



## Biological Wastewater Treatment Plant (SBR-Principle) of Town **KOPRIVNICA** (Croatia)



Bird's eye view of the biological stage of wastewater treatment plant KOPRIVNICA

- **Connection load:** 100,000 population equivalents
- **Sewage system:** combined system
- **Effluent quantity:** 17,000 m<sup>3</sup>/d (dry weather)  
1,600 m<sup>3</sup>/h (rainy weather)
- **Process target:**

BOD <sub>5</sub>	<	5.0	mg/l
COD	<	70.0	mg/l
N <sub>total</sub>	<	10.0	mg/l
P <sub>total</sub>	<	1.5	mg/l
TSS	<	10.0	mg/l
- **Pre-treatment of sewage:** Coarse screen in the inlet of the plant, inlet pumping station, fine aerated sand and grease trap, screening washer, grit classifier, grease thickener
- **Aeration-technology:** fine bubble membrane aeration (E-Flex) with central HyperClassic-stirrers
- **Sludge-treatment:** three aerobic sludge reactors with HyperClassic-mixing and aeration systems
- **Special Features:** Separation of sand by use of patented „Walzensandfang“, biological filter for waste air cleaning of the pre-treatment area, simultaneous phosphate precipitation by use of a VTA-product
- **First start-up (bio-stage):** 2007
- **Second start-up (sludge area):** 2008
- **Inspection and handing-over:** 2009
- **Operation results:**

BOD <sub>5</sub>	<	5.0	mg/l
COD	<	50.0	mg/l
N <sub>total</sub>	<	10.0	mg/l
P <sub>total</sub>	<	2.0	mg/l
TSS	<	10.0	mg/l
- **Treatment concept of biological stage:** activated sludge plant with low loads as 4-street SBR-treatment, plant, dimensioning according to M 210, including nitrification, denitrification and simultaneous part-stabilization of activated sludge
- **Control concept:** fully automatic control including Siemens- PLC, SCADA-Central-control and remote serving
- **Sludge dewatering:** high performance centrifuge with Simp-Drive



An automatic coarse screen ensures that coarse material like limbs, tins, cadaver, etc. is discharged.



Compact pre-treatment station for pre-treatment of wastewater (fine screen, aerated sand and grease trap). For separation of sand, the patented "Walzensandfang" was used.



Dropping of sand and solids out of the pre-treatment station. By use of a special washing method, the majority of organic ingredients are led back to the wastewater.



View of one of the four SB-Reactors with central placed HyperClassic-Stirrer and BSK®-Decanter to extract clear water.



View into the machine room with heavy duty blowers and stainless steel pipe technology.



HyperClassic-aeration systems achieve a post-stabilization of the stored excess sludge



By use of a heavy duty centrifuge excess sludge is dewatered (20 – 30 % DS).