

## HUBER SLUDGE TREATMENT PLANT ON THE BLACK SEA COAST

### CASE STUDY

#### PROTECTING THE BLACK SEA

The Bulgarian Black Sea Coast along the city of Varna with 300,000 residents is an important economic factor, especially due to its touristic potential.

The European Union decided in 2002 to give aid money for the protection of the Black Sea, in particular for upgrading and building new local sewage treatment plants. The capacity of the sewage treatment plant at Varna could therefore be expanded to 450,000 PE and equipped with state-of-the-art technology. The main intention was to minimise the direct discharge of untreated wastewater to the Black Sea. They wanted to achieve that the quality of the discharged wastewater in the future meets the European standards for nitrogen and phosphate. At Varna, for example, one of the biggest sewers has been connected to the sewage treatment plant, the biological treatment stage has been upgraded. The digesters have been modernised and equipped with an energy-from-biogas system.

#### OVERVIEW

HUBER won the public tender for the mechanical sludge thickening system in 2011. We supplied three type ROTAMAT® Screw Thickeners RoS 2.4L still in the same year.

HUBER screw thickeners have been used by customers all around the world for more than 20 years already. The thickener installed at Varna is a size 4L unit which, in 2008, was especially further developed for high hydraulic throughputs and high solids loads. The well-proven operation principle of a slowly rotating screw inside a massive stainless steel filter basket allows for virtually unlimited filter lifetimes. As the sludge to be thickened is conveyed against gravity and due to the special geometry of the conveying screw high thickening degrees can be achieved and break-through of insufficiently thickened sludge due to e.g. varying inflow conditions is effectively prevented. Reliable measuring equipment is used to control machine load and thus allow for automatic operation of the screw thickeners without operator attention.



#### OUTCOME

The operating data of the Varna plant prove the capacity and reliability of the HUBER machines: They thicken biological surplus sludge from static thickeners and, with a throughput of 75 m<sup>3</sup>/h and varying solids content of 1.6 - 2.4 % in the inlet, process an average solids load of 1500 kg/h. Despite the inhomogeneous inflow the sludge is reliably thickened to an extraordinary solids content of 6 - 8% which is the optimal basis for the following digestion. Due to the low connected load of only 3 kW per machine the balance of the new digester gas block heat and power plant is hardly affected. For more than two years since start-up all three machines have operated reliably and to the full satisfaction of the Bulgarian operators.