

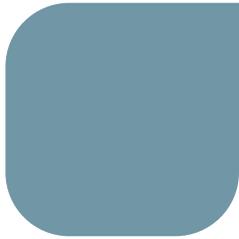
MRI Sludge Collectors

The Optimal Choice for Sludge Collection:

- MRI Hoseless Cable-Vac™
- MRI Ultra-Scraper™

Sludge collection products built on experience.

Meurer Research, Inc. began developing high-quality equipment in 1978 to provide water and wastewater treatment facilities with effective, reliable and economical methods of removing sludge from sedimentation basins. Over the years, MRI has built upon these standards by incorporating new ideas and technology into the design and manufacture of its products. The result is three fully engineered devices: one based on suction, the Hoseless Cable-Vac™; one based on scraping, the Ultra-Scraper™; and one based on tradition, the Retro Cable-Vac.



The MRI Hoseless Cable-Vac eliminates the hose.

Only the MRI Hoseless Cable-Vac™ Sludge Collector delivers all the benefits of suction sludge removal without the need for hoses. Perfect for use in new or existing basins, the patented system has four key components:

- Tandem header pipes with forward-facing tangential flow orifices optimize sludge removal
- Telescoping sludge conduit is self-priming and eliminates the need for hoses
- Shared-Reel Drive ensures reliable power without tensioning
- MRI's signature control system combines sophisticated operation with communications

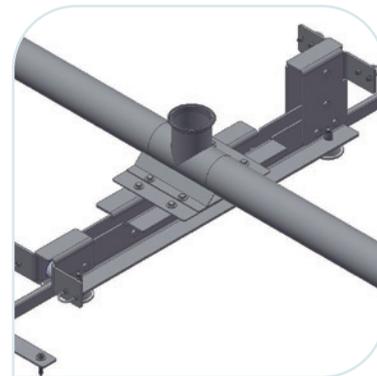
The MRI Ultra-Scraper has unmatched quality and design.

Equipped with heavy duty components and reciprocating linear blades, the MRI Ultra-Scraper is more robust than conventional scrapers, with quicker installation times. The high-capacity system has four key components:

- Transport racks with scraper blades are factory pre-assembled without field welding
- Reliable drive unit uses either hydraulic or electric power
- Cross collector optimizes sludge removal
- MRI's signature control system offers easy adaptability



The low profile Hoseless Cable-Vac eliminates the need for suction hoses and efficiently removes high concentration solids.



MRI's specially designed "lock-on" trolley provides quick and reliable integration for Trac-Vac conversion system upgrades.



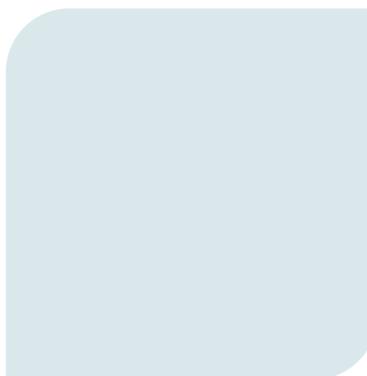
MRI Retro Cable-Vac available as new system or retrofit.

In addition to the Hoseless Cable-Vac and Ultra-Scraper, MRI offers the Retro Cable-Vac with flexible hoses and guide rails. The Retro Cable-Vac is based on the original "Trac-Vac" system created by MRI in 1980. With well over 2,000 Trac-Vac systems sold, many have been refurbished to become like new Cable-Vac sludge collectors. The Retro Cable-Vac is also available as a new system and consists of five main components:

- Single header pipe mounted on a traveling carriage
- Guide rail which extends the full tank length
- Sludge hose to transport the sludge from the header pipe out of the basin
- Shared-Reel Drive
- Control system

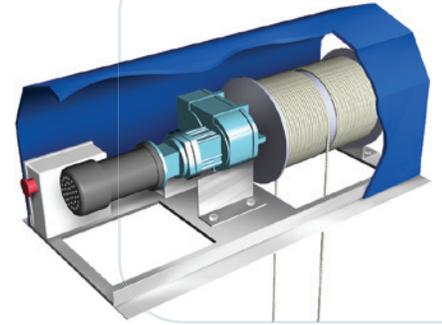


The Hoseless Cable-Vac provides simple operation, low maintenance and quick installation times.



