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PAPER AND PULP INDUSTRY



Water and wastewater technology for the paper and pulp industry



Water and wastewater technology for the paper and pulp industry

Wastewater quality and process concepts

Paper and pulp manufacture requires substantial quantities of fresh water for the production processes; depending on the size of the business, this water can cause correspondingly large quantities of cost-intensive wastewater to be produced. The wastewater produced in the production of paper mainly contains organic substances (COD/BOD5) and calcium, sulphate and chloride loads. The nutrients N and P are largely lacking and have to be added for functioning biological wastewater treatment. The organic substances in the wastewater are readily biologically degradable.

Wastewater treatment requirements vary depending on the size of the business and the wastewater quantity. In most cases a multi-stage biological process, consisting of an anaerobic or aerobic high-load stage and a weak-load stage, preferably implemented after the activated sludge process, has proven successful for direct discharge. In Germany the minimum requirements of the wastewater regulations (Abwasserordnung - AbwV) Annex 28 (production of paper and cardboard) must be complied with for direct discharge of the treated wastewater into a receiving water.

The following **process steps** are used generally for direct treatment of **wastewater from the paper and pulp industry**:

- Mechanical wastewater pretreatment
- Flotation
- Storage and homogenisation
- Neutralisation
- Biological treatment
 - Anaerobic wastewater treatment
 - Aerobic wastewater treatment (SBR/MBR plants)
- Nutrient metering (N, P)
- Calcium elimination
- Filtration
- Sludge treatment and energy generation from biogas
- Waste air treatment
- Automation (E-I&C technology, process and remote monitoring, etc.)

We have the optimum solution

The **wks group** offers **turnkey, integrated solutions** and **individual concepts** for water and wastewater treatment in the **paper and pulp industry**.

The optimum process technology is selected, taking into consideration the operational requirements, the need to minimise disposal quantities and energy consumption and/or to generate energy. This technology can be used for the respective wastewater composition and results in the required discharge limits.

Process engineering, mechanical engineering and automation: The **wks group** of companies unites all technical know-how required to implement technical industrial water treatment tasks.

From individual advice, development, to production, installation, commissioning, through to maintenance/service and optimisation, we work with strong partners.

The **wks group** supplies **products and plant components from its own production facility**. Here the focus is on fittings, pipes and vessels made of stainless steel. Experienced engineers, and specialised fitters and welders ensure effective project completion, from the production of individual products through to mechanical equipment for complete, turnkey plants. In all projects we guarantee reliability, on schedule completion and flexibility.



Range of services

- Turnkey plant construction
- Consulting and planning
- Process engineering
- Construction work
- Mechanical engineering
- Automation
- Installation
- Maintenance and service
- Training
- Optimisation
- Operation management

Range of products

- Filter screens
- Mixing and balancing tanks/neutralisation
- Flotation plants
- Sedimentation basins/buffer basins
- Anaerobic wastewater treatment
- Energy generation from biogas
- Aerobic biological treatment (incl. nitrification and denitrification)
- Nutrient metering (N, P)
- Calcium elimination
- Chemical metering and storage
- Sludge treatment
 - Sludge dehydration
 - Sludge thickening
 - Sludge drying

Our experience – your advantage

Our know-how acquired from almost **25 years' of successful water industry plant construction**, our knowledge, our technologies and innovations in **industrial water treatment** are the **guarantor** for an important part of **your economic business success!**

We develop and offer cross-product and cross-system solutions for new build, reconstruction and optimisation of **water and wastewater plants for the paper and pulp industry.**

Your advantage: Our expertise in processing and mechanical engineering, automation systems, products and plants – we have precisely what you need or develop it for you!



Products and systems

WATER	Equipment components	Waterworks	Drinking water treatment	Water storage plants	
	Screens	Flushing equipment	Weirs	Scumboards	
WASTE WATER	Flow controllers	Valves			
	Stormwater overflow tanks	Stormwater treatment plants	Combined waste- and floodwater	Special structures for airports	
	Precipitants with metering stations	SBR clean water decanters	SBR vertical agitators	Floating sludge decanters	Turbid water
WASTE WATER TREATMENT	Municipal wastewater treatment plants	Industrial wastewater treatment plants	Reconstruction and optimisation	SBR plants	TRIUNO compact wastewater treatment plants
	Equipment components	Sludge treatment / digestion			
ENERGY	PLC technology / process control technology	Complete electrical/ I&C systems	Remote control (telecontrol) systems	Evaluation / logging	Web-based camera system
	Process control loop block	Outdoor cabinet systems	Monitoring small wastewater treatment plants	Energy data recording	
	Testing explosion protection	Energy monitoring	Medium-voltage switching autorisation		
AUTO-MATION					