



McLanahan

THICKENERS

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McLanahan on-ground HRT Thickener in combination with a complete McLanahan processing plant.

THICKENERS

A leader in providing solutions for fines recovery, tailings, and water management issues, McLanahan Corporation offers several types of Thickeners for use in a variety of processing industries. Thickeners are beneficial for a variety of situations, including areas where water is in short supply or very expensive; counter current (CCD) wash circuits are required; dewatering of mineral concentrates is required; and where disposal areas must be reduced or eliminated in size due to permitting issues.

McLanahan's Thickener range spans economical Ultra Rakeless Thickeners to High-Rate, High Density and Paste Thickeners. Our process engineers tailor the right product selection for your application. In-house testing confirms process outcomes and appropriate duty.

Reduce Or Eliminate Impoundment Areas

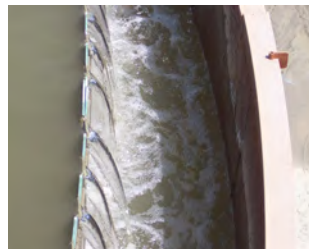
The high percentage of solids from McLanahan Thickeners means that producers are able to greatly reduce, and sometimes eliminate, impoundment size and volume. Eliminating free standing water or ponds creates a safer working environment, as well as helps with permitting and regulatory requirements.

Simple Operation

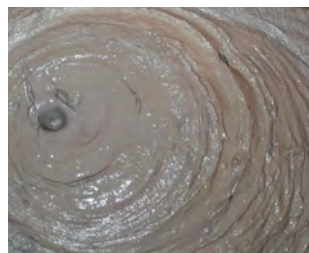
McLanahan designed its Thickeners with simplicity in mind. Adding polymers to help agglomerate very fine particles into larger particles that can settle much faster, McLanahan Thickeners use modern feedwell designs to maximize aggregate growth in an appropriate shear environment, while minimizing flocculant consumption. Solids settle to the bottom of the Thickener, while clean water rises to the top. Rotating, low-profile semi-truss rake arms collect settled sludge and move it toward the center discharge drum. The design of the raking mechanism reduces the amount of torque required to move the rakes through the settled solids and minimizes the disturbance of the already settled solids. A hydraulic or electromechanical drive powers the rakes and operates the rake lift.

Automated Controls

PLCs run the system and log data such as the feed rate, pH, sludge level and solids concentration. A feedback loop on drives gives excellent indication of torque on rakes. Underflow discharge may be set to activate based on sludge density, downstream demand, sludge level or simple timers. A discharge drum offers opportunity for effective shear-thinning loop on Paste Thickeners. Tanks are offered in a variety of on-ground, elevated, welded or bolted options.



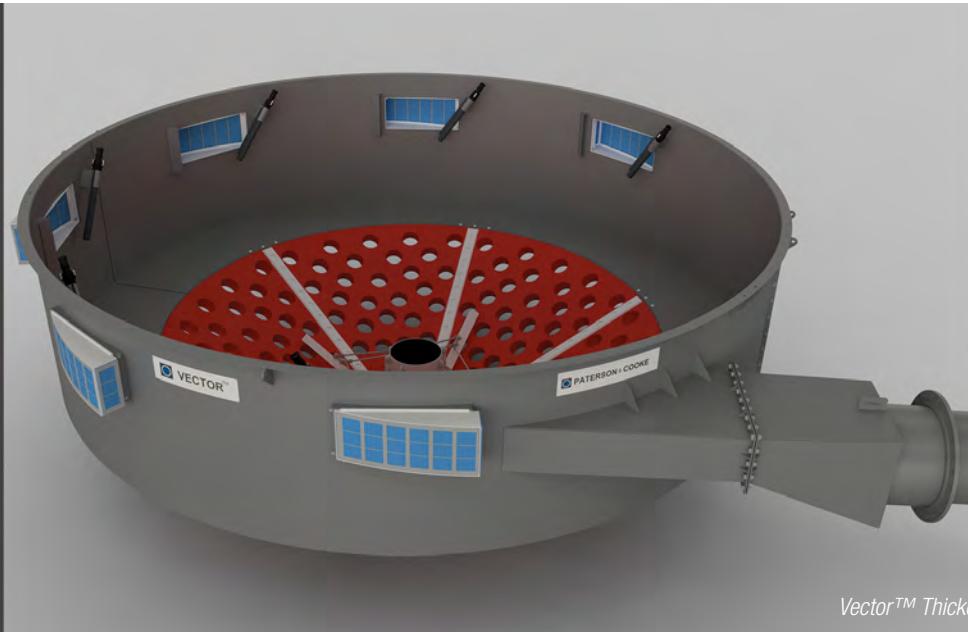
Clear water produced from underflow processed through McLanahan Thickener.



