

How To Increase The Lifespan Of Your Bar Screen Without Replacing It

Most bar screen and raking systems are expected to last 10 to 25 years before needing replacement. As components wear, and steel corrodes, wastewater treatment plants (WWTPs) have to choose between replacing parts and specifying a new system. Both situations can present a serious challenge. For example, replacing parts may seem more cost-effective in the short run; however, over time more and more components will inevitably fail or underperform, and the cost of parts, labor, and downtime will mount.

Conversely, replacing the entire system often feels unnecessary. The screen itself is often in good condition – only the moving parts are showing age. To remove and replace the entire bar screen means hiring an engineer, potentially going out to bid, and a major construction project with days or even weeks of downtime.

Thankfully, Duperon customers have a third option that can save the money and downtime of buying a new system while still getting the benefits of the latest technologies. The FRO IQ is an upgraded raking system designed for existing Duperon screens, which expands the capacity, capability, and wear resistance of the system without having to go through a new installation.

Gaining New Features

By upgrading to the Duperon FRO IQ, WWTPs can take advantage of new technologies and features, including:

- Intelligent response to actual hydraulic and debris conditions in the channel, enhancing the screen's performance while extending its life. For example,



Photo courtesy of Duperon

sensors can detect flow rates and increase and decrease raking speeds accordingly.

- Reduced maintenance through the use of a low-friction engineered polymer bearing and stronger, more corrosion-resistant steel. (Figure 1). The bearing requires no grease and is maintenance free.
- Up to four-times the debris removal of the originally installed equipment. The FRO IQ responds to high flows and solids loading by increasing the speed of the raking system during the event. It also features a higher-capacity scraper design that can remove more debris per pass.



Photo courtesy of Duperon

Figure 1. Highly advanced polymer plastic bearings can run for the life of the raking system without needing to be greased.

- The ability to manage large debris and rapidly reengage the trailing scrapers, enhancing screen cleaning during large debris events. When large debris is presented at the screen, the links are able to disengage one or two scrapers as needed to remove that debris while the leading and trailing scrapers return to the engaged position.
- Dramatically reduced likelihood of damaged teeth and stones embedded in bar openings, thanks to a special tooth geometry and the use of more resilient materials (Figure 2).
- Cost-effective extension of screen life with lower equipment cost, low installation cost, and no civil construction cost.



Photo courtesy of Duperon

Figure 2. The unique geometry of the FRO IQ scraper teeth allows them to more efficiently handle stones and other hard debris without bending the teeth or bars.

Reducing Costs And Downtime

An upgrade using FRO IQ can save money and downtime associated with new CAPEX purchases and installations. The upgrade costs about 40% less than a new system with equivalent features to the plant.

By using the FRO IQ, WWTPs can skip the months-long (sometimes years-long) process of specifying, hiring, and

installing. The upgraded raking system can be installed as part of the preventative maintenance process. It also means the plant can continue to work with the brand that it has been using for years and with which the maintenance and operating crews are already familiar.

Furthermore, there's no need to remove

the existing bar screens or modify the channel in anticipation of a new setup. The upgrade can be achieved utilizing a small crew over a window of a few days instead of weeks; the old scrapers, gears, and links are removed, the replacements are put on, and the whole system is back up and running at a pace that meets the facility's needs. ■