Shared-Reel Drive ensures reliable power.

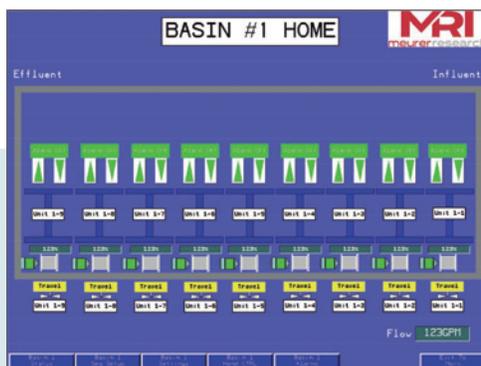
Built for simplicity, MRI's Shared-Reel Drive makes the Hoseless Cable-Vac the ultimate in dependability. The above water drive combines take-up and pay-out cables on one shared reel, saving space and providing a compact drum with cable wrapped in a single layer without tensioning. Designed for continuous operation, the robust and energy efficient AC drive with variable frequency control can withstand a stall without sustaining damage.



MRI's patented Shared-Reel Drive assembly offers above water position limit sensors and a powerful, low RPM gear reducer.

Adaptable control system enables sophisticated operation.

The operator friendly control system automatically displays and manages all functions of the sludge collector. Through a programmable, menu-driven LCD touch screen, MRI control systems offer sophisticated SCADA and communications options and are powered by Rockwell Automation / EuroDrive. Variables include duration, speed, and frequency of operation which can be triggered by sludge depth, time, or signals from SCADA.

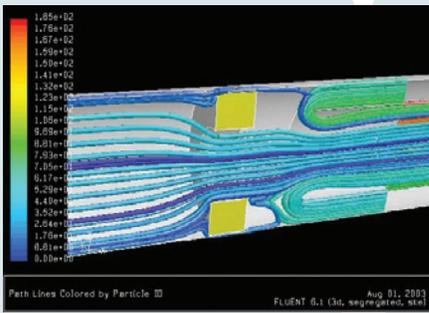


Intuitive HMI control screens makes setting up and monitoring sludge collector operations quick and easy for the operations staff.

Innovative tandem collectors maximize efficiency.

The key to the Hoseless Cable-Vac's ability to deliver increased solids removal is the innovative design of its tandem collectors. Unlike conventional equipment, MRI's system has two collectors instead of one, with sludge collection orifices located on the side and facing forward, rather than pointing downward. This allows for enhanced, one-way directional sludge extraction as the assembly moves forward. On the reverse stroke, suction ceases. The orifices direct sludge into the collection pipe tangentially to prevent clogging, reduce system headloss, and remove more solids with less wasted water.

Unlike other systems, MRI's Hoseless Cable-Vac operates without guide rails on the basin floor, enabling quick, simple installation. It can be used in new or existing basins with flat sloping or slanted floors. Even in continuous operation, the collector is virtually maintenance free due to all stainless-steel construction, long-life wheels and bearings and a simple, single-drum cable winch drive.



◀ **Computer Fluid Dynamic (CFD) Design**
The hydraulics are carefully designed using CFD analysis to distribute flows both front to-back and side-to-side.

Now there is an efficient choice for maximum solids removal.

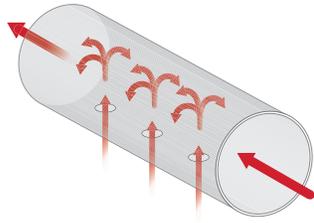
MRI Hoseless Cable-Vac: low profile, floor-hugging and powerful.

MRI's Hoseless Cable-Vac features a floor-hugging, telescoping sludge removal pipe and a simple, powerful cable-winch movement. Durable enough for continuous operation, treatment plants generally run the Hoseless Cable-Vac from one to several times a day. Offering a highly scaleable design, the MRI Hoseless Cable-Vac is available in flow rates from 25 gpm to 2,000 gpm.

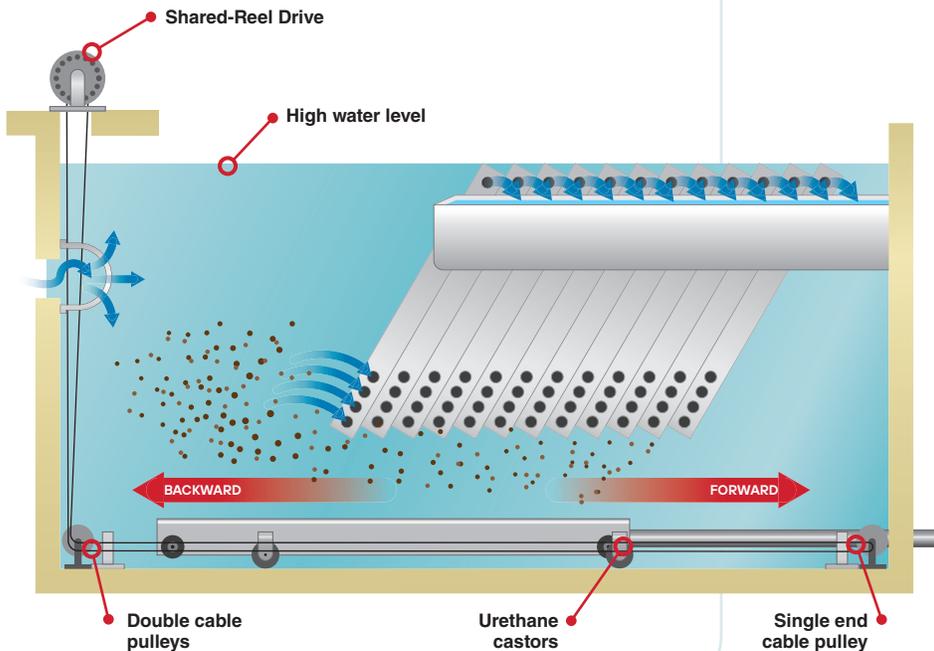
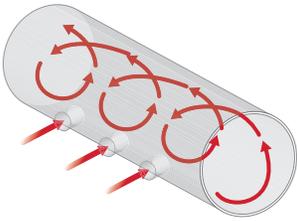
MRI Ultra-Scraper: optional double-acting blades increase effectiveness.

MRI's Ultra-Scraper's unique design houses a series of scraper blades mounted on two racks. Each rack moves in opposition to the other creating a backward and forward action of approximately 2 feet. The reciprocating design greatly increases solids removal, delivering unsurpassed effectiveness.

Conventional Sludge Collectors
In conventional sludge collectors, the incoming flow enters at the bottom and continues upward, perpendicular to the internal flow, which is moving laterally toward the center outlet. This causes the two flows to collide at the orifices, disrupting the flow pattern and decreasing sludge removal.



MRI's Exclusive Tandem Collectors
With MRI's tandem collection design, the incoming flow enters tangentially to the bottom of each collector, causing the internal flow to travel in a spiral toward the center outlet. As the spiraling flow passes each orifice it is re-energized by the incoming flow. This creates a uniform, organized flow pattern that increases sludge removal and prevents clogging.

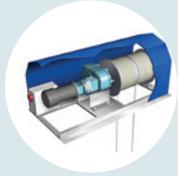


◀ Side view of MRI Hoseless Cable-Vac shows the simplicity of the single reel drive system. The low-profile design enables use under plate settlers, tube settlers or in open basins.

Unsurpassed MRI Hoseless Cable-Vac.

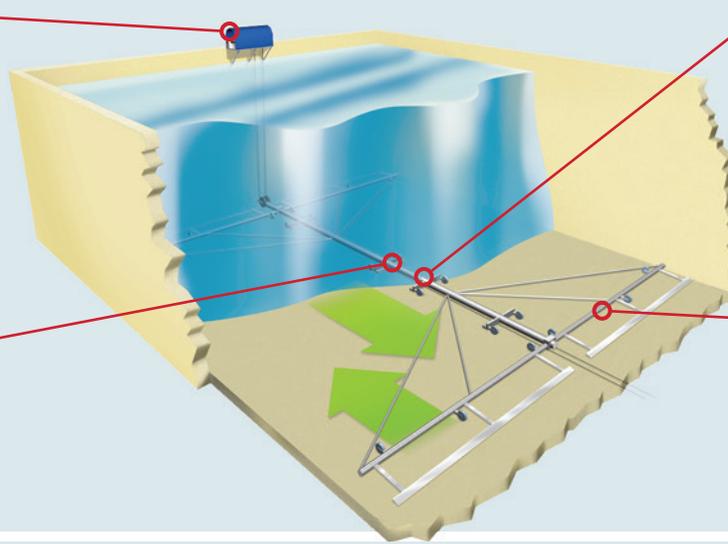
Shared-Reel Drive

The efficient cable drive design provides strength and durability. By combining the take-up and pay-out cables on one reel, the cable is kept in a single layer without tensioning.



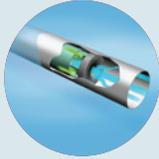
Telescoping sludge pipe

Floor-hugging, the sludge pipe extends the full length of the basin, eliminating the need for hoses. It is completely self-priming and easy to install.



Flow balancing ring

Designed for precision, the flow balancing ring* assures even flow control, front to back.



Tandem header pipes

Unequaled in performance, the tandem header pipes have two collectors instead of one, significantly increasing solids removal and sludge solids concentration.

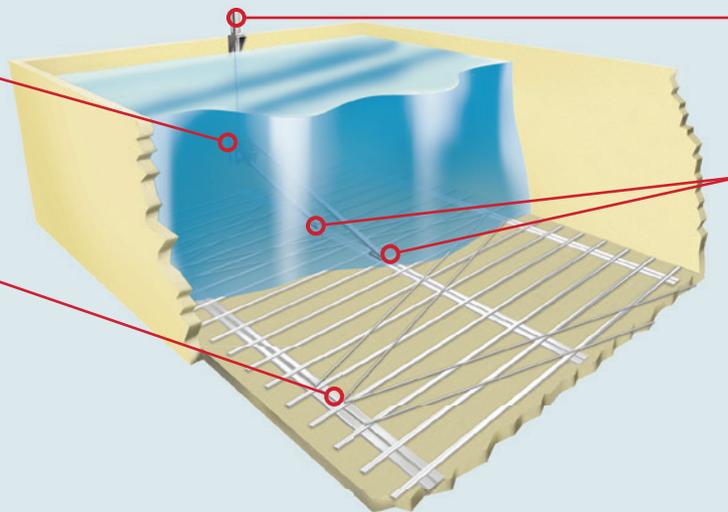
High-performance MRI Ultra-Scraper.

Power pivot

Transmits powerful 20,000 lb. force from hydraulic drive to scraper racks, enabling removal of dense sludge.*

Reciprocating flights

Scraper blades move solids in one direction toward sludge outlet end and greatly increase effectiveness. Also available as double-acting.