Thickener underflow from a McLanahan Paste Thickener.



McLanahan ULT.



Vector™ Thickener Feed Distributor

OPTIONAL VECTOR™ FEEDWELL TECHNOLOGY

Feedwells are critical components of the thickening process and their design can have a significant impact on a Thickener's performance. McLanahan offers the patented Vector™ Thickener Feed Distributor as an option on all of our Thickener designs. The Vector™ Thickener Feed Distributor can be incorporated into new equipment or retrofitted to upgrade existing plants to improve Thickener performance.

Design

Adding a Vector™ Thickener Feed Distributor can help increase underflow densities, reduce chemical and reagent consumption, and dramatically improve overflow clarities - all of which can reduce operating costs and increase the amount of immediately reusable water you have at your site. The Vector™ Thickener Feed Distributor has also been found to significantly reduce froth, as well as minimize the loss of valuable concentrates to overflows that typically report to tailings.

This feedwell is specifically designed to combine cyclone flow pattern and Vector technologies to provide adequate mixing energy, equal distribution and minimal shear. Mixing energy is contained within the Vector™ feed distributor body to promote optimal mixing of the feed stream, flocculant and dilution water. As the mixture exits the feed distributor through the Vector™ ports, the energy is dissipated to facilitate the uniform distribution of solids within the thickener without over-shearing the flocs and significantly reducing flocculant consumption.

The Vector™ Thickener Feed System sectors are fabricated from wear-resistant polyurethane. In the unlikely event that sectors need replaced, they can be changed without the need for cranes or scaffolding.

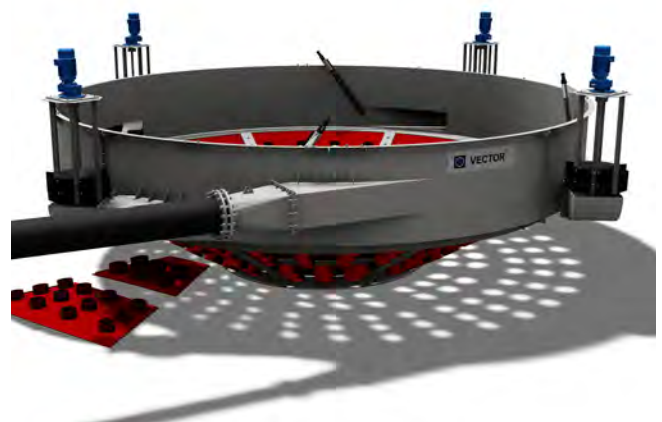
Process Benefits

Flocculated particles circulate inside the Vector™ Thickener Feed Distributor until flocs are large enough to settle. They are then evenly discharged with a controlled velocity through each Vector™ port.

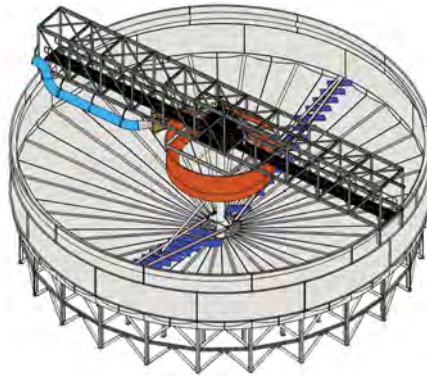
The spacing on the discharge end of the Vector™ ports provides a pathway for the unhindered migration of the released water toward the surface. The Vector™ sectors are specifically designed for each customer's requirements to ensure that quantity, size, configuration and trajectory angle meet optimal performance. If requirements change, the sectors can simply be replaced with a new configuration to suit the application needs.

Upgrades And Retrofits

Due to the smaller aspect ratio and lighter construction materials, the Vector™ Thickener Feed Distributor is well-suited to be retrofitted to existing structures. Installation includes the Vector™ Feed Distