COLORADO LINING INTERNATIONAL

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MAKING POOR TREATMENT SYSTEMS GOOD AND GOOD SYSTEMS BETTER ON A BUDGET WITH BAFFLE CURTAINS

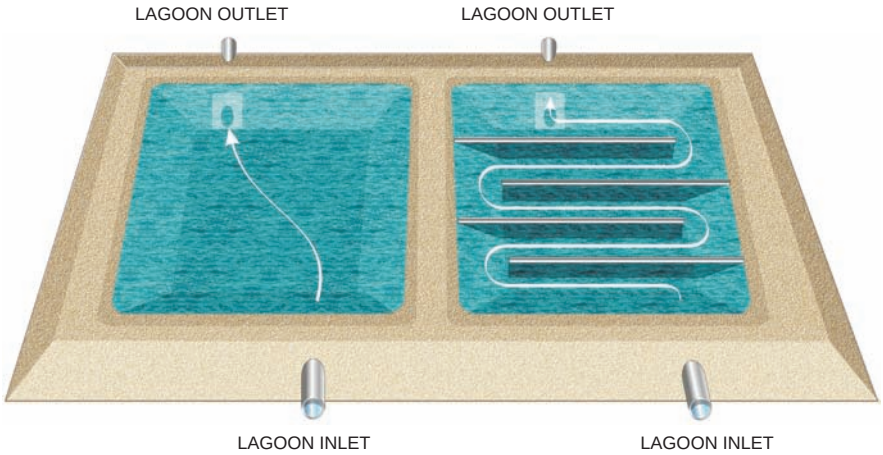
Membrane baffle curtain systems are designed to greatly enhance water treatment by increasing chlorine/chemical contact time and maximizing the potential of the chosen treatment method. This method of water treatment enhancement is very economical usually offering fast "buy back" with increased water quality and often reduced treatment chemical demand. This technology is also successfully used for controlling water temperatures between bodies of water, i.e. rivers flowing into lakes where plant life or fish spawning may be affected.

Baffle curtains used in treatment applications work by directing water flow through a maze like pathway resulting in maximized path lengths and contact time with treatment processes. This additional contact time allows for more thorough blending of applied chemicals or gasses, including dissolved air in oxidation lagoons. This technology is widely used to great effect in potable, industrial and wastewater treatment applications.

Unless modified, typical tanks and reservoirs are usually very poor structures for use as treatment vessels as they are not constructed with circulation or mixing as design criterion. It is not uncommon for a tank or reservoir to have inlet and outlet designs that are spaced too close together causing "short circuits" and "dead spots". Short circuits occur when fluid enters and leaves a reservoir before effective treatment can occur. Dead spots are areas of low flow activity caused by isolation and/or eddy currents and can lead to regional stagnation. Short circuits and dead spots are conditions that tend to co-exist. Usually these faults can be overcome by geometric solutions offered by economical baffle curtains. They redirect and control flow paths to greatly eliminate short circuits and dead spots. This technology almost always is a sensible addition to tanks or reservoirs where water treatment is desired.

TYPICAL RESERVOIR WATER FLOW PATH

BAFFLE ENHANCED RESERVOIR WATER FLOW



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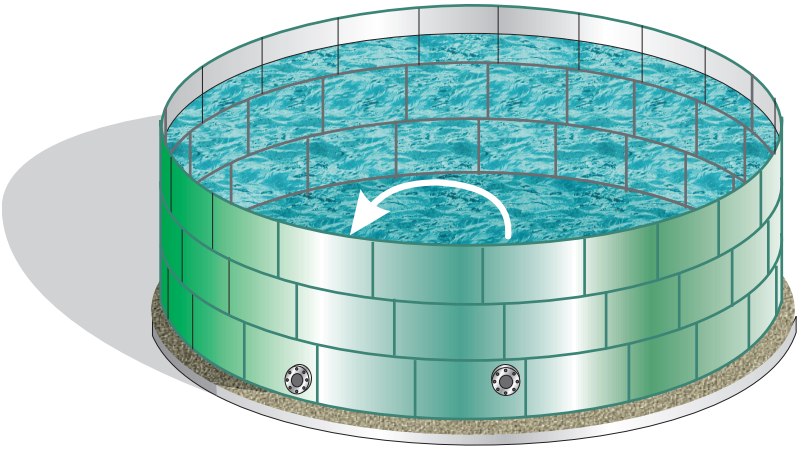
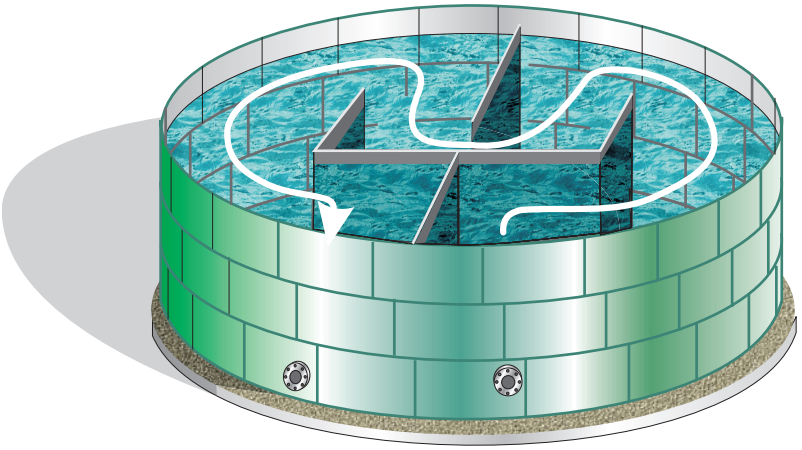
TYPICAL TANK WATER FLOW PATH

