

How To Get The Most Out Of Your Drum Screen

Bar screens are an important first-line defense when it comes to keeping debris and large solids out of a wastewater treatment system. For low-flow systems that need ultra-fine screening, a drum screen can be installed after the bar screen or at other critical points in the treatment process. They are particularly beneficial for certain industrial applications or in small [municipal wastewater treatment plants](#) (WWTPs) that utilize sensitive membrane filtration, such as membrane bioreactors (MBRs).

A properly designed and sized drum screen can be crucial to a successful wastewater treatment system. But some drum screens are a headache to run. Screen openings can clog, and parts can corrode. Preventative maintenance and cleaning the drum are often time-consuming and laborious processes. The excess downtime can be costly and impact treatment results. That's why Duperon designed a drum screen with a blend of features that address major operator pain points.

Ease Of Maintenance

Many drum screens rotate using a chain and sprocket system with multiple trunnion wheels to support the drum. The design is simple, but the chain, sprockets, and trunnion wheels need to be regularly lubricated and serviced in order to work smoothly. Even with consistent lubrication, these parts wear out over time, requiring system downtime for replacement. Similarly, trunnion wheels corrode easily, as they are often in the wetted area on the underside of the drum. To avoid this, the Duperon drum screen utilizes a direct drive system. These systems do not require a chain or sprocket. This eliminates any need for lubrication

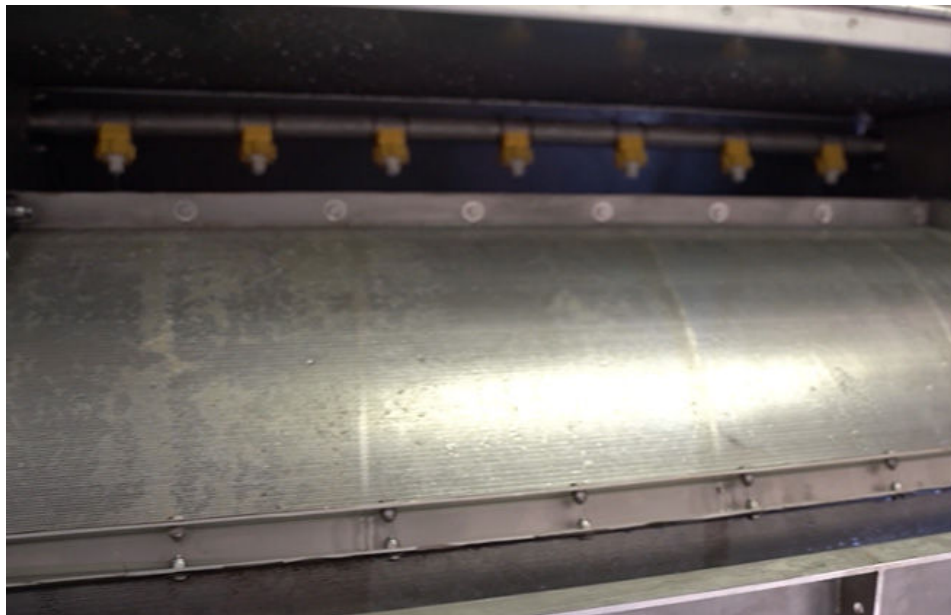


Photo courtesy of Duperon

as well as sources of wear, dramatically reducing maintenance. Moreover, the direct drive system is positioned outside of the wetted area, which again ensures that parts will not corrode over time.

In place of trunnion wheels, Duperon uses a combination of stainless-steel shoes and ultra-high molecular weight (UHMW) polyethylene wear strips. These wear strips are engineered to be water lubricated, which again eliminates a source of maintenance. Replacing the wear strips does not require special tools and can be done at an operator friendly level without removing the drum from the unit.

Ease Of Cleaning

Unlike other forms of maintenance, cleaning a drum screen is largely unavoidable. However, it is possible to design a drum screen that is easier for operators to clean. The Duperon drum screen has removable panels that allow easy access to the inside (Figure 1). This

makes the cleaning easier and faster since the whole unit doesn't need to be disassembled and there is no need to perform a confined space entry inside the drum itself.



Figure 1. The removable panels on the Duperon drum screen allow operators to easily access the internal chamber for faster cleaning. It is designed to stand at chest height, so operators can perform scheduled or as-needed cleaning with minimal risk of injury and no need for a confined space entry. In addition, once cleaning is complete, the panel can be quickly reinstalled with common tools and will fully seal to eliminate any chance of leaking.

While regular cleaning should prevent it, occasionally the screens will become clogged. When this happens, water cannot drain through the screening media and the unscreened water can end up overflowing the system and draining out with the debris discharge. This causes problems for not only the drum screen but any downstream conveying or washer compacting equipment. A strategically placed overflow port in Duperon's design ensures this cannot happen.

Flexible Design

Installation of a new drum screen can sometimes be a challenge, depending on the available space and plant layout. Duperon designed its drum screen to allow the water inlet to be installed on either side of the drum screen, providing added flexibility for difficult installation scenarios.

In addition, Duperon's drum screen can be economically retrofitted with larger or smaller screen opening sizes after the initial purchase. This adds peace of mind with a purchase, especially for industrial users who may be uncertain which screen size will work best for their operation. If a 2-mm screen size is not removing enough solids, for example, the unit can be refitted with a 1-mm screen for far less cost than buying a whole new drum assembly.

Use Trusted Technology

Ultimately, it's important to ensure that a drum screen is using proven technology and designs. The Duperon drum screen leverages many features used in its [FlexRake](#) bar screens. The Duperon drum screen utilizes a direct drive system without sprockets. The weight of the drum is balanced evenly on the drive gearbox on one side and the shoe on the

other, mimicking a similar design on the FlexRake. In addition, the water-lubricated UHMW polyethylene wear strips of the drum screen, although a different composition, borrow from the similarly successful engineered plastic greaseless bearings found in the popular line of Duperon bar screens.

A drum screen's simple role in a wastewater treatment system can belie several challenges. Older or poorly designed drum screens can become a labor-intensive cost center. However, the Duperon drum screen can cost-effectively remove fine debris from wastewater with minimal operator intervention. ■