

Screening Summary – MBR Systems

Screening has long been a key concern for MBR owners, operators, and engineers. As MBR installations continue to proliferate, and longer-term operating data has become available, the industry has gained an increased understanding of the screening needs for different MBR systems. This summary outlines some of the typical screening requirements and recommendations for Enviroquip and hollow fiber MBR technologies, as well as providing some advice on how to effectively manage the headworks portion of a comparative MBR system evaluation.

Screening Requirements

Hollow Fiber

Hollow fiber systems have a much higher propensity for hair and fibrous material to wrap around the membrane fibers and damage them, often resulting in fiber breakage. For this reason, hollow fiber manufacturers recommend very fine screen openings to remove the hair and fibrous material, and will also promote up-

Screening Requirement	Enviroquip	Hollow Fiber
Coarse Screen	No	Yes
Fine Screen Openings	3mm	0.25mm to 2mm
RAS Fine Screening	No	Yes
Additional Capital Costs	No	Yes
Additional Maintenance Costs	No	Yes
Additional Complexity	No	Yes

front coarse screening as a way to protect the fine screens from damage. In addition, it is common practice for hollow fiber systems to include fine screening of the Return Activated Sludge (RAS).

Aside from the increase in screening equipment capital cost, the use of finer screen openings greatly increases the amount of organic material removed, which necessitates larger and more expensive washer/compactor systems. This also adds additional capital and long term operation and maintenance costs.

Enviroquip

By comparison, Enviroquip MBR systems require 3mm fine screening and no coarse screening or RAS screening. These simple screening requirements result in lower capital and O&M costs, smaller plant footprint, and less plant complexity. Further, they have been proven effective by an application base of over 2,500 Kubota MBR installations worldwide, including over 1,000 MBR package plants, where small footprint and installation flexibility is of critical importance.

Screening Recommendations

Typical Hollow Fiber Fine Screen Recommendations:



Salsnes Filter
50-800µm



Rotary Drum Screen
0.25mm – 2.0mm



Traveling Band Screen
0.25mm – 2.0mm

Enviroquip Screen Recommendations:



Enviroquip FS Screen
In-Box; ≤ 0.5 MGD



Enviroquip FS Screen
In-Channel; .5 MGD – 1 MGD



Helisieve or similar
 ≥ 1 MGD

MBR Evaluation – Screening

Screening requirements and recommendations vary widely between different MBR manufacturers, and these differences can be a source of confusion to owners and engineers. One simple way to eliminate any confusion and reduce owner risk is to mandate that all screening requirements be included in the MBR supplier's scope, and tie those requirements to the membrane warranty. This places the headworks risk squarely on the shoulders of the MBR supplier, and ensures that they will recommend appropriate screens for their system. It also eliminates any potential finger-pointing down the road: "our membranes failed because of *their* screens".

Put All Screening Requirements in MBR Supplier's Scope and Tie To Warranty