

Why Effective Screening is Critical in Wastewater Treatment

In wastewater treatment, screening is one of the most fundamental steps in protecting downstream processes

When debris such as plastic and rags pass through untreated, they can damage pumps, clog valves, and interfere with biological processes. Effective screening not only prevents these issues, but also improves treatment efficiency, reduces maintenance, and supports overall plant reliability.

The Role of Bar Screens in Treatment

At the headworks of a treatment plant, bar screens remove coarse material before wastewater enters subsequent stages. This step sets the foundation for the entire treatment process by protecting pumps, clarifiers, and biological systems from damage and operational disruptions that could be caused by clogging.

Different plants face different screening demands depending on conditions and debris types. In some applications, floating materials such as rags and wipes are most common, while in other applications, heavier solids or irregular debris are the main concern. Selecting the right type of screen, front type or rear type, is essential for smooth operation.

Tsurumi's Approach to Screening Design

Tsurumi Pump designed a line of small to mid-size automatic bar screens, including the KE, KS, KW, and KM Series. The bar screens use all metal rakes rather than plastic components; this helps to extend service life and ensure reliability under continuous operation.

Traditional front type bar screens use a series of rakes positioned in front of the bars to remove smaller floating materials. On the other hand, rear type screens operate with hinged rake arms behind the bars, using a crane-like motion to lift out large or heavy debris. This "dry chain" configuration prevents the chain from contacting the liquid.

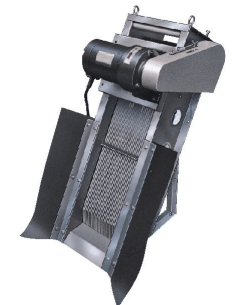
For facilities dealing with corrosive environments or aggressive wastewater byproducts such as hydrogen sulfide, 316 stainless steel offerings in lieu of 304 stainless steel construction extends the pump's life in extreme service. Drive options also vary from belt and chain mechanisms to direct gearmotor drives. In areas prone to flooding, Tsurumi's immersive gearmotor drives allow continuous operation during extreme conditions.



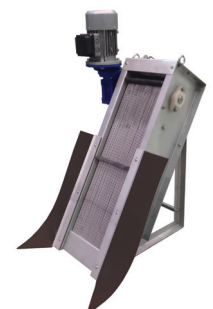
KE Series
Front Barscreen Type



KM Series
Rear Barscreen Type



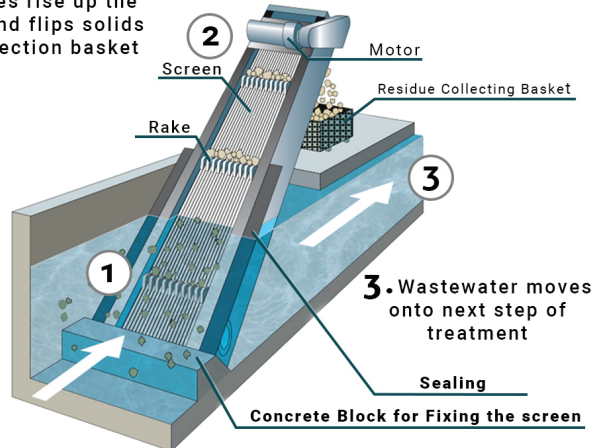
KS Series
Front Barscreen Type



KW Series
Front Barscreen Type

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2. Rakes rise up the screen and flip solids into collection basket



1. Solids in wastewater picked up by rotating rakes

Maintenance and Longevity

Although bar screens are largely automated, periodic inspection and cleaning help maintain long-term performance. Routine washing of the bars prevents buildup, while the screen sump, bearings, and rakes should be checked every few years for wear. With proper maintenance, bar screens can achieve an average service life of ten years, with installations lasting multiple decades.

A Critical but Often Overlooked Step

Screening remains one of the most cost-effective ways to enhance plant for small domestic wastewater and industrial treatment plants. Though simple in concept, it has significant influence over maintenance frequency, equipment lifespan, and process efficiency.

Tsurumi's bar screen designs represent an approach focused on longevity, reliability, and flexibility – reflecting the essential role that screening plays in every wastewater treatment process.

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ABOUT TSURUMI

Tsurumi (America), Inc., a division of Tsurumi Manufacturing, was founded in 1979. Headquartered in Glendale Heights, Illinois, Tsurumi (America), Inc. has bases in Quebec, Canada; El Paso, Texas; and Salt Lake City. Globally, Tsurumi is active in 45 countries and has been an innovator in the pump industry since 1924. Tsurumi (America) is a provider of leading pumping technology in construction, civil engineering, mining, industrial wastewater, municipal wastewater, sewage treatment, flood control and scenery creation fields. Tsurumi products are backed by independent, third-party verification. Beyond leading pump technology, Tsurumi (America) is recognized for its robust distribution network and one of the largest on-hand inventories in North America.