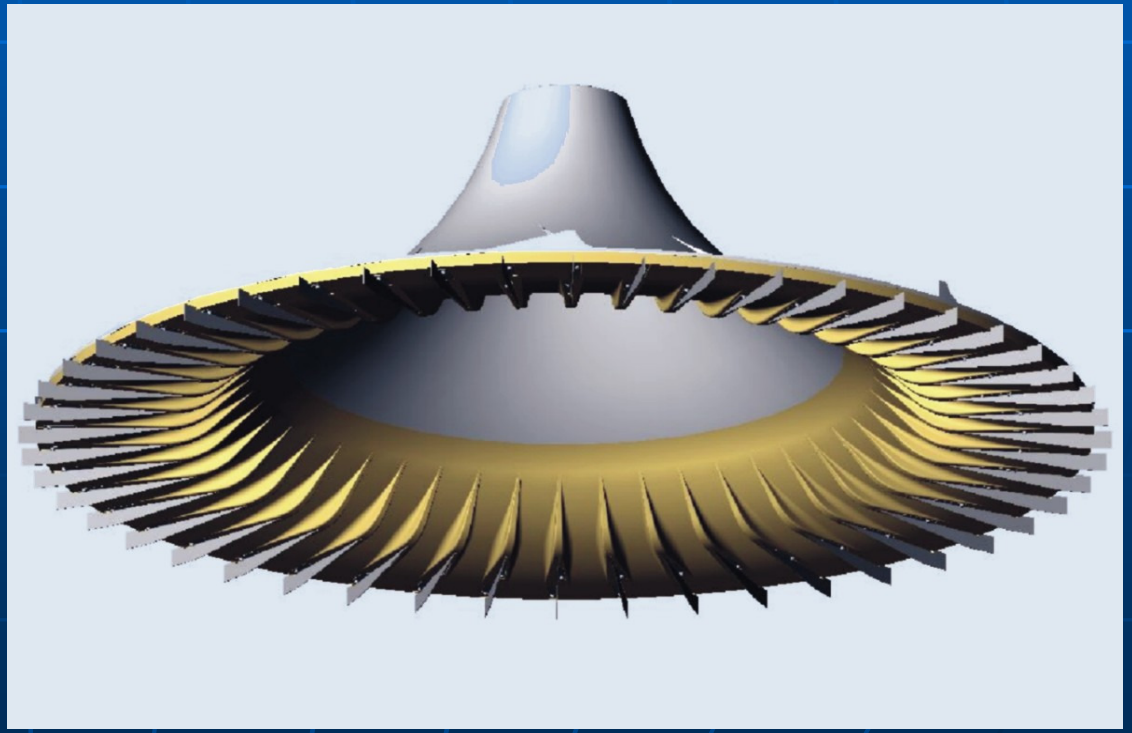
No wear parts,
constant oxygen input
capacity with high efficiency

Solution:

Unique HyperClassic-stirring body (GRP)

High alpha-value

No age-depending loss of oxygen supply capacity



HyperClassic-Technology for Fine Bubble Aeration

Outline of the main points:

- ➔ Non-cloggable aeration system
- ➔ High oxygen supply capacity
- ➔ Low loss of efficiency at operating conditions (alpha = 0.9)
- ➔ Constant operating capacity, no loss by ageing
- ➔ Outstanding efficient mixing capacity

HyperClassic-Technology for Fine Bubble Aeration

Important Process-Advantages:

- ➔ Aeration and pure circulation with one aggregate
- ➔ Perfect conditions for nitrification and denitrification
- ➔ No sedimentation of sludge at the reactor bottom
- ➔ Ideal for changing water levels (SBR)

HyperClassic-Technology for Fine Bubble Aeration

Application Project Examples:

01

Yeast factory ENZYM (Ukraine)

02

Brewerie in Belgium

HyperClassic-Technology for Fine Bubble Aeration

Application Project Examples:

03

WWTP SUNNY BEACH (Bulgaria)

04

WWTP in France

BSK®-Decanting Systems for SB-Reactors

Targets:

- Turbulence-free discharge of purified wastewater out of the clear water zone of SB-reactors
- High hydraulic discharge capacity
- No trapping of floating sludge
- Maintenance-free components below water level
- High reliability
- Long lifetime

BSK®-Decanting Systems for SB-Reactors

Solution:

- Moveable decanter with maintenance-free underwater joint

- Completely made of stainless steel

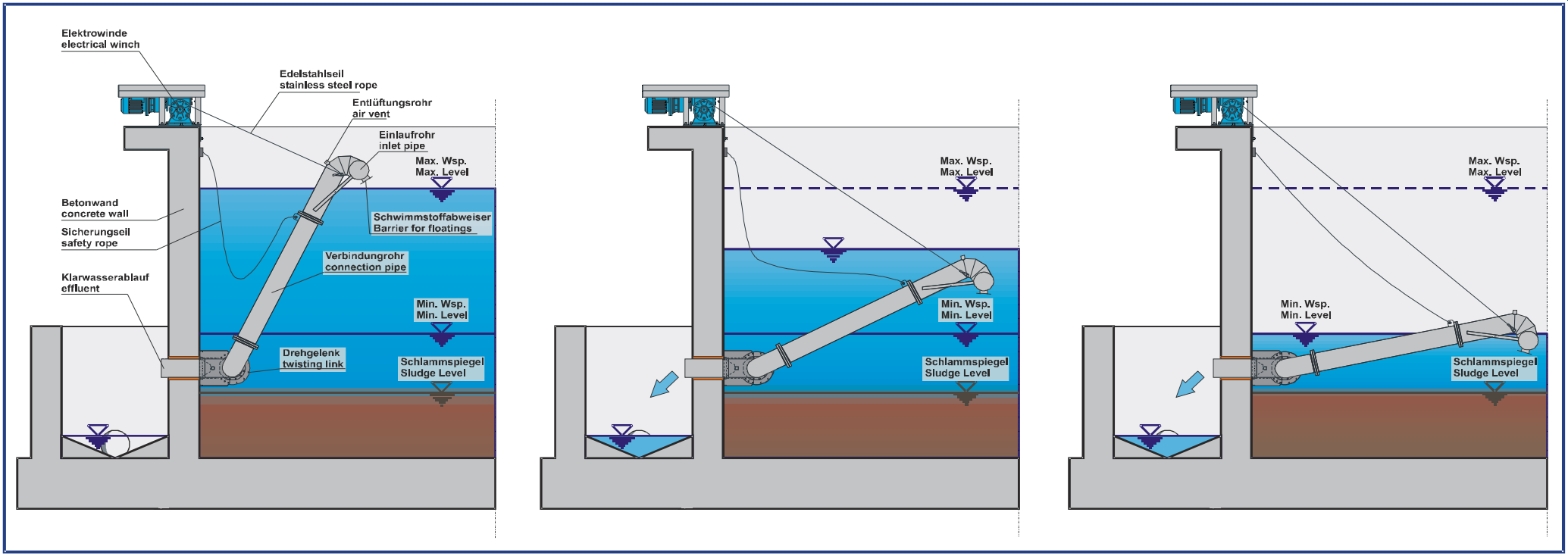
BSK®-Decanting Systems for SB-Reactors

Solution:

- With floating sludge deflector
- With dry-mounted, service-friendly electrical winch
- For hydraulic capacities up to 300 l/s

BSK®-Decanting Systems for SB-Reactors

Deconting Process:



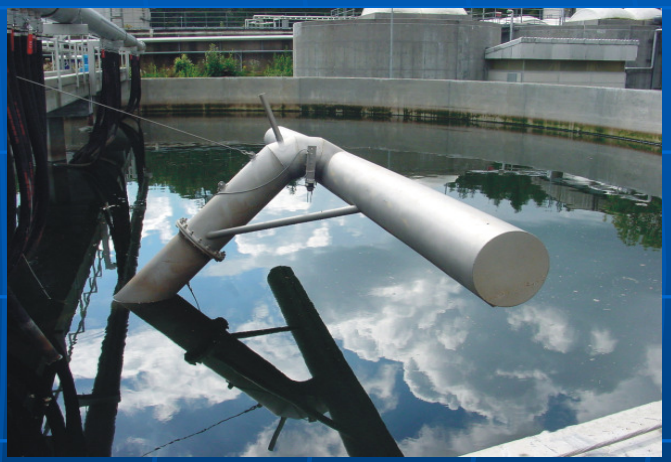
BSK®-Decanting Systems for SB-Reactors

Application Project Examples:

01

02

03



04

05

BSK®- Aeration Turbine for Wastewater

The „traditional“ solution for many projects

Floatating Application (SBR)
(WWTP Alexandria - Egypt)

Fixed construction on a bridge
(WWTP Luzern – Switzerland)

BSK®- Aeration Turbine for Wastewater

The „traditional“ solution for many projects

Typical advantages of BSK®-Turbines:

- ➔ Completely made of stainless steel
- ➔ Optimized geometry of the vanes for high oxygen input capacity
- ➔ No efficiency loss at operating conditions (α = 0,9)
- ➔ Outstanding heavy-duty drive systems for challenging operating conditions
- ➔ Various turbine sizes are available (Ø 900 mm up to Ø 3,150 mm)

BSK®- Aeration Turbine for Wastewater

The „traditional“ solution for many projects

Typical Applications for BSK®-Turbines:

- ➔ Nitrification-Reactors (permanent aeration)
- ➔ Sludge aeration, sludge stabilization
- ➔ Biological high load reactors (e.g. sugar factory)
- ➔ SBR-WWTP‘s / carrousel stations

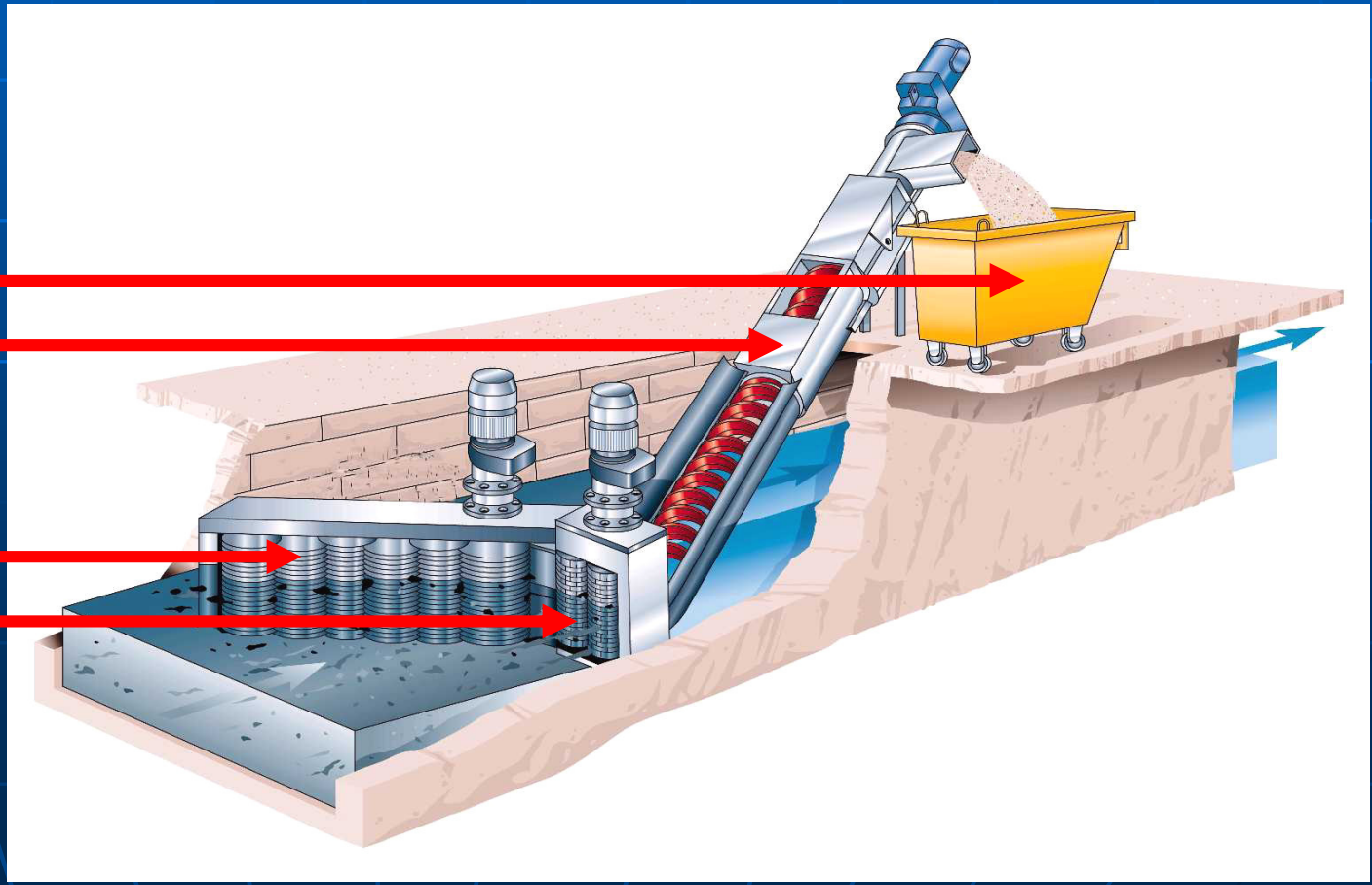
Disc Screen for Separation of Solids out of Wastewater – Combined with the reliable Macerator type „MUNCHER“

Container

Conveyor

Disc-Screen

Muncher

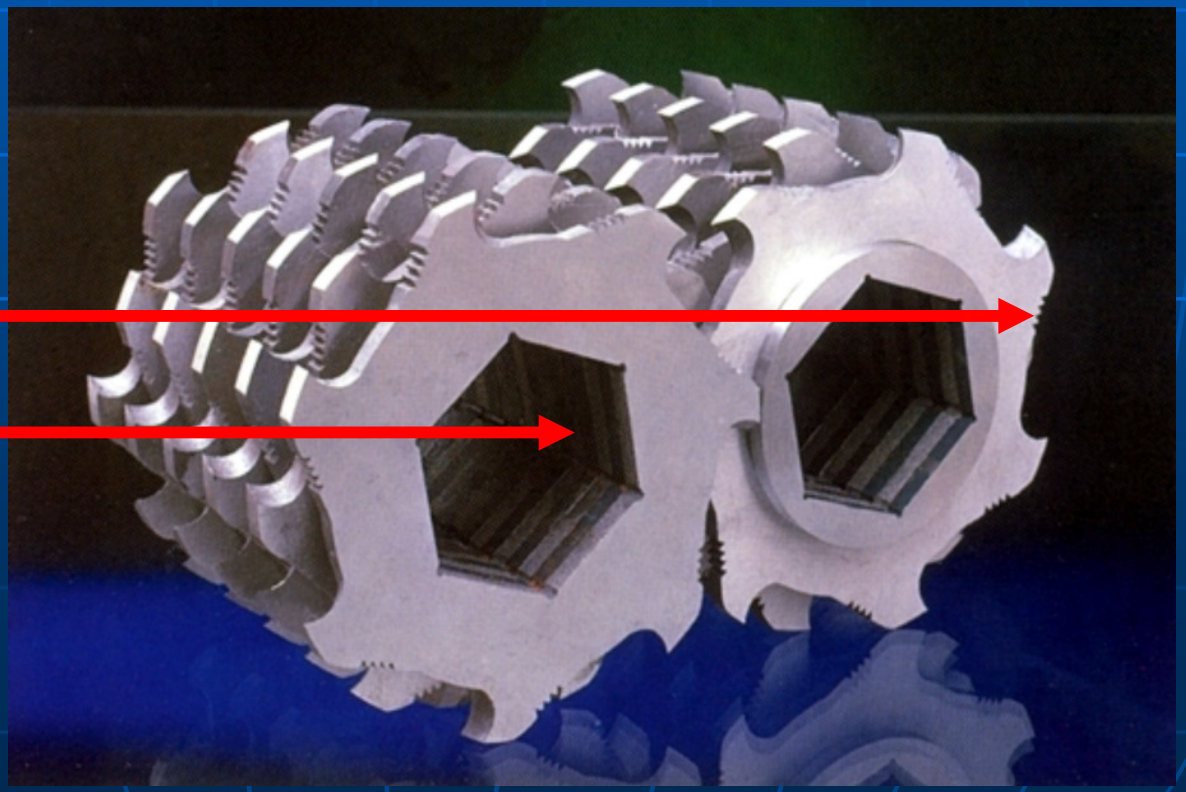


Disc Screen for Separation of Solids out of Wastewater – Combined with the reliable Macerator type „MUNCHER“

Operating Principle of the Muncher:

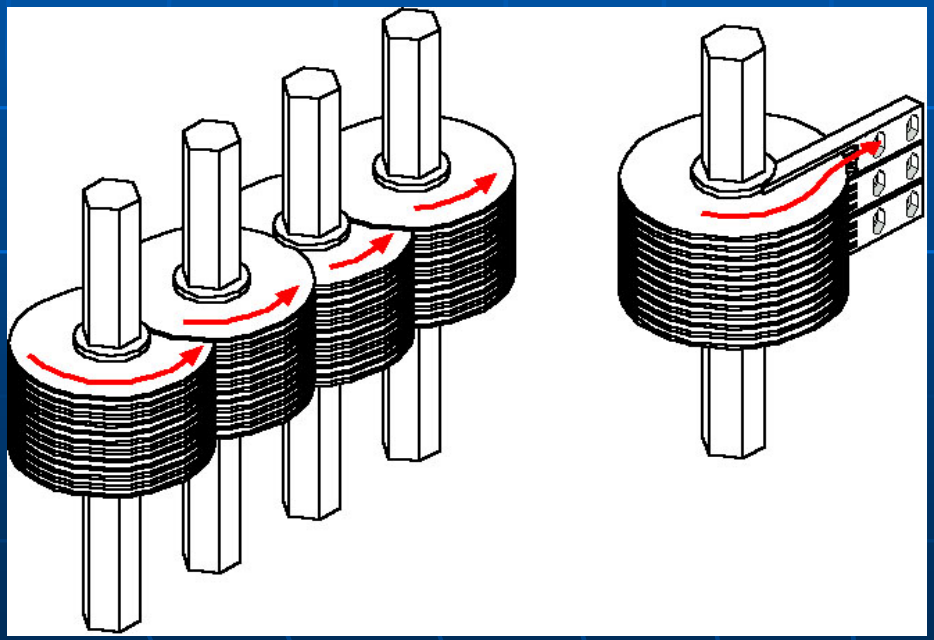
Slowly rotating blade shaft

Fast rotating blade shaft

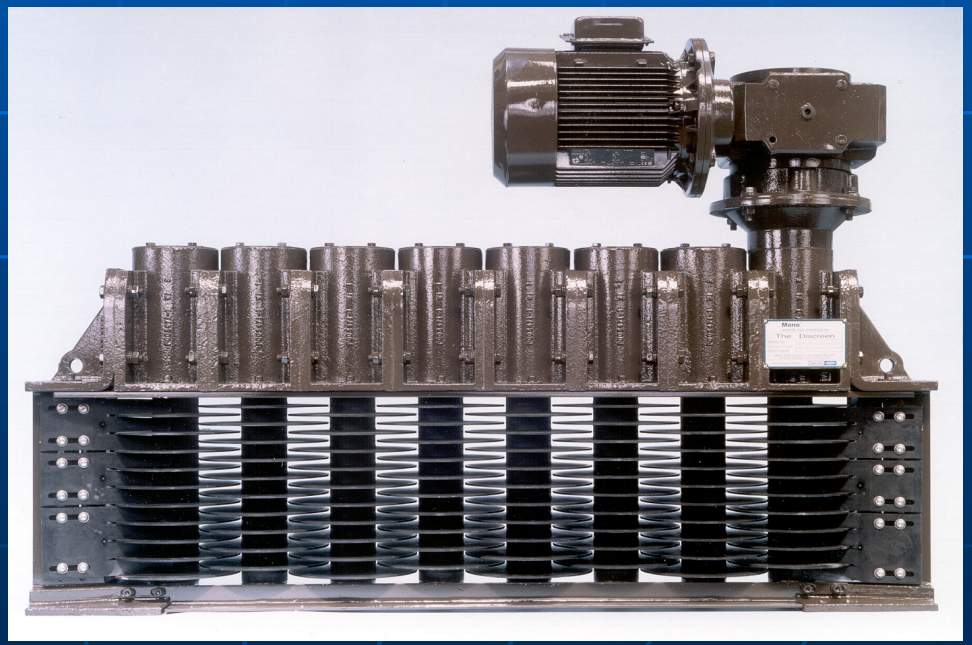


Disc Screen for Separation of Solids out of Wastewater – Combined with the reliable Macerator type „MUNCHER“

Operating Principle of the Disc Screen:



Shafts covered with discs are rotating interlocked. Solids are separated and transported out of the medium.



The construction of the disc screen with drum can be clearly seen.

Disc Screen for Separation of Solids out of Wastewater – Combined with the reliable Macerator type „MUNCHER“

Typical Applications:

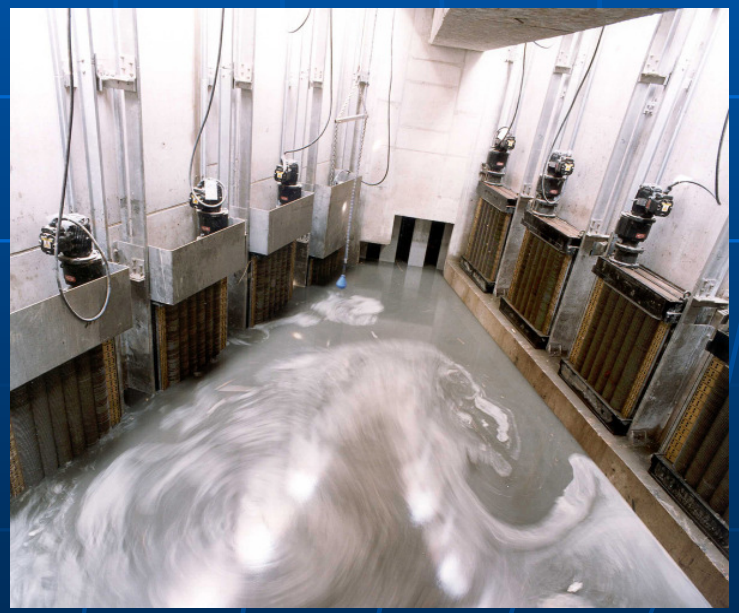
Disc Screen with Muncher and discharge screw

Pump protection by screening of solids

Disc Screen for Separation of Solids out of Wastewater – Combined with the reliable Macerator type „MUNCHER“

Typical Applications:

Disc screen for purification of water out of a river (application as cooling water)



Purification of mixed sewage before discharge into the local river.

Disc Screen for Separation of Solids out of Wastewater – Combined with the reliable Macerator type „MUNCHER“

Typical Applications:

Macerating of solids / fibres containing in the excess sludge of a wastewater treatment plant (before anaerobic digesting)

Inline Muncher-model with integrated trap for metallic pieces

International References (Selection)

WWTP of the tobacco factory Sokotab

WWTP near Beloslav

WWTP SUNNY BEACH (Bulgaria)

International References (Selection)

Industrial wastewater treatment plant operating near to Cairo (Egypt)

WWTP for the North Chinese town Huludao

WWTP of the village „Todtmoos“ in the Southern area of the Black Forest (1,500 p.e.)

International References (Selection)

WWTP of a rural village in Germany (1,000 p.e.)

WWTP of a Mexican chocolate factory

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