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wastewater treatment equipment*

## **OR-TEC Blue Whale Micro Bar Screen**

### **FAQ's**

**Q. What are the typical openings of the OR-TEC Blue Whale MB Screen?**

A. 1 to 6mm but the unit can be supplied with larger openings as required  
(Ref. 6mm = ¼")

**Q. How does the Blue Whale MB Screen work?**

A. The Blue Whale MB is completely unique screen because it can screen to openings as low as 1, 2 or 3 mm while guaranteeing it will not blind due to its wedgebar construction and penetrating rake teeth. This US patented screen is manufactured in an ISO 9001 and ISO 14001 factory. It removes the vast majority of hairs, rags and "stringy material" which will pass through screens with larger openings. This very high removal rate vastly improves the rest of the wastewater treatment plants operation by reducing fouling of pumps, valves and other rotating equipment. Most plants find the clogging of pumps and other rotating equipment completely stops once the Blue Whale screen is installed.

**Q. Is this just another wedge wire screen?**

A. The Blue Whale MB Screen is not a wedge wire screen. Wedge wire is held together by wire welded across the wedge bar at intervals of a few inches apart. The wedge bars used in the Blue Whale MB screen have no wire whatsoever on them. They are specifically manufactured for the Blue Whale MB Screen.

**Q. Why use such a small screen for wastewater?**

A. Historically wastewater treatment plants have used screens between ¼" and 2". At this size inorganic material (rags, paper, plastic, etc.) is still able to get through the screen opening. The best screen size for standard WWTP's we have found is 2-3 mm. At this size the Blue Whale screen can remove the vast majority of inorganic material entering the plant. Things like small sticks and stones, leaves, hair, rags and stringy material. These items tend to re-constitute themselves later in the plant, wrapping around pumps, mechanical seals, diffusers etc. With the Blue Whale MB screen there is a huge reduction in maintenance and labor costs associated with these problems.

**Q. Does the Blue Whale MB screen have submerged bearings on the chain return and if so how are they maintained?**

A. No. The unit has submerged bushings specially adapted for Blue Whale MB Screen. These are Graphite Immersed Phenolic Resin Bushings. The bearing is sealed to prevent the penetration of sand, grit or any abrasive particles and as a result it does not have the pitting and scratching problems which sometimes occur in graphite type oil-less bearings. We have not replaced any of these type bearings over the past 10 years among over the 1,000 sets of the Blue Whale MB Screens in operation. If required the bushing assembly can replace it within 10 minutes in the channel. The bushing assembly is warranted for 5 years.



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**Q. What is the Blue Whale MB chain made of?**

A. The rake chain and chain rollers are manufactured from ST304 Stainless Steel. We do not need to be concerned about the length of the chain as the normal operating tension of the chain is very low (less than 1/3~1/5 of the normal bar screens) due to the patented self tensioning structure of the Blue Whale MB Screen. The main chain guide rails are made of UHMW-PE which prevents friction against the chain rollers ensuring over a 10 year lifetime of the Rake Traveling Chain.

**Q. Do you have issues with items such as small sticks or for example a toothbrush getting stuck between the wedge bars?**

A. No! Thousands of types of material enter the municipal sewage treatment plant, and the Blue Whale MB Screen is designed to handle all of them, so the small hard sticks, toothbrushes or even BB pellets are not an issue. The instant and repeatable protection of the Retractable Hinge Cushioned Rake works extremely well.

**Q. How does the operator know that such a blockages has occurred and how does he correct it? Is there a mechanism on the hinge that can somehow alert the operator to a consistent blockage?**

A. The US patented Retractable Hinge Rake Cushioned Mounting is a very sensitive, repeatable torque limiter. It solves almost 100% of blockages even if they occur hundreds times in a day. If larger debris enters the machine, a friction pad torque limiter slips and cuts the power transmission to the head driveshaft. This is sensed by a current monitoring sensor and the local control panel is alarmed. This very rare occurrence and the operator can restart the screen after checking the problem.

**Q. What reduction in volume do you get with the screw compactor attached to the Blue Whale MB Screen?**

A. When a screw compactor is used, the volume of the screenings is reduced by 50 to 70%.

**Q. Does the Blue Whale MB Screen or screw compactor require plant water connection?**

A. We do not need any wash water for cleaning the opening of the screen. However, very rarely, we spray wash water on the face of the screen at the upper point of the water level to clean the grease, mud or very small organic matter. When using a screw press, wash water should be connected for cleaning the strainer opening periodically, and this should be controlled with a solenoid valve and timer unit.

**Q. How do you handle heat tracing of the units?**

A. If the application requires freeze protection, we attach heat cable and insulation at the back side of the lead plate (the lead plate is the extension plate above the screen bars) and at the back side of the screenings discharge chute. Keeping wind flow off the front of the screen is also very important. Ensuring the front covers are correctly installed and making sure the discharge chute of the unit as it connects to the hopper of the screw pump or dumpster is sealed is also important.



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- Q. Is it alright to have a grinder or chopper pump in front of the screen?**  
A. There is no problem using a chopper grinder pumps in front of the Blue Whale MB Screen. The chopped debris larger that the screen openings will be removed by the Blue Whale MB Screen.
- Q. What order do you see the headworks equipment being placed in?**  
A. The Blue Whale MB Screen can be used either before or after the grit collection system.
- Q. Is the Blue Whale MB Screen suitable for sludge screening?**  
A. Yes, for example primary sludge at 5000mg/L TSS contains a lot of debris if the WWTP does not have a fine screen at the headworks. When screening sludge we normally use a 3.0 mm (1/8") opening screen
- Q. What is max length of the Blue Whale MB Screen?**  
A. The maximum length of the Blue Whale MB screen is up to 40'. The maximum water level depth for the 1/8" wedge bar screen (1~5mm openings) is 13', and for the 3/16" wedge bar screen (6~10mm openings) is 19.5'.
- Q. Can the screens tilt out of the channel for maintenance?**  
A. Yes for certain applications and screen lengths.
- Q. What is the min and max angle the screen can be installed at?**  
A. We do not have any min limit angle so the screen can be installed horizontally if required. Units can also be provide for vertical installation.
- Q. What is the gap between the bottom of the channel and the screen face?**  
A. Approximately 4~6" of the bottom part of the Blue Whale MB Screen is sealed by a Curbed Tail Frame. Any debris and grit settled at this part is pushed up by the hinge cushioned rakes.
- Q. Can you provide the screens in 316 SS or higher grades if necessary?**  
Yes, 316L SS machines can be provided.
- Q. A lot of screens use wash water to reduce BOD/organic content of screened material captured. Does the Blue Whale MB Screen use wash water?**  
This is a very important point. 90% of screens use the wash water to keep the screen openings from blinding rather than for washing the organic material from the screenings. As the Blue Whale MB Screen does not blind there is no need for wash water in most applications. Where required, for very difficult sludges or industrial applications a spray bar can be installed at the top the screen.