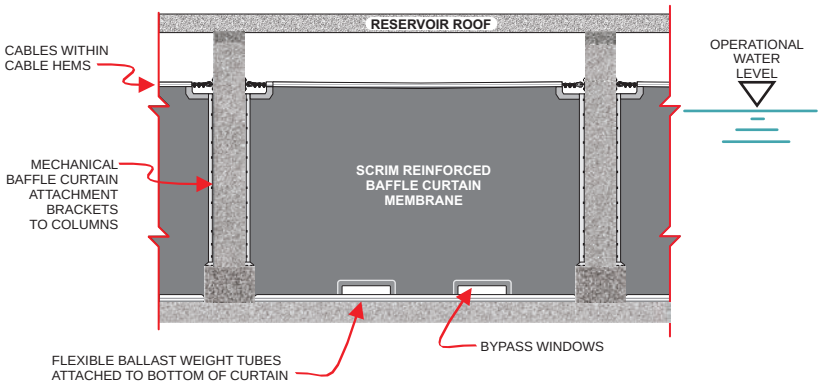


BAFFLE ENHANCED WATER FLOW PATH



Membrane baffle curtain systems consist of two basic types: **fixed** and **floating**.

Fixed baffle curtains are typically furnished for enclosed structures such as clearwells and tanks where they are suspended from ceilings and /or columns.



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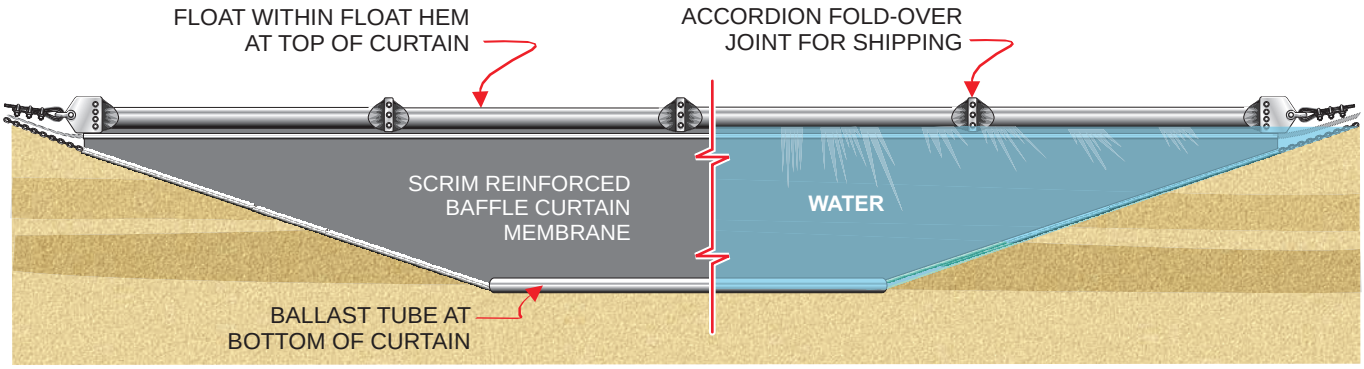
Floating baffle curtains typically incorporate encapsulated floats at the water line and ballast weights at the bottom to maintain a vertical and efficient profile. Floating baffles are most common in waterways, reservoirs or lagoons where long distances must be spanned without support.



At the heart of baffle curtain construction materials is a high tensile strength polyester scrim fabric reinforced flexible geomembrane. The geomembrane is typically fabricated into a project specific size and design and will incorporated hems for inclusion of continuous length stainless steel wire ropes and floats if required. Both fixed and floating baffles incorporate interior cables for longitudinal strength and rigidity. Mounting hardware usually consists of grade 316 stainless steel components and fasteners. Because of their curtain construction, baffles are either folded up accordion style or rolled up like tarps for shipping to the end user. Once installed, they become tensioned semi-rigid walls.

Baffle curtain designs are generally very simple. Their design does however require site specific knowledge of the dynamic hydraulic forces that will act upon them. Successful designs consider the strengths of the geomembrane to be used and the combination of all rigging and rigging attachments. Wind and wave action are other possible factors to be considered. In some installations, the water level on either side of a baffle curtain varies as much as 6”. Improper material selections can therefore be very problematical. The best option usually involves the services of an engineer to review the dynamic forces involved.