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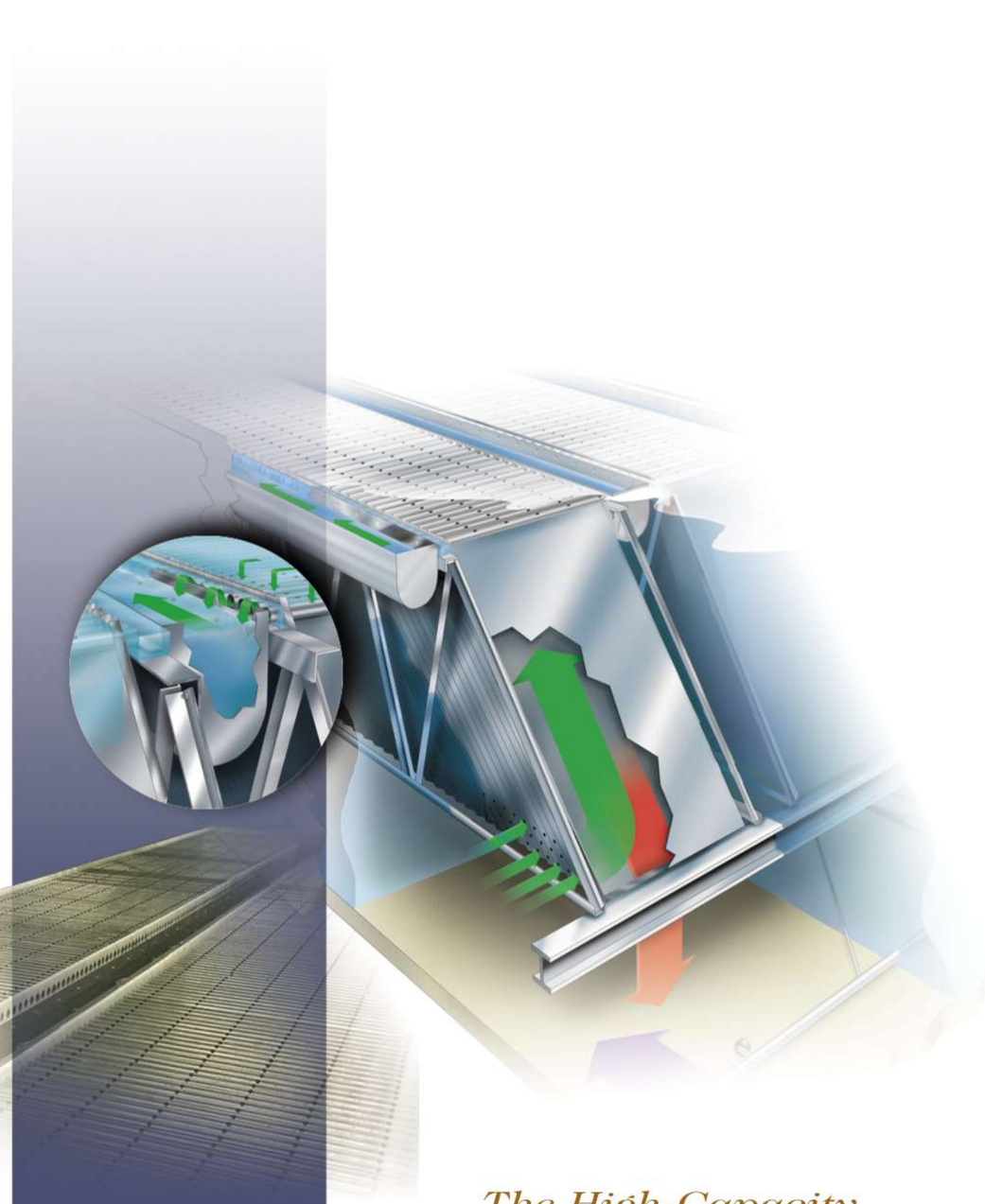
MRI PLATE SETTLERS



The High-Capacity Inclined Plate Settler System

MRI PLATE SETTLERS

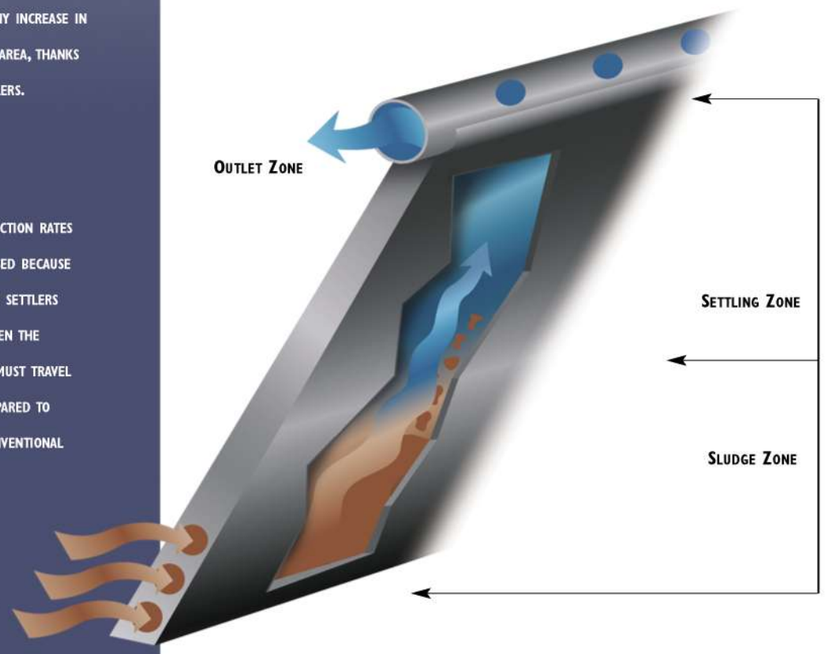
Patented solutions 25 years in the making.

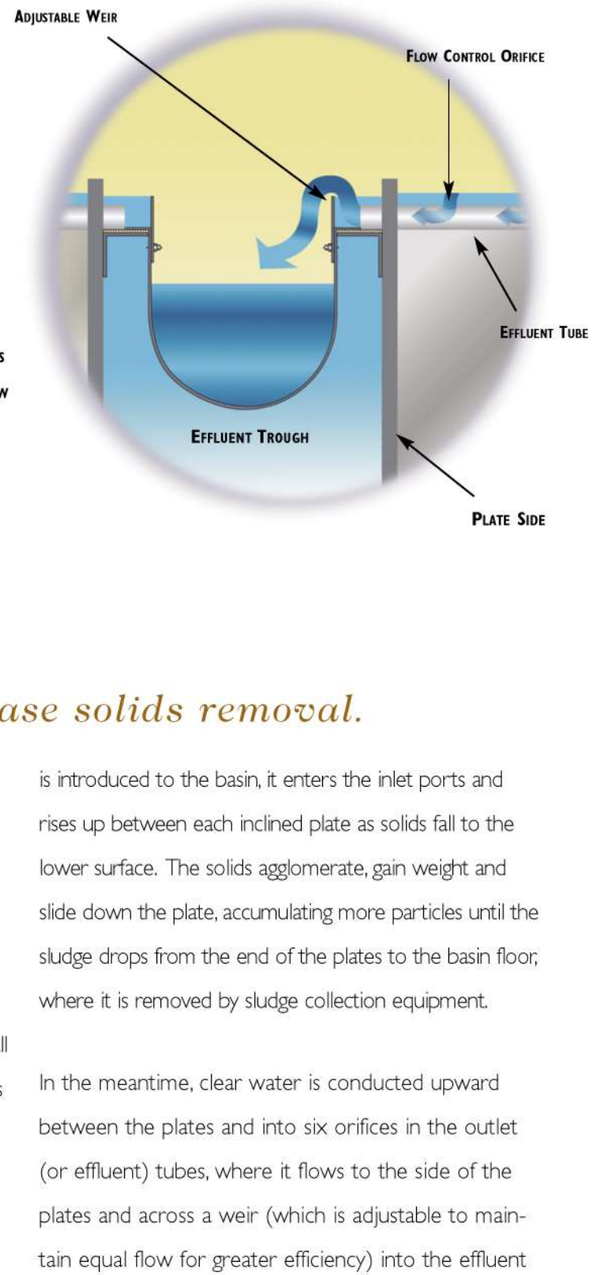
THE GOLDEN WATER TREATMENT PLANT, COLORADO—THIS FACILITY IN SCENIC GOLDEN HANDLES SEVERAL MILLION GALLONS MORE PER DAY WITHOUT ANY INCREASE IN BASIN SIZE OR LAND AREA, THANKS TO **MRI** PLATE SETTLERS.

CLEAR WATER PRODUCTION RATES ARE GREATLY INCREASED BECAUSE **MRI** INCLINED PLATE SETTLERS DRAMATICALLY SHORTEN THE DISTANCE PARTICLES MUST TRAVEL (A FEW INCHES COMPARED TO SEVERAL FEET IN CONVENTIONAL CLARIFIERS).

Today's water and waste water treatment facilities are always looking for ways to improve clarifier system performance with an eye to practicality, efficiency and economics. The solution? An inclined plate settler system from Meurer Research, Inc. These plates deliver the highest flow rate and solids capture available for the ultimate in clarifier function. What's more, the all-stainless steel, self-cleaning system provides long-lasting strength, is extremely cost effective and can be configured for virtually any new or existing basin.

Since 1978, utility companies, municipalities and consulting engineers have relied on MRI for the latest shallow-depth sedimentation technology. With more than 50 patents and hundreds of installations, Meurer Research continues to lead the way with innovative, high quality equipment. Furthermore, MRI is the only 100% employee-owned company in the industry that designs and manufactures all its products in-house in the U.S.





AS CLARIFIED WATER IS DISCHARGED FROM THE EFFLUENT TUBES AT THE TOP OF THE PLATES INTO THE EFFLUENT TROUGHS, **MRI'S** MICRO-ADJUSTABLE WEIR ALLOWS FOR PRECISE CONTROL OF FLOW VELOCITY AND EQUALIZATION FOR ENHANCED EFFICIENCY.

A process proven to increase solids removal.

Designed around the principle that inclined plates in a basin increase the capacity of water production, the patented MRI plate settling system consists of a set of plates with a combination outlet support tube at the top of each plate edge. Supported by the tubes, the plates are installed at a 55° to 60° angle between two effluent troughs. The sides of the plates fit together to form a wall with inlet ports at the lower end of each side. A stainless steel truss structure supports the system to position the top of the system at the water line.

The plate settlers provide a fast, efficient way to remove solids from water by increasing the settling surface area while decreasing vertical settling distance. When the flow is introduced to the basin, it enters the inlet ports and rises up between each inclined plate as solids fall to the lower surface. The solids agglomerate, gain weight and slide down the plate, accumulating more particles until the sludge drops from the end of the plates to the basin floor, where it is removed by sludge collection equipment.

In the meantime, clear water is conducted upward between the plates and into six orifices in the outlet (or effluent) tubes, where it flows to the side of the plates and across a weir (which is adjustable to maintain equal flow for greater efficiency) into the effluent trough. The troughs then take the flow to the end of the basin and out.

MRI PLATE SETTLERS

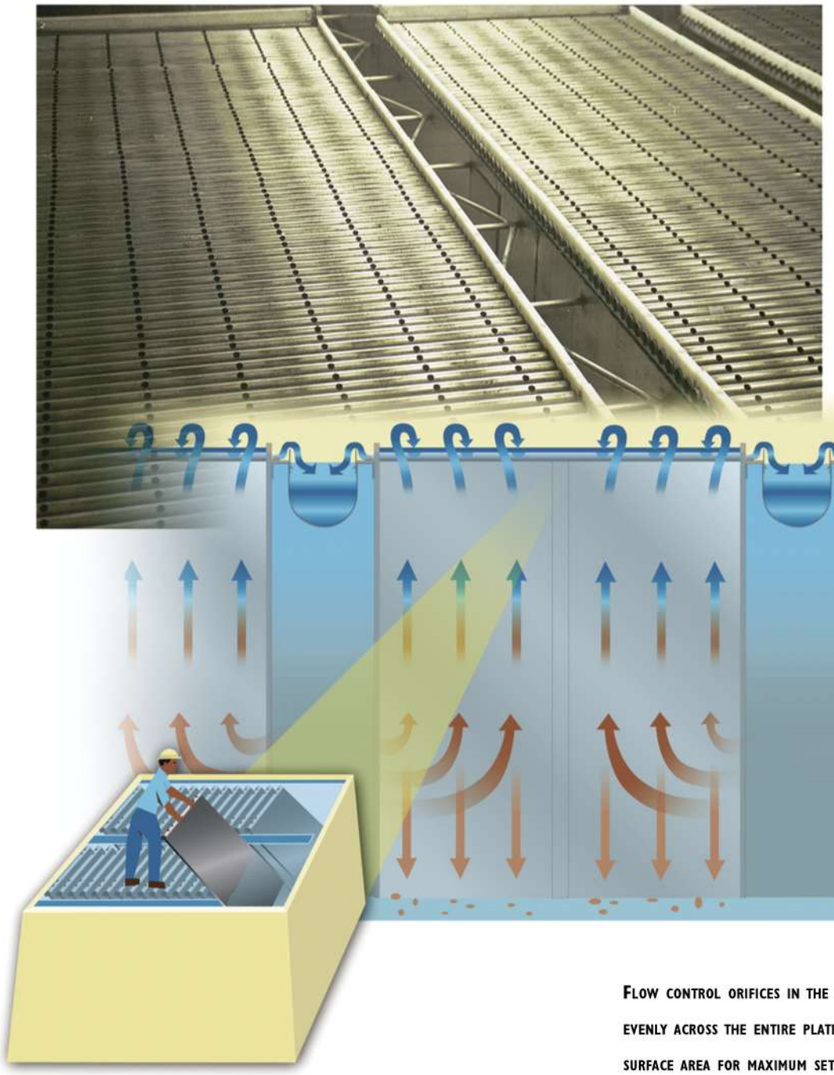
Uniquely designed for efficiency and convenience.

The all-stainless steel construction of MRI's plate settler system provides superior strength and durability. However, what truly sets our plates apart from other plate settling systems is the patented hydraulic flow control deck.

Meurer's flow control deck is made up of a set of stainless steel tubes which are actually the top edge of each plate settler. Each tube has a series of metering orifices that extract flow evenly from across the width of each plate for the most uniform flow distribution available. Coupled with the adjustable weir, MRI's system offers more flow control, capacity and efficiency than any other system.

Moreover, since the plates are mounted in rows at water level in an array that forms an extremely solid deck, it is strong enough to be walked on during installation, inspection or repairs. Whereas other systems have plates that are trapped under effluent troughs or permanently attached to the structure, MRI plates are easily viewed and removed from above without disassembling other components.

Broomfield Water Treatment Plant, Colorado—This City needed to expand plant operations by 100% on a property that was almost fully utilized, so any modifications had to be very compact. Inclined plate settlers were installed in the filter backwash reclaim system in an underground vault, and today are treating 6,000 gallons per minute—without chemical feed.



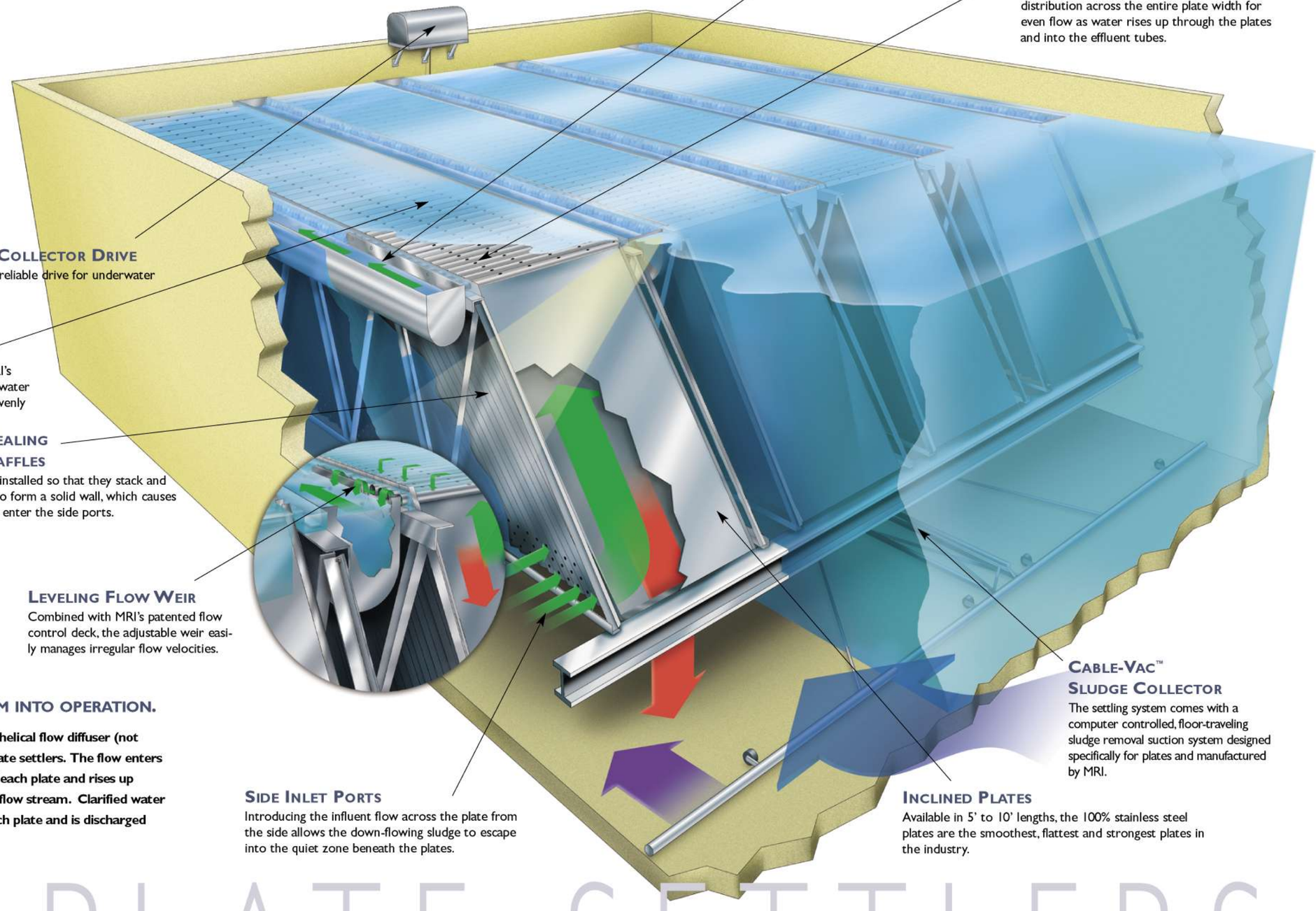
No other plate settler system offers a stainless steel flow control deck that will support a 250-pound concentrated load.

Plates can be easily inspected and removed individually for cleaning, maintenance or repair—all without draining the basin to gain access.

Flow control orifices in the effluent tubes draw the flow up evenly across the entire plate width, utilizing the whole surface area for maximum settling efficiency. In addition, the influent flow is introduced across the plate from the lower side, rather than straight up from the bottom, ensuring minimum interference with down-flowing sludge.

For ultimate performance, the choice is clear.

Engineered for simple precision, MRI's state-of-the-art plate settler system* allows for more water flow and settling area to greatly enhance clarification effectiveness and productivity. NSF-61 approved plates, troughs and support structures are manufactured using solid stainless steel for longevity.



Effluent Troughs
Side-mounted troughs work with the flow control deck to provide even flow distribution off the tops of the plates.

Flow Control Orifices
Only MRI plates provide metered flow distribution across the entire plate width for even flow as water rises up through the plates and into the effluent tubes.

RTR Sludge Collector Drive
Compact, powerful, reliable drive for underwater sludge collector.

Flow Control Deck
Composed of top support/outlet tubes, MRI's unique flow control deck extracts clarified water evenly across the plates and distributes it evenly into the effluent troughs.

Self-Sealing Side Baffles
Plates are installed so that they stack and interlock to form a solid wall, which causes influent to enter the side ports.

Leveling Flow Weir
Combined with MRI's patented flow control deck, the adjustable weir easily manages irregular flow velocities.

Cable-Vac™ Sludge Collector
The settling system comes with a computer controlled, floor-traveling sludge removal suction system designed specifically for plates and manufactured by MRI.

Side Inlet Ports
Introducing the influent flow across the plate from the side allows the down-flowing sludge to escape into the quiet zone beneath the plates.

Inclined Plates
Available in 5' to 10' lengths, the 100% stainless steel plates are the smoothest, flattest and strongest plates in the industry.

Putting the plate settler system into operation.

The influent enters the clarifier basin through the helical flow diffuser (not shown), which creates a quiet zone beneath the plate settlers. The flow enters the plates through feed ports in the lower sides of each plate and rises up between the plates as solids are settled out of the flow stream. Clarified water emerges through the outlet pipes at the top of each plate and is discharged into the collection troughs.

**Patented*

MRI PLATE SETTLERS

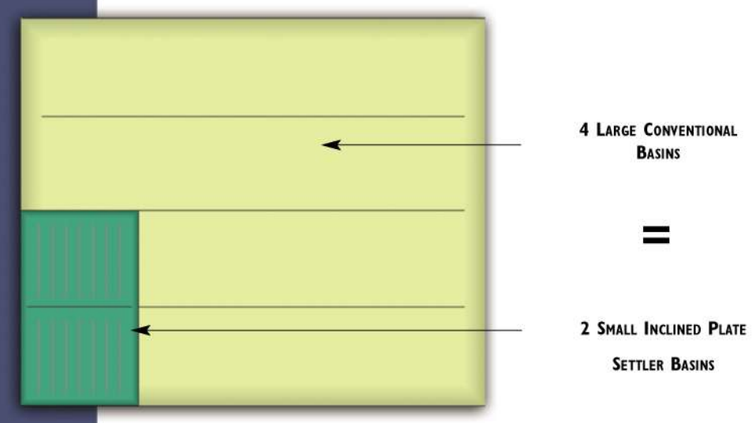
MRI PLATE SETTLERS

Improved clarifier capacity. Improved cost savings.

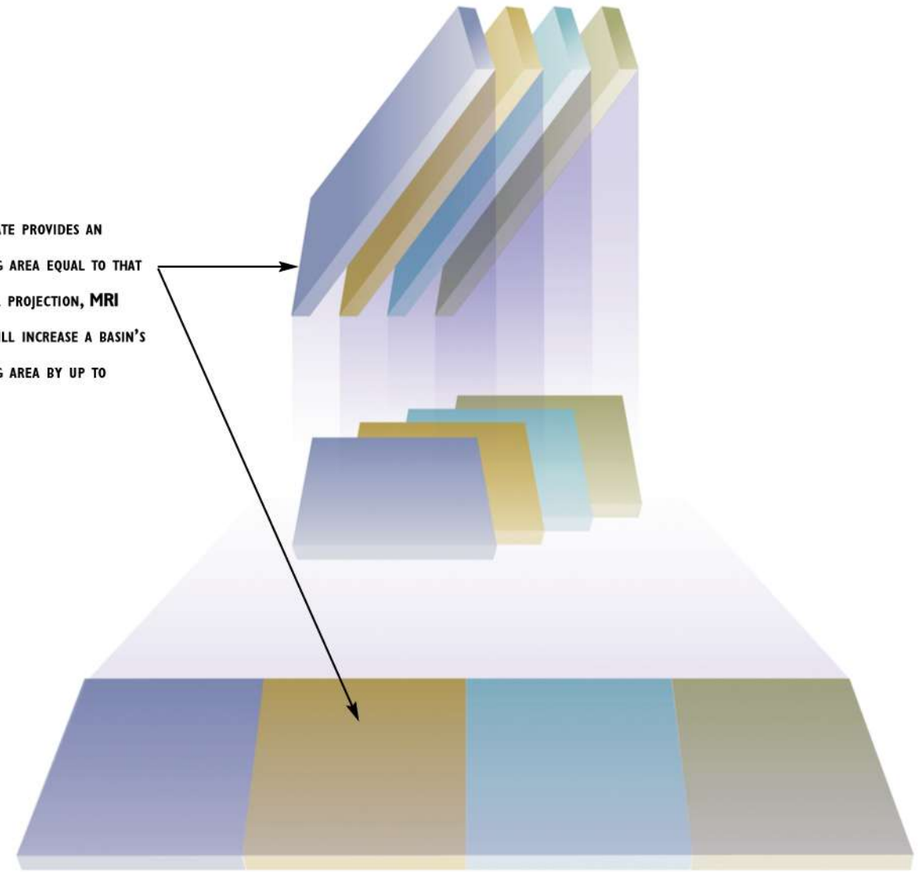
In the sedimentation process, a clarifier's capacity is proportional to the surface area of the basin. Using the MRI plate settling system, surface area for solids settling is provided by rows of inclined plates installed at 55° to 60°, in effect compressing the capacity of a large conventional clarifier into a significantly smaller footprint. As more plates are utilized, productivity increases proportionally, along with the cost-effectiveness of clarifying operations.

In fact, MRI systems are far more economical compared to the costs of a medium or large clarifier with no sedimentation enhancement. Whether building a new facility or expanding an existing one, plate settlers provide maximum flow using minimum space—which adds up to dramatic savings in land and construction costs. Additionally, plate settlers produce a consistently higher quality effluent, resulting in typical chemical cost savings of 30%. Further costs can be saved by using plate settlers in reclaiming filter backwash waste water and in treating membrane reject water.

By installing MRI plates at a 55° to 60° angle, more settling surface area can be accommodated in less space, providing for increased efficiency and cost savings.



Because each plate provides an effective settling area equal to that of its horizontal projection, MRI plate settlers will increase a basin's effective settling area by up to eight times.



Adaptable to meet specific requirements.

The Meurer Research plate settling system effectively enhances clarification in a wide variety of applications, including treatment of potable water, primary, secondary and tertiary domestic waste water, and various industrial waste products. The plates can also be specifically configured to fit any basin—even those of unusual shape or size.

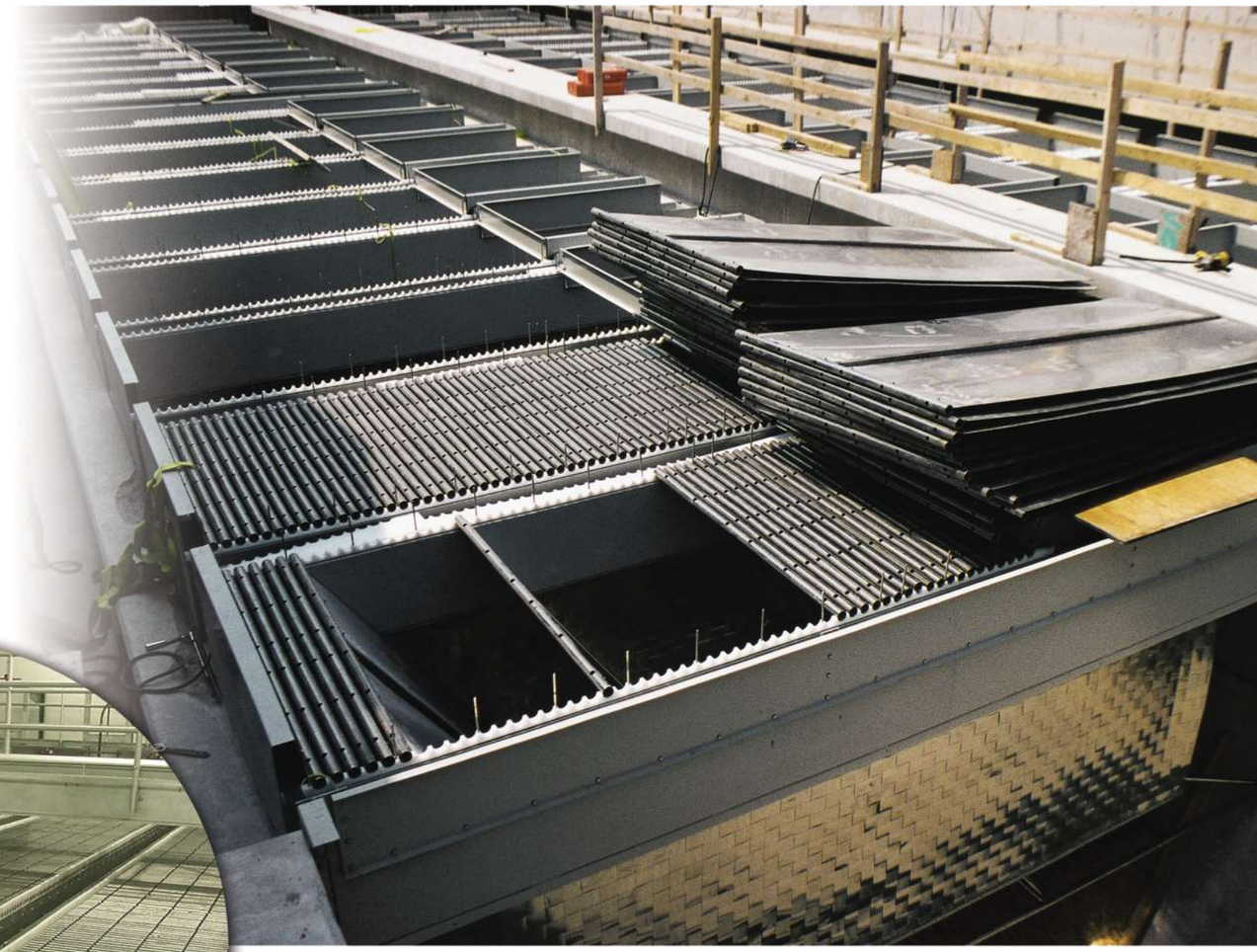
In addition, MRI ships equipment in two different forms depending on a facility's unique installation and design needs or limitations. The cartridge form combines the plates, effluent troughs, truss frame and flow control deck in a preassembled module, or "plate pack" that can be placed in the basin by a crane, minimizing field labor. The component form is shipped as individual elements that are placed in the basin item by item, allowing the system to be installed inside or beneath a facility.

MRI PLATE SETTLERS

On-site success: The inclined plate settler system in action.

Trust MRI for innovation that sets the trend.

Experience, reliability, creativity and know-how. These are the qualities that have allowed Meurer Research to become a leader in the field of sedimentation technology for more than a quarter of a century. That is also why customers have come to trust MRI as their complete source for all settleable solids removal products, including troughs, baffles, diffusers, supports and sludge collectors. Count on Meurer Research to continue its commitment to serving the industry's needs, from design, engineering and production to installation, education and after-market customer service.



City of Arvada Water Treatment Plant, Colorado—By adding MRI plate settlers to its existing direct filtration plant, the City was able to decrease basin size by a factor of 10 over non-plate designs, allowing the system to be housed in a new building. The project was completed in less than a year, including the new building.

Belleville Water Treatment Plant, Ontario, Canada—The MRI plate settling system is being used in both main clarifiers, as well as in treatment units for backwash waste, sludge from traveling suction sludge removal units and scum from DAF units. MRI was involved in the design process and analysis, and manufactured the entire system within three months.