



WASTEWATER IS WATER.

No life without water.

Water is indispensable for all life on earth. But water is commonly a resource with limited availability globally.

Over 1.2 billion people do not have access to clean drinking water. Whilst water is becoming increasingly scarce across the globe, the search continues for ways to reuse wastewater. For future generations.

Disposal of domestic wastewater.

The purification of domestic wastewater in the form of wastewater treatment systems is contributing to the safeguarding of water as a resource. For example, increasingly more local authorities are investing in the expansion and reorganisation of wastewater purification in the form of wastewater treatment plants.

In the disposal of domestic wastewater, in particular of remote single/multi-occupancy houses and small estates with fewer than ten single-occupancy houses, the problem is that a connection to the central wastewater treatment plant is only possible with very long sewer pipes and correspondingly high cost overhead. On the other hand, the commonly used trickle pools in which untreated wastewater can seep out represent a considerable burden to the environment and are therefore partially no longer provided. Leaching cesspools must be emptied at appropriate intervals and their content transported off and treated. There is also a risk that cesspools develop leaks with impure wastewater escaping into the groundwater.

SYSTEM DESCRIPTION.

BAAS wastewater treatment system – fully-biological, functional reliable, sustainable.

The BAAS wastewater treatment system is a fully-biological wastewater treatment system for the purification of domestic wastewater without power. The wastewater treatment plant from BAAS is a near-nature wastewater purification process used for the purification of domestic wastewater without the use of electrical power and without service-intensive mechanical equipment.

The system was designed in Austria and its simplicity and excellent purification performance represent the uniqueness of the small-scale wastewater treatment system. This near-nature product is current state-of-the-art technology, is CE-certified and has been subject to continual testing in accordance with European norm 12566-3 over a period of one year.

The modular building-block design allows the BAAS system to be upgradeable at any time and is used from an inhabitant count of 1 up to more than 5000. The system must be installed by an authorised company (such as building firms) in accordance with installation guidelines from Anton Schlatte, BAAS Umwelttechnik.



Domestically contaminated wastewater, in a well-purified state, is reintroduced into the ground, is infiltrated or is introduced into watercourses. In addition, the purified and odourless water can easily be used for other water applications, such as for flushing toilets, irrigation of green areas - without contaminating the groundwater and endangering the retention of the water circulation.

FUNCTIONAL DESCRIPTION.

The biological **mineral wool filter system** only works with an upstream 3-chamber anaerobic digester with integrated buffer. The **buffer zone** guarantees a continual supply to the filter system over 24 hours, 365 days and evens out impact loads. The buffer size has been set such that a complete daily load can be accommodated.

The **3-chamber anaerobic digester** has three chambers. The sludge deposits in the larger chamber. The second and third chambers are used for pre-purification. The third chamber contains a T-piece ($\varnothing 100$) with a downward and upward pipe-feed in which a funnel with neck is integrated.

The pressure in the buffer prevents the inlet opening to the filter chamber from becoming blocked. This has the job of emptying the buffer within 24 hours and to continually supply the filter system with domestic wastewater.

T-pieces, at the same height of the outlet, are positioned in the partition walls of the 3-chamber anaerobic digester. The pipe-feed of the T-pieces upwards and downwards guarantees the function of a grease separator. Water flow is only possible from below.

Fresh water filling of the 3-chamber anaerobic digester is not necessary, meaning introduction of the wastewater can be started immediately. Well-fouled bottom sludge from an existing wastewater treatment system can be used as seeding sludge.

Mineral wool filter system

The filter system is already supplied with pre-purified water by mechanical pre-cleaning. The drop height from the inlet pipe of the filter system to the deflector guarantees tremendous levels of oxygenation.

This supplies sufficient oxygen to the bacteria - important for biological purification. On the first filter layer, a water level builds up over the entire filter area from the deflector [water level: 3-18cm], the biology forms in this water level and the sludge settles on the first filter bottom.

Then the mineral wool filter, 20cm high all the way round, reroutes the water and spreads it across the whole area through the 9mm distribution mat below.



The water drops through the filter surfaces, absorbing atmospheric oxygen for nitrification. It is then fed to the denitrification pool. This can be used at a later point for denitrification.

The partition wall has an overflow pipe (\varnothing 100) in which the purified water enters the soakaway pit through the lateral maintenance channel, i.e. through the sand/gravel layer. The partition wall has ventilation openings so that each individual filter surface is ventilated and aerated naturally.

The purified water can now drain in the **soakway pit** (in accordance with official approvals), used for surface soakaway or be fed to a receiving watercourse (stream).

The system can be serviced as part of a service contract agreed with BAAS or by another approved company at low cost. The fleece filters are cleaned and the uppermost mineral wool filter renewed as part of the service. The mineral wool filter is squeezed and disposed of appropriately. The resulting sludge is fed back to the 3-chamber anaerobic digestor so that no additional disposal costs accrue. All servicing work can be carried out by hand from the lateral maintenance channel with no building equipment necessary (e.g. digger).