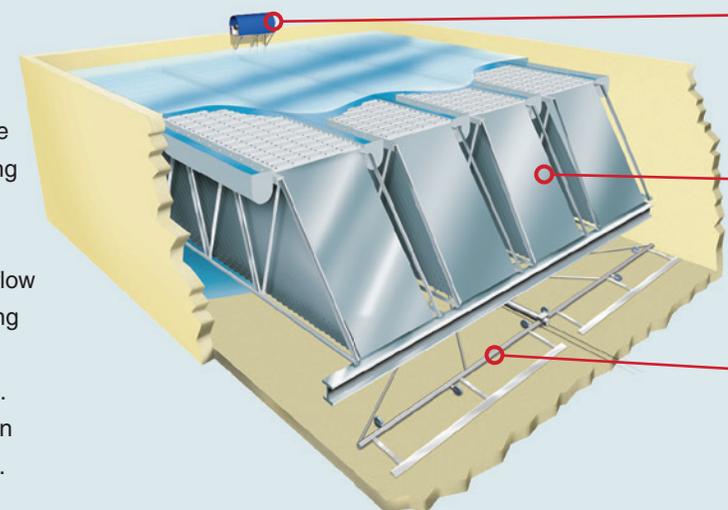
Hydraulic drive

Ensures reliable power and has automated position sensing technology.*

Thrust linkage

Provides force to move scraper rack back and forth to move sludge to the hopper.*

Engineered for integration, MRI's Inclined Plate Settlers* and Sludge Collectors* provide standard-setting performance - from clarification to solids removal. MRI's plate settlers allow for increased water flow and settling area, greatly enhancing clarifier productivity and efficiency with unsurpassed flow distribution. Meanwhile, MRI's sludge collection products maximize solids removal.



Shared-Reel Drive

Compact, powerful, reliable drive for underwater suction or scraper sludge collector.

Inclined Plates

Available in 5' to 12' plate lengths, the 100% stainless steel plates are the smoothest, flattest and strongest plates in the industry.

MRI Sludge Collector

Low-profile, floor-hugging, computer-controlled suction or scraper sludge removal system maximizes solids removal and enhances productivity.

*Patented



On-site success: no field cutting or welding needed.

Installation of the MRI Ultra-Scraper is quick and simple. Substantially fabricated at the factory, the on-site contractor simply assembles the unit. No measuring, cutting or welding is required.

Efficient and fast action removes the heaviest solids.

Low profile blades scrape only a thin layer of sludge with each cycle, enabling efficient removal of thick, heavy sludge and even grit and anthracite. This also allows a much higher traveling velocity than Chain & Flight and other higher profile devices. Generally, Chain & Flight moves at about 1 fpm, compared to the MRI Ultra-Scraper's speedy 10 fpm or more. The MRI Ultra-Scraper's speed corresponds to a sludge removal rate of 300 gpm in a 25' wide basin. Alternate blade sets hand sludge off to each other as they move back and forth. The sludge moves to a hopper at the end of the basin where it is extracted by sludge blowdown sumps or a cross collector.

Advantages of the MRI Ultra-Scraper:

- Field assembled with pre-cut, pre-made components that bolt together for ease of installation
- No field cutting and field welding required (unlike other brands)
- Simple, quick assembly reduces basin downtime and mistakes during installation
- Parts readily available from Colorado
- All drive components, hydraulic parts and controls from top makers such as Rockwell Automation / EuroDrive, Baldor, Vickers, and more
- All thrust and linkage components extra heavy duty
- End-of-stroke sensors inside the cylinder casing permanently set to maintain adjustment



Easy Bay Municipal Utility District has deployed a fleet of 20 Hoseless Cable-Vacs at their treatment facility to replace hosed Trac-Vac units.



Precise engineering. Proven technology.

Trust MRI for trend-setting innovation.

Experience, reliability, creativity and know-how. These are the qualities that have enabled Meurer Research to lead advancements in water and wastewater treatment solutions since 1978.

Now Meurer Research is pleased to offer a choice in superior sludge collection products – continuing the innovative and efficient designs in MRI's more than 40-year history of advancements.

With over 50 patents and thousands of installations, from design, engineering and production, to installation, education and aftermarket customer service, MRI has helped utility companies, municipalities and engineers find solutions to complex issues.



Other products available from Meurer Research are:

- Inclined Plate Settlers
- Paddle wheel and turbine flocculators
- Package plants
- Baffles
- Tube settlers
- Pilot plants



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