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Wider range of application: RakeMax®-J Multi-Rake Bar Screen with curved screen bars

Installation at STP Aachen-Horbach

STP Aachen-Horbach belongs to the water authority Eifel-Rur (WVER) in North Rhine-Westphalia. WVER operates 44 sewage treatment plants with a total design capacity of approx. 2.1 million PE to guarantee a safe water quality. Furthermore, they operate parts of the sewer network and approx. 750 special structures, such as pumping stations and stormwater overflow tanks.

On STP Aachen-Horbach they use a HUBER RoDisc® screen for tertiary filtration of the municipal wastewater. The flow to the RoDisc® screen (360 l/s) is pre-treated with a HUBER RakeMax®-J Multi-Rake Bar Screen.

Due to the limited structural and hydraulic possibilities on site WVER decided to buy this RakeMax® design version with curved screen bars. In July 2014 we were commissioned to supply the screen and modify the customer's electrical control system. Successful start-up took place in October.

The RakeMax®-J screen is a modified version of our well-proven RakeMax® screen. The RakeMax®-J screen does not have straight bars, the screen bars are bent in the bottoms section, i.e. curved towards the sewer base. It is also this special form of the screen bars which gives the screen its name as the letter 'J' has approximately the same shape as the curved screen bars.

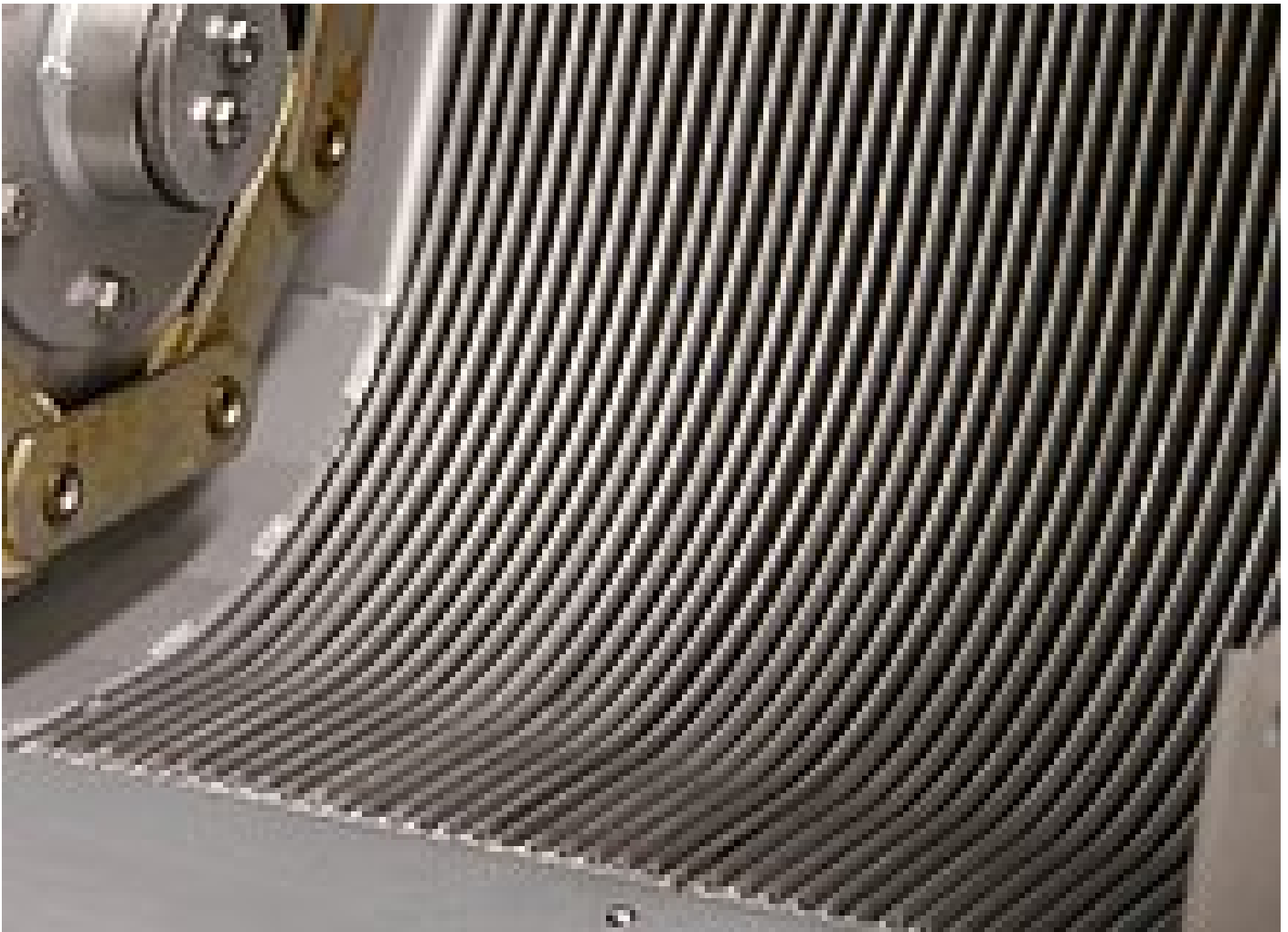
The screen rake moves along the curvature of the screen bars and describes a segment of a circle in this section. The flat inclination angle of the screen bars in the sewer base section results in an increased cross-sectional flow area of the screen with the results of reduced hydraulic losses and a reduced flow velocity in the gaps between the screen bars.

Due to the special design the screen rakes can remove sediments and screenings on the bottom plate already in the very bottom section so that the removal efficiency of the screen is optimised, which is achieved due to the reduced flow velocity.

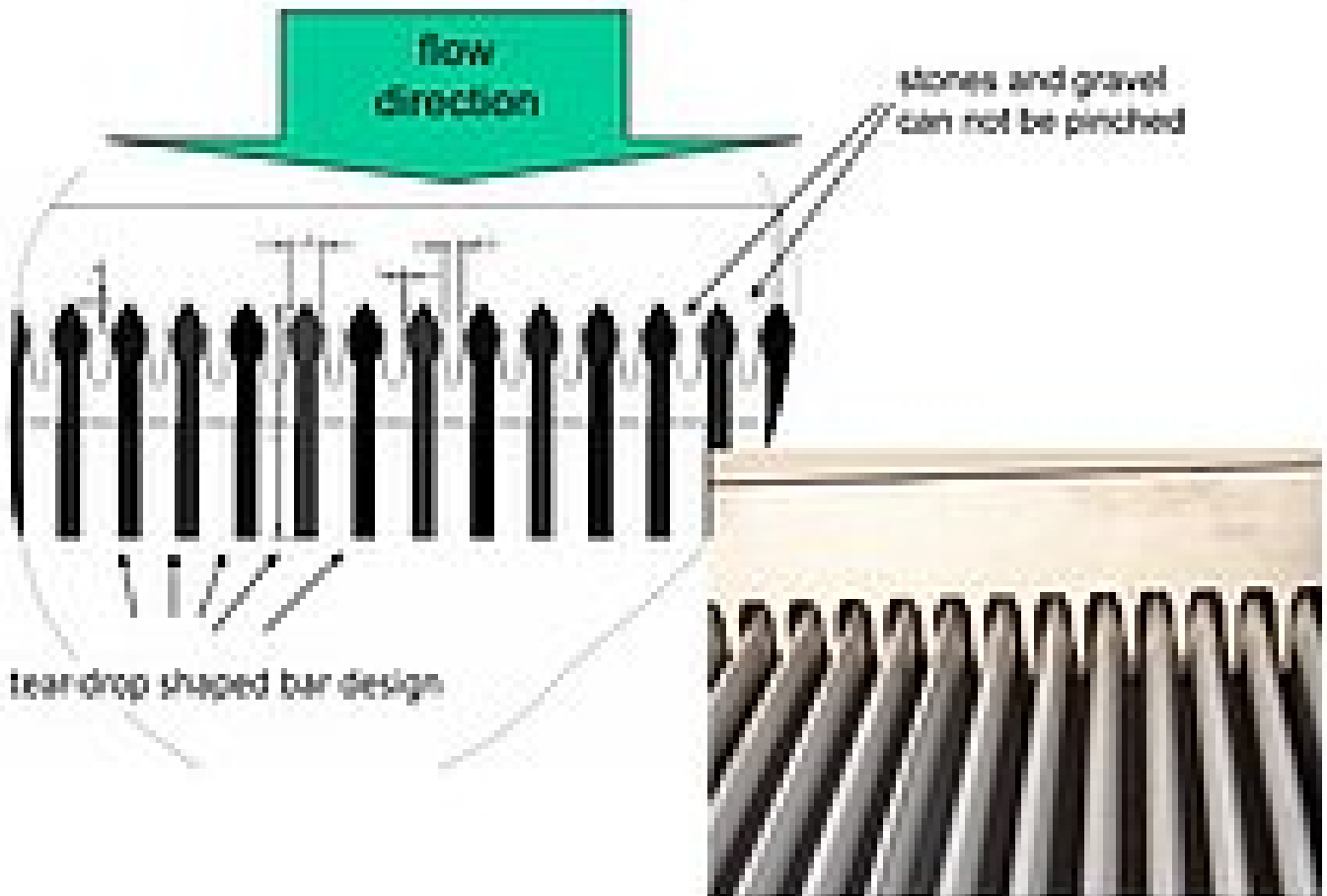
Another crucial functional element of a screening system is the profile of the screen bars. To prevent jamming of solids, especially with small bar spacings, and ensure the reliable removal of screenings, the bar rack of the RakeMax®-J is of course also available with the well-proven tear-drop shaped bar profile.



In-channel installation of a RakeMax®-J screen on STP Aachen-Horbach



Optimised transition in the bottom section from the bottom plate (connected with the screen frame) of the curved screen bars



Especially flow-optimising tear-drop shaped bar design

The characteristic feature of this profile is a very low headloss. As a result, hydraulic throughput capacity increases compared to conventional flat steel profile or trapezoidal profile bars. This bar shape furthermore prevents jamming of solid material, such as gravel. The solids contained on the screen rack form a filter surface so that even finer particles are removed from the wastewater when the rack is blinded with solids.

We use our many years of experience in the manufacture of the semicircular curved screen bars and the operation of screening systems with curved screen bars, such as the very well proven ROTAMAT® Fine Screen Ro1. Similar to this type of screen the RakeMax®-J reliably cleans the curved bar rack with the tines that are mounted on the cleaning rake. Far more than 1,400 installations of this screen are meanwhile in operation worldwide. All these installations, both the standard RakeMax® and RakeMax®-J with its curved bar rack, underline that HUBER SE possesses the technical capability in terms of both machinery and experience combined with know-how.

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