



SAYGIN  
&STEIN

MODULAR WASTEWATER SYSTEM

**Ready for use in  
14 days**



The MWS is the most adaptable system on the market for the safe treatment of wastewater and faecal sludge.

## CONCEPT



# The Concept MWS

The MWS is a modular, temporary sewage treatment plant based on a modular design.

Thanks to its energy efficiency, high cleaning performance, and suitability to a wide range of applications, it is the ideal solution for dynamic requirements. Whether as an extension to existing sewage treatment plants or to bridge renovation periods, whether as a sequencing batch reactor (SBR) or as a continuous system with or without upstream or downstream denitrification: The MWS series is versatile and available in various process variants. It thus offers a tailor-made solution for your individual needs.



### MODULAR DESIGN

Thanks to the modular design, repairs, modifications and expansions can be carried out even during operation. Local discharge limits can be reliably complied with (German effluent limits achieved in Ahr Valley 2021 and 2022 to date).

Our temporary wastewater treatment plants offer more than just a short-term solution – they combine flexibility and performance with a long-term commitment to protecting the environment.

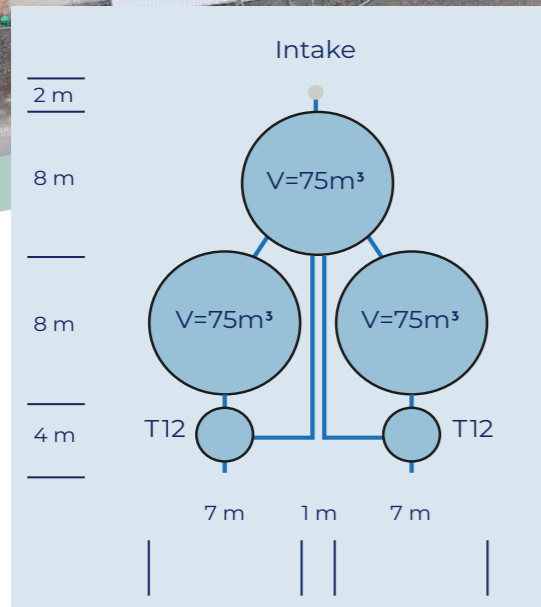


### THE POSSIBILITIES

The capacities of our MWS systems range from 500 to 5,000 population equivalents (PE) and therefore enable both smaller communities and larger, e.g. industrial, applications to be covered. Since very little civil engineering work is required for installation, our systems can be set up and commissioned within a very short time. Compared to permanently installed systems, our temporary solutions offer economic advantages, especially for short-term requirements.

Can be used as a stand-alone system or as an extension or rehabilitation of existing systems for wastewater and faecal sludge





Updated and optimised system design

# 1.000

## 1.000 PE

The continuous flow treatment plant without nitrification and without a third treatment stage or post-treatment for 1,000 PE is a simple basic version of the MWS. The primary treatment objective of this configuration is COD reduction.

**Sample configuration 1,000 PE (CSB - reduction)**

Type: Continuous flow activated sludge plant  
 $V = 249 \text{ m}^3$   
 Maximum inflow:  $8.5 \text{ m}^3/\text{h}$   
 Area approx.  $22 \text{ m} \times 15 \text{ m} = 330 \text{ m}^2$   
 Energy consumption  $\approx 12.3 \text{ kW}$   
 Load:  $120 \text{ kg COD/day}$   
 Target value:  $\text{COD} < 150 \text{ mg/l}$



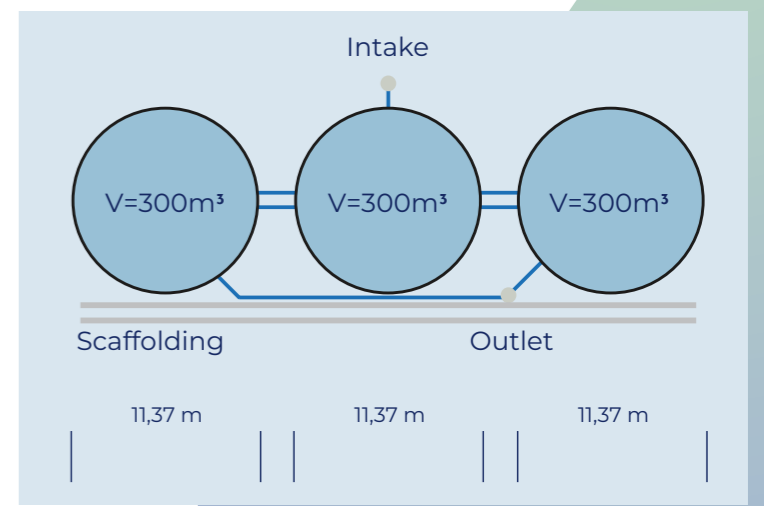
## 2,500 PE (+ nitrification)

Using the more advanced SBR process, additional treatment objectives – such as nitrification – can be achieved. In the example configuration 2,500 PE (+ nitrification), secondary clarification and activated sludge return are omitted and wastewater treatment is carried out in SBR mode. The reactors are fed individually. In smaller plants, pulse agitators and aeration are often controlled by electromechanical timers, while in larger plants, programmable logic controllers (PLCs) are preferred.

**Sample configuration 2,500 PE (CSB - reduction + nitrification)**

Type: SBR  
 $V = \text{approx. } 900 \text{ m}^3$   
 Maximum inflow:  $20.5 \text{ m}^3/\text{h}$   
 Area approx.  $40 \text{ m} \times 15 \text{ m} = 600 \text{ m}^2$   
 Energy consumption  $\approx 23 \text{ kW}$   
 Load:  $300 \text{ kg COD}$  and  $27.5 \text{ TN/day}$   
 Target value:  $\text{COD} < 100 \text{ mg/l}$ ,  
 $\text{NH}_4 - \text{N} < 10 \text{ mg/l}$

# 2.500



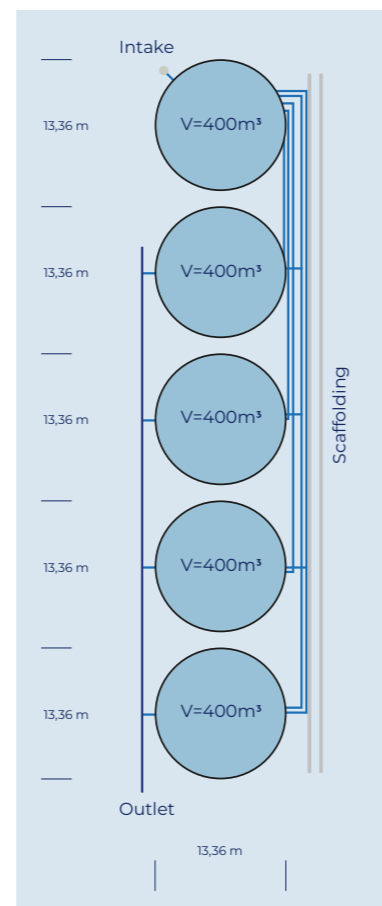
Updated and optimised system design



## 5,000 PE (+ denitrification)

When installing appropriate electronic sensors, e.g. for dissolved oxygen (DO), more complex treatment goals - such as denitrification - can also be achieved. This is usually only cost-effective for larger plants, such as the example configuration MWS 5,000 PE (+ denitrification/nitrification). The programmable logic controller (PLC) used for this purpose ensures smooth operation. Connection to a local control room can also be facilitated when required. The system is designed for easy maintenance and servicing.

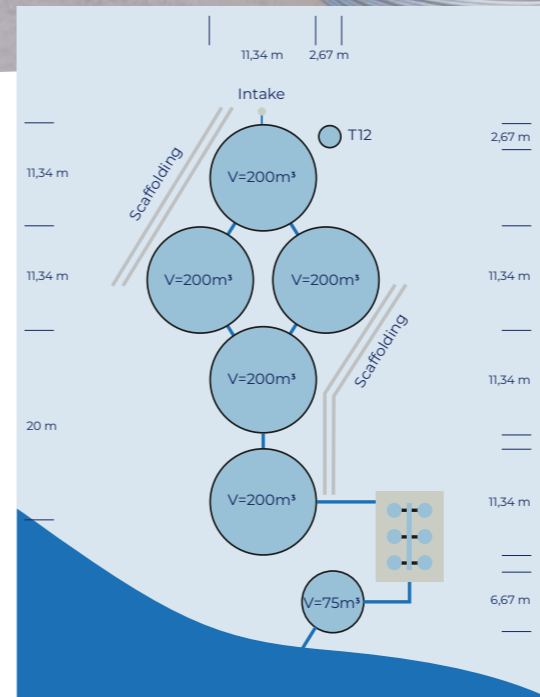
# 5.000



Larger system version

Sample configuration 5,000 PE  
(COD- reduction + denitrification)

Type: SBR  
 V = 2,000 m<sup>3</sup>  
 Maximum inflow: 62.5 m<sup>3</sup>/h  
 Area approx. 16 m x 80 m = 1,280 m<sup>2</sup>  
 Energy consumption ≈ 75 kW  
 Load: 600 kg COD and 55 TN/day  
 Target value: COD < 100 mg/l,  
 NH<sub>4</sub> - N < 10 mg/l, Nan < 10 mg/l



# 5.000

Sample configuration 5,000 PE  
(COD- reduction + third treatment stage)

Type: Continuous flow activated sludge plant  
 V = 1,000 m<sup>3</sup>  
 Maximum inflow: 62.5 m<sup>3</sup>/h  
 Area approx. 50 m x 30 m = 1,500 m<sup>2</sup>  
 Energy consumption ≈ 40 kW  
 Load: 600 kg COD  
 Target value: COD < 50 mg/L

Contact:  
[info@sas-eng.de](mailto:info@sas-eng.de)

## 5,000 PE (+ 3rd treatment stage)

Due to special circumstances, additional treatment objectives - such as disinfection phosphate removal, polishing, or others - may become necessary. In these cases, a suitable post-treatment is designed to meet the specified treatment objective. This can be achieved using physical methods, adsorption, chemical additives, or a combination of different methods.



# FACTS



## Everything from a single source

Our team of experts is ready to work with you to develop the right MWS system for your needs. We accompany you through the entire process – from planning and installation to commissioning, operation, and maintenance. Contact us to learn more about our temporary wastewater treatment plants and request your customised quote. We look forward to helping you solve your wastewater treatment challenges!

## Key facts

- ✓ Modular design principle
- ✓ Ready for operation within 14 days
- ✓ Basic systems support 500 to 5,000 PE (population equivalents)
- ✓ Versions for COD reduction, (de)nitrification, and phosphorus reduction available
- ✓ Modular design for easy transport and installation, no earthworks required
- ✓ Optional reduction of pathogens (including parasites) by 99.99%
- ✓ Long-term operation possible
- ✓ Air transportable



Saygin & Stein  
engineering GmbH  
Krefelder Str. 12  
10555 Berlin  
info@sas-eng.de

For more information please  
contact us via e-mail or visit  
[www.sas-eng.de](http://www.sas-eng.de)

