Innovations for clean water

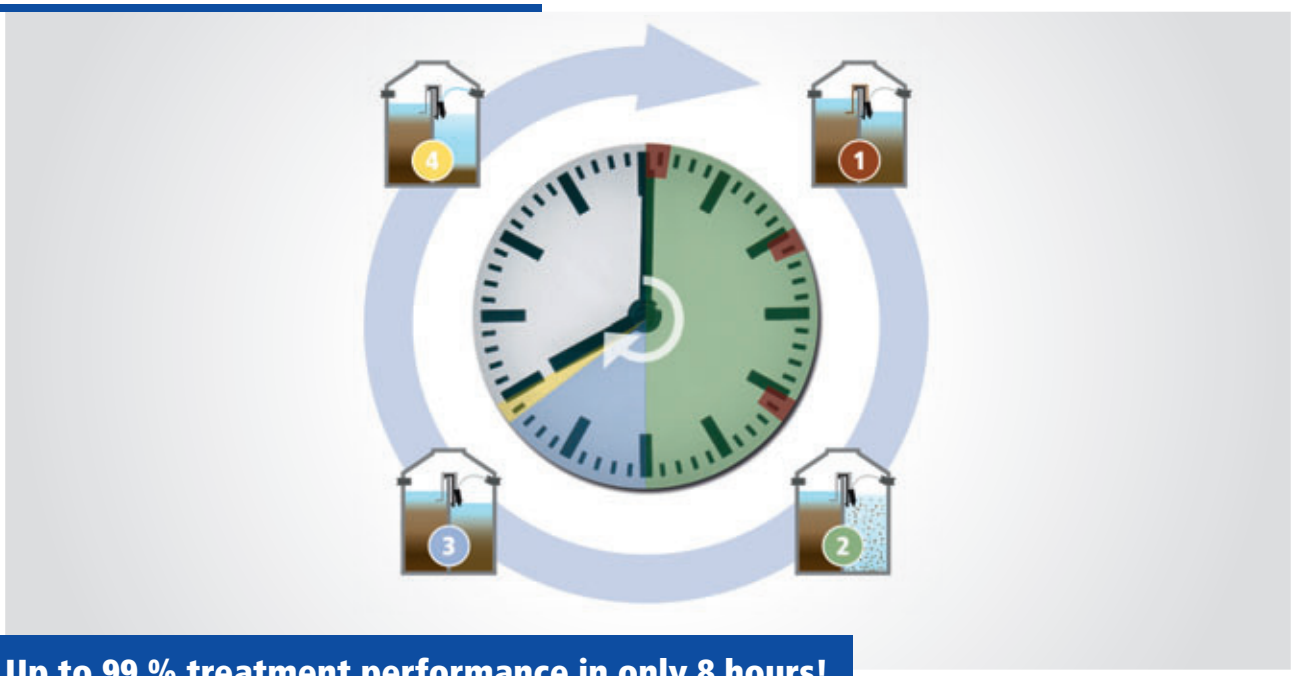
ATB

Mature technical solutions for the treatment of wastewater from single and multiple family houses

FULLY BIOLOGICAL SBR SMALL WASTEWATER TREATMENT PLANTS

AQUAmax®

DESCRIPTION OF PROCESS



Up to 99 % treatment performance in only 8 hours!

The AQUA*max*® treats inflowing wastewater in three cycles daily with each a duration of 8 hours. First, the wastewater reaches the preliminary treatment stage in which it is also stored until the charging, then follows the 4-stage cycle.

1. Charging phase

The water collected in the preliminary treatment stage is fed into the SBR treatment tank using the charging unit.

2. Treatment phase

The wastewater is treated during the treatment phase in which the stirring, aeration and rest periods alternate.

The stirring phase starts after the charging: the mechanically pretreated wastewater is stirred up through short aeration surges and mixed together with the bacteria resident in the wastewater without input of oxygen. In this phase the nitrogen degradation (denitrification) takes place. The aeration phase, in which oxygen is transferred through intermittent aeration (alternation between running and rest periods) follows subsequently. Through this, the micro-organisms in the activated sludge are activated and the treatment is carried out.

In order to regulate the activated sludge content in the SBR tank, a small quantity is conveyed into the preliminary treatment stage in each cycle. This is disposed of later using the normal sewage sludge removal.

3. Settling phase

The active sludge settles at the bottom of the SBR tank, thus a clarified water zone forms in the upper region.

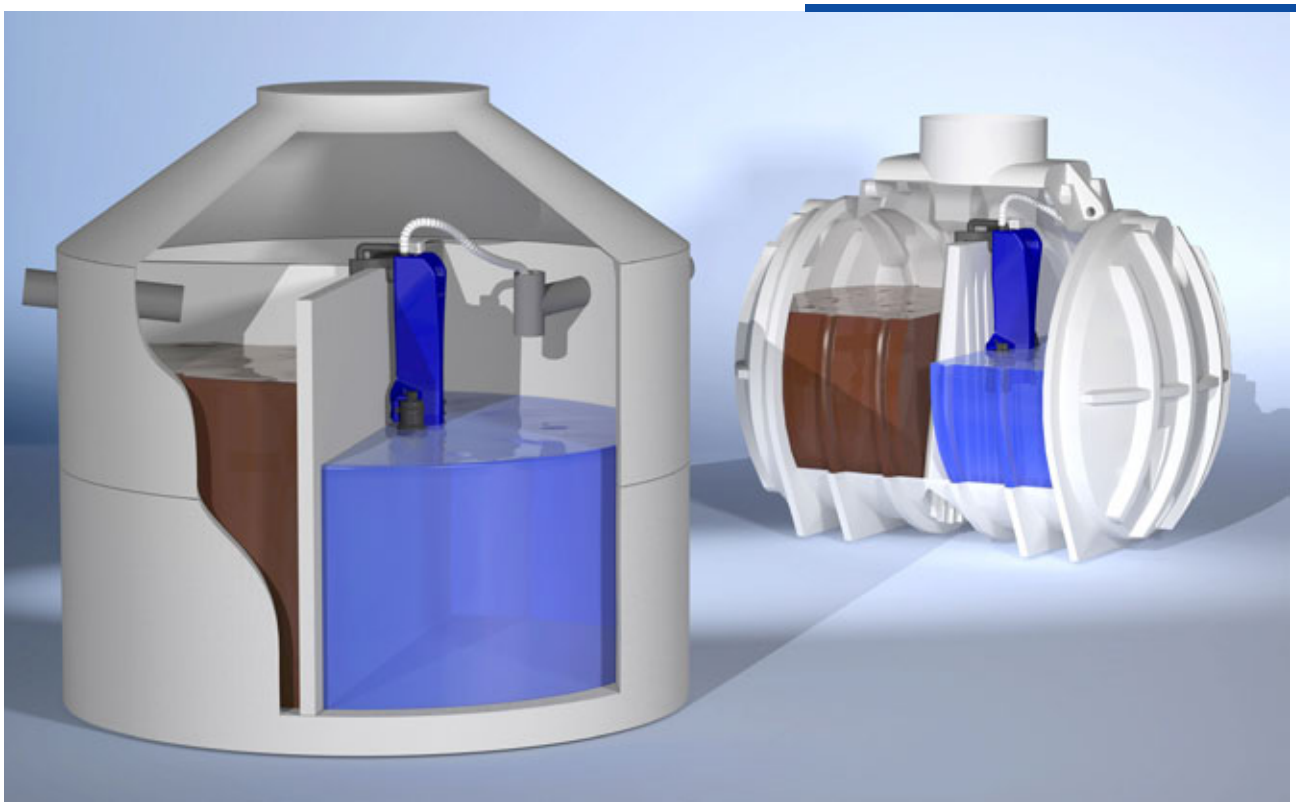
As activated sludge gets into the clarified water pump during the treatment phase and settles there, it must be ensured that this is not pumped out with the clarified water.

For this, ATB has developed a fully automatic patented process which flushes the pump free using short extraction surges.

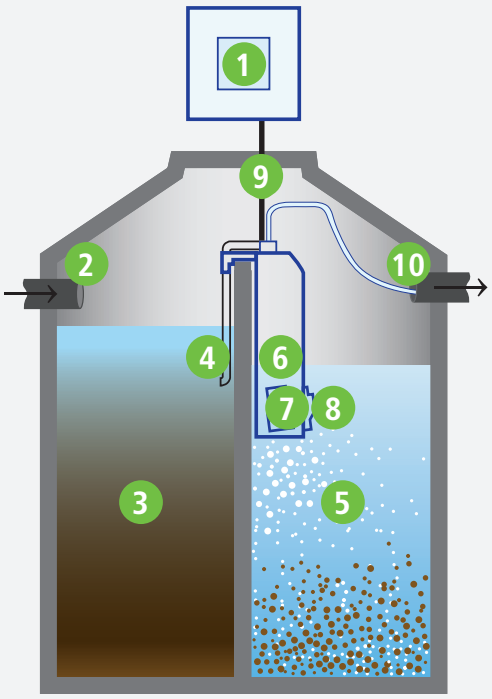
4. Removal phase

Treated water is transported out of the plant.

If no wastewater flows into the plant within a period of six hours, then the plant switches automatically into the **energy-saving mode** until the water again flows in. Through the optimised summer/winter operation, the AQUA*max*® small wastewater treatment plant (SWTP) uses considerably less energy than conventional SBR-SWTPs.



Our AQUA*max*® BASIC & CLASSIC plants function this way



1. **Automatic control**
2. **Inflow**
   Untreated wastewater flows into the plant.
3. **Preliminary treatment stage**
   Here the wastewater is pretreated mechanically and coarse matter settles.
4. **Charging unit**
5. **SBR treatment tank**
   Here the biological treatment process takes place using activated sludge.
6. **Carrier frame**
7. **Submersible motor pump**
8. **Submersible motor aerator**
9. **Control cable**
10. **Outlet**
    Treated wastewater flows out of the plant.

Schematic diagram; depending on the plant and installation variant, mounted on partition wall or suspension for tanks without partition wall (concrete or plastic tanks).

	BASIC 1-16
Illustration	
Connection value	1-16 PT
Technical equipment	Plant, 1 submersible motor pump, 1 submersible motor aerator, AQUA*switch*© float switch
Carrier frame material	Plastic suitable for wastewater (environmentally friendly polyethylene)
Mounting option	Partition wall mounting
Extendable through modular system	Yes
Extended guaranty	+ 12 months partial guaranty
Special features	One submersible motor pump has been replaced by a mechanical spherical valve; this means one less wear and tear part than previously.

Top treatment performance

No matter whether multi-chamber septic tanks or multi-tank plants made from concrete or plastic, whether for new construction or retrofitting: the AQUA*max*® is the optimum small wastewater treatment plant for every area of application – effective, innovative and future assured.

Through the update and modular design the plant can be matched to the new legal requirements at any time and without expensive new investment. The AQUA*max*® BASIC and CLASSIC plants have proved themselves a thousand times over in the past years and have demonstrated their reliability and flexibility.

CLASSIC 1-16 Z	CLASSIC 17-50 Z
	
1-16 PT	17-50 PT
Plant, 2 submersible motor pumps, 1 submersible motor aerator, AQUA*switch*© float switch	Plant, 2 submersible motor pumps, 2 submersible motor aerators, pendular float switch
Plastic suitable for wastewater (environmentally friendly polyethylene)	Stainless steel
Chain suspension	
Yes	
+ 12 months partial guaranty	
Flexible height settings are possible through the chain suspension.	Flexible height settings are possible through the chain suspension. In addition, this plant is also suitable for applications up to 50 PT.

THE AQUA*max*® MODULAR SYSTEM

Perfectly matched but still individual!

MODULAR SYSTEM

AQUA*max*® BLUE UV disinfection

The AQUA*max*® BLUE UV disinfection functions following the example of natural sunlight and deactivates pathogenic microorganisms in a matter of seconds – completely without health and environment hazarding chemical substances such as chlorine/chlorine compounds or expensive membrane technology. Even bacteria resistant to chlorine are killed off reliably and securely using AQUA*max*® BLUE.
The result: process water in bathing water quality with small investment, low operating costs and minimum maintenance expenditure.

UVS® loss of voltage detection

Older AQUA*max*® plants can be retrofitted with this; with the youngest AQUA*max*® generation this has been standard for a long time: the UVS® (Under Voltage Signalling) loss of voltage detection.

Secure phosphate removal

Phosphates, which occur in wastewater due to faecal matter and cleaning agents, are thereby removed securely.

Plant remote transmission

With the remote transmission function you are informed at all times per SMS about fluctuations, malfunctions and problems with your plant.

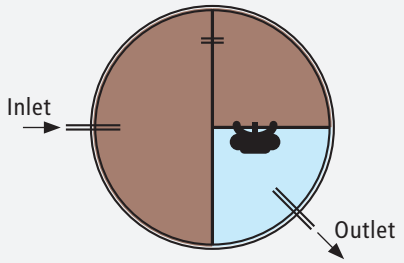
Update function

Every AQUA*max*® can always be rematched to individual requirements using software or hardware update.

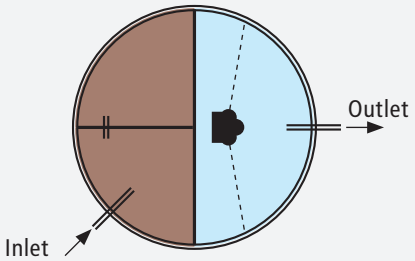
Always up-to-date

With the AQUA*max*® modular system your plant can be simply extended according to your requirements or according to the latest statutory provisions; thus you save cost intensive new investment.

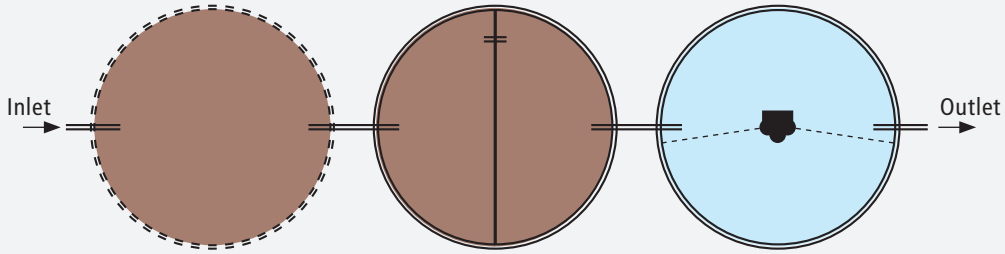
Installation in concrete tank (quarter-chamber; enlarged primary) with partition wall mounting:



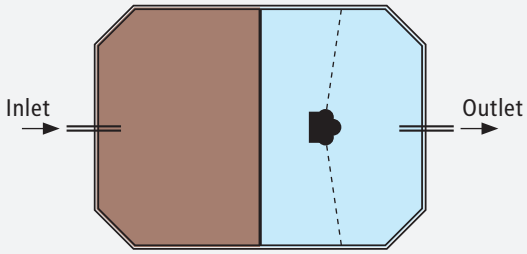
Installation in concrete tank (half-chamber) with chain suspension:



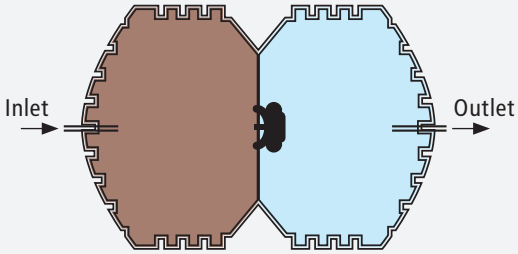
Installation in concrete two-tank / three-tank model (enlarged primary) with chain suspension:



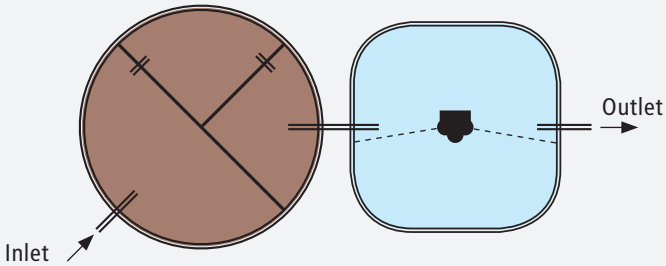
Installation in fibre-reinforced concrete tank with chain suspension:



Installation in "Type A" PE tank with partition wall mounting:



Retrofitting with "Type R" PE tank with chain suspension:



Preliminary treatment stage SBR treatment tank

These sketches serve as examples; detailed information and data sheets can be found in our plant catalogue or please contact our sales team.

ATB – award winning...

Environment Prize 1999 of the German Federal State of Mecklenburg-Vorpommern • Environment Prize Austria 2001 • Founder Champion 2002
OWL Innovation Prize 2003 • Financial Times Germany "Potential Innovation 2004" • "Finalist" Entrepreneur of the Year 2004, 2005 and 2006
"Finalist" Grand Prize of Small and Medium-sized Businesses 2005 • Innovation Quality Seal "TOP 100" 2006
"Winner" Grand Prize of Small and Medium-sized Businesses 2007 • "Winner" GreenTec-Awards 2014, Category Water and Sewage

ATB WATER GmbH
Südstraße 2
32457 Porta Westfalica
Germany
Telefon: +49 5731 30230-0
Telefax: +49 5731 30230-30
E-Mail: info@atbwater.com
Website: www.atbwater.com

Member of
German Water
Partnership

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