



Smart Turnkey Modular Plant (STMP)

Smart Turnkey Modular Plant (STMP) for the decentralised treatment of process water and wastewater

Decentralised wastewater treatment with Smart Turnkey Modular Plant (STMP)

Resource-friendly and energy-efficient plant technology installed in special modules. The system solutions are Smart Turnkey Modular Plant (STMP) for water treatment, pre-treatment and wastewater treatment. We deliver the water technology that has been tried and tested for over 25+ years in the form of compact, high-performance modules. For a variety of applications in different industries, we build the modular system in a way that allows process water and wastewater to be treated in an energy-efficient and resource-friendly manner. From pre-treatment to circulation and wastewater treatment we offer flexible modular design that can be expanded and added freely.

Special Design

Smart Turnkey Modular Plant (STMP) roof surface utilized for a photovoltaic plant.



The advantages are clear

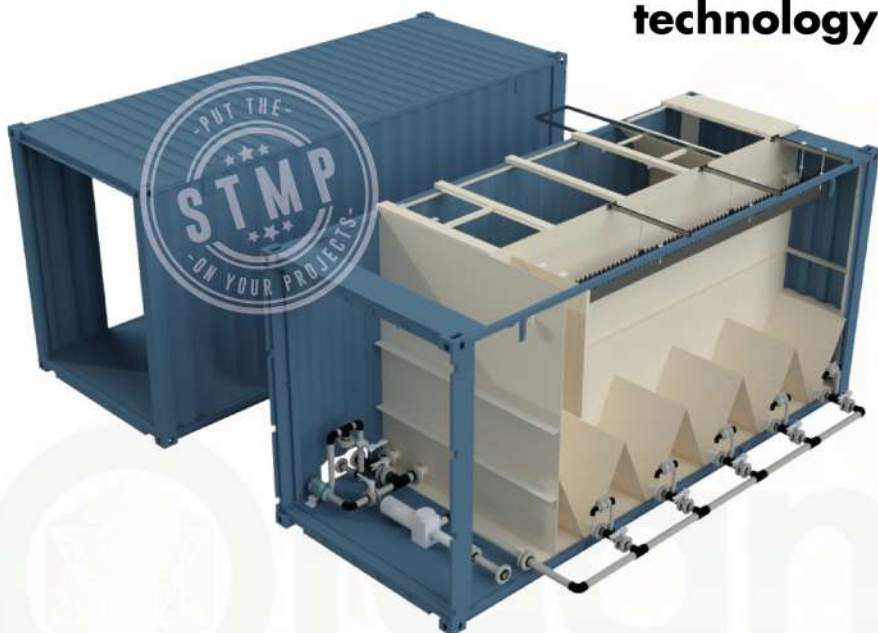
Comparison of the conventional plant design and Smart Turnkey Modular Plant (STMP) solutions

	Conventional design	Modular system
Planning time	long	short
Approval	building permit very complex	building permit very easy
Building costs	high	low
Assembly time	medium	short
Commissioning and testing	all on site	pre-tested in factory
Expansion	often limited	easily possible
Changes	expensive	easily possible
Plant moving	no	possible
Depreciation	long	short
Complexity	high	low

Compact plant systems in Smart Turnkey Modular Plant (STMP) design

The physico-chemical wastewater treatment options and flotation plants are delivered in factory-ready. They can be easily installed on site. Control units, climate control and safety technology are part of the standard equipment in Smart Turnkey Modular Plants (STMP).

Smart Turnkey Modular Plant (STMP) technology



Physico-chemical treatment based on the precipitation/flocculation /filtration principle for:

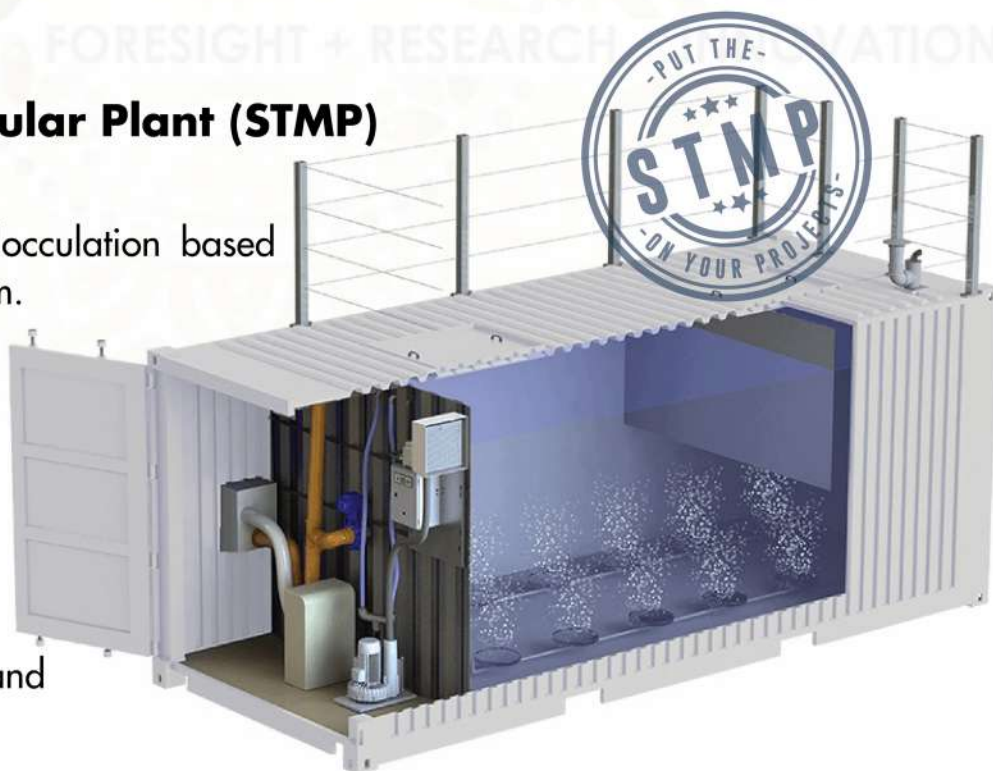
- Removal of hydrocarbons
- Removal of solids
- Heavy metal precipitation

Use in printing, paint and varnish industry, metal industry, glass industry etc.

Smart Turnkey Modular Plant (STMP) technology

Compact flotation with flocculation based on the dissolved-air system.

Used for example in decentralised further wastewater treatment from production or washing processes, such as those used in wash stations for vehicle and parts cleaning.



Individually planned system solutions in Smart Turnkey Modular Plant (STMP) design

We offer all modular water technology, such as the biological method, the physico-chemical methods and the membrane technology. The ready-to-use plants for the treatment of process water and wastewater can be flexibly combined or expanded depending on the customer's requirements. If needed, the modular plants can be moved as well. They are an ideal solution for the decentralised treatment of industrial water.

Reverse osmosis compact with touch panel control and small control centre.



Used for example in water recycling from pretreated production wastewater.

Membrane biology designed in Smart Turnkey Modular Plant (STMP).

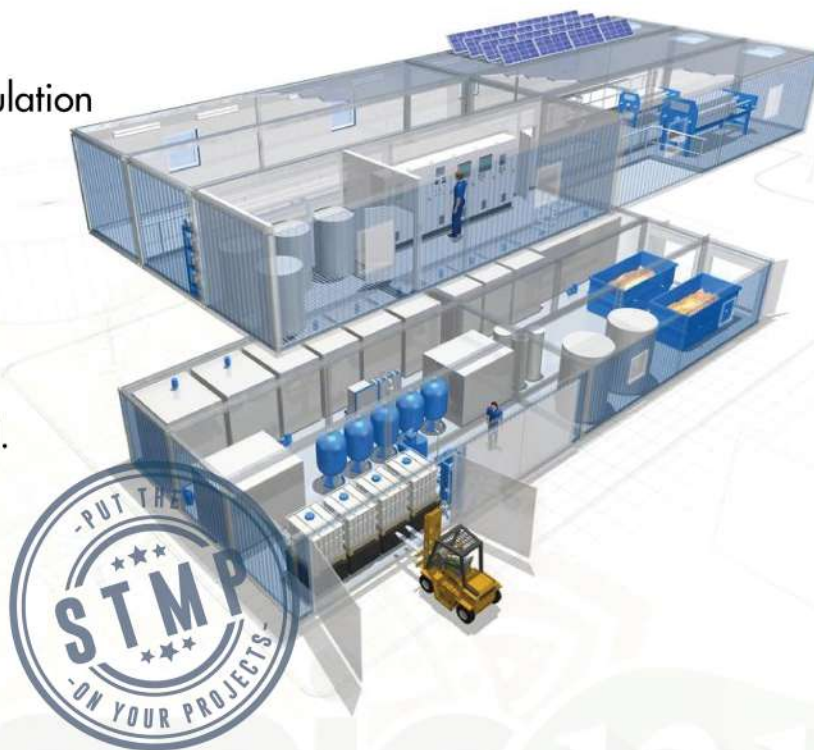
Used for example for the biological treatment of wastewater from the chemical and pharmaceutical industries.



Physico-chemical wastewater treatment

Space-saving two-storey plant.
Process: Precipitation and flocculation with sedimentation, sludge dewatering. Complete with all dosing systems and safety equipment.

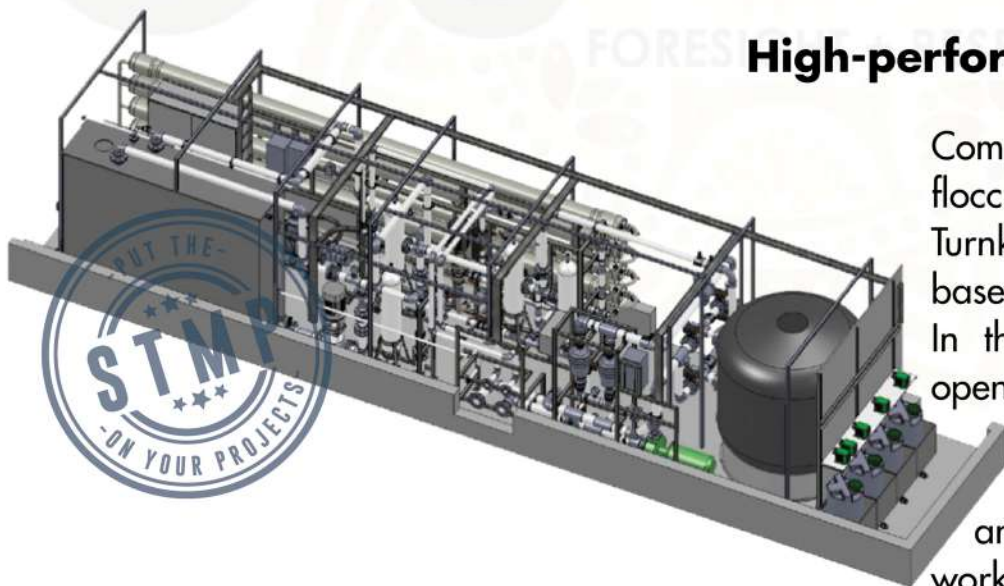
Used for example in the metal industry, mining, disposal.



High-performance flotation plant

Compact flotation plant with flocculation, designed in Smart Turnkey Modular Plant (STMP), based on the dissolved-air system. In this case implemented as an open design.

Used for example in the food and beverage industry, wood-working industry and chemical industry.



Dissolved air flotation systems (DAF) for wastewater treatment

DAF systems are equipment for the separation of solid particles, fats, and oils, designed to clarify wastewater (industrial and urban) or condition surface or marine water for its subsequent treatment and reuse.

This equipment separates solids, fats, and oils in the water generating highly concentrated sludge. In addition, they allow to substantially reduce the Chemical Oxygen Demand (COD) and the Biological Oxygen Demand (BOD)

The DAF achieves high rate removal efficiencies at a low operational cost with a smaller footprint and longer lifespan by employing such techniques as:

- Advanced Water Extraction – Extended retention time and better effluent quality
- Cross-Flow Design – Lower velocity and better separation
- High removal efficiency, lower power requirement and lower chemistry
- Plate Separators – Maximize solids removal
- Thickening Beach – Sludge thickening
- Cone Bottom – Easy sludge removal



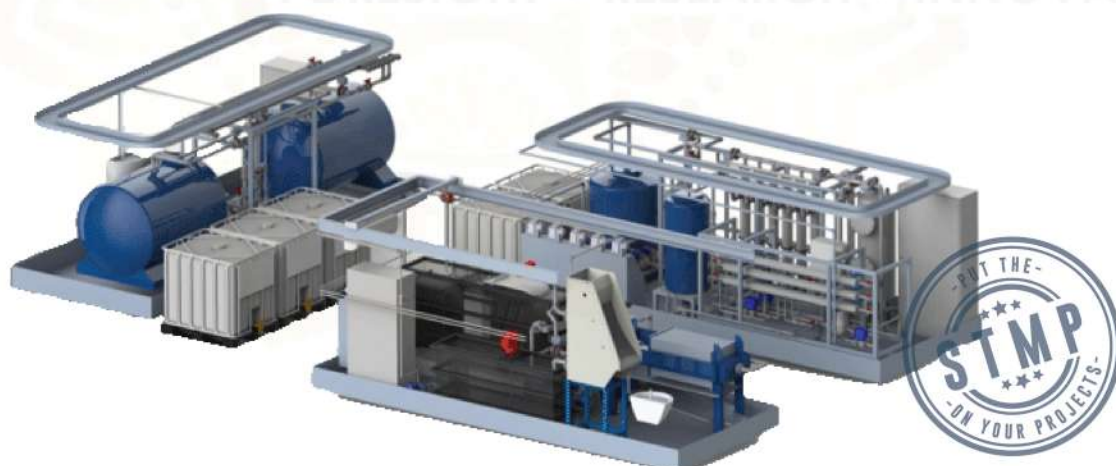
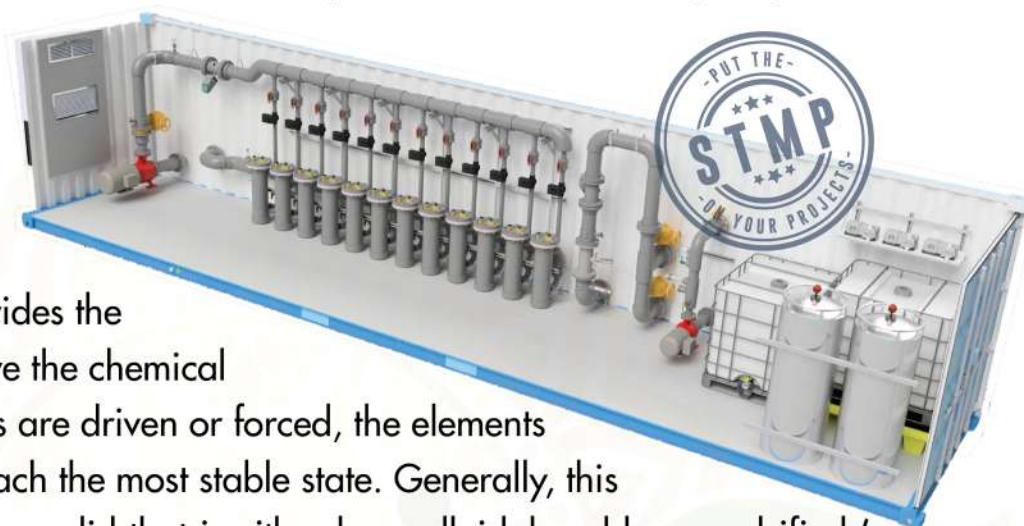
Adaptability of the equipment and coagulation - flocculation system and pH adjustment, exclusive for each type of water and requirements for concentrations of contaminants in the clarification.

Hybrid MBR Electro-Ionization & Electro-Oxidation

Combinations of conventional treatment with advanced treatment technologies are found to be efficient towards reuse of treated water. Electro-Ionization & Electro-Oxidation combined with MBRs provide the most favourable solution for reduction in membrane fouling.

Electro-Ionization & Electro-Oxidation is the process of destabilizing suspended, emulsified or dissolved contaminants in an aqueous medium by introducing an electrical current into the medium.

The electrical current provides the electromotive force to drive the chemical reactions. When reactions are driven or forced, the elements or compounds will approach the most stable state. Generally, this state of stability produces a solid that is either less colloidal and less emulsified (or soluble) than the compound at equilibrium values. As this occurs, the contaminants form hydrophobic entities that precipitate and can easily be removed by a number of secondary separation techniques.



Our systems are made with patented biological odor control technology that is capable of degrading hydrogen sulfide, mercaptans, and volatile fatty acids. It works in the same environment as odors are generated and also don't have unintended negative impacts on biological wastewater treatment systems.



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