

BOLLFILTER AUTOMATIC ENSURE PREVENTION OF FOULING RETENTION OF ZEBRA MUSSELS

at raw water intake of power plant

The power plant Reuter, located in Berlin district Siemensstadt, covers its water demand with water from the river Spree. This river water is subject to enormous seasonal fluctuations, causing extraordinarily high pollution with suspended matters, organic compounds and micro organisms. The resulting fouling, settlement of algae, bacteria or mussels, leads to serious malfunctions, increased pressure losses, reduction of heat transfer and clogging of nozzles, valves and cooling channels.

At power plant Reuter, fouling is mainly caused by the mussel *Dreissena polymorpha*, called "zebra mussel". Although the large mussels are retained successfully by the pre-filter (BOLLFILTER Automatic Type 6.18.2), it is necessary to fight against the extremely resistant mussel larva. Three BOLLFILTERs Automatic Type 6.18 fulfil this task. Due to the special geometry of the wedge wire candles, used as filter element, extremely high flow velocities are reached at the filtration gap (pls. see figure 3). At this point, the acceleration is more than 10 g, which is more than 10 times the gravity. This acceleration together with the collision at the triangular profiles of the wedge wire candles lead to the destruction of the mussel larva.

An additional effect is achieved by a special coating of the filter candles, developed by BOLL & KIRCH („FouleX“). This coating prevents the filter elements from silting up and being attacked with algae, problems which can occur in such applications.



Fig. 1: Power plant Reuter; supplied with water from river Spree



Fig. 2: Installation of BOLLFILTER system with pre-filter (background)

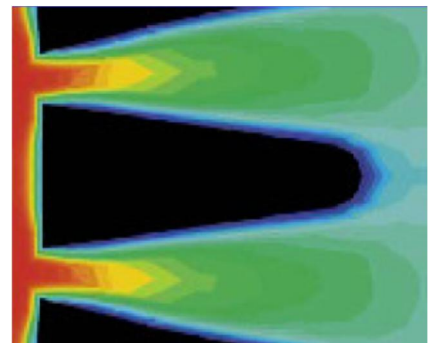


Fig. 3: Flow simulation showing the high flow velocities (red zone) at the wedge wire profile of the filter candle

Client	Vattenfall Europe Wärme AG
System	BOLLFILTER Automatic Type 6.18 DN DN 12" Flow rate: 567 m ³ /h Filtration grade: 150 micron
Pre-filter	BOLLFILTER Automatic Type 6.18.2 DN 20" Flow rate: 1,760 m ³ /h Filtration grade: 500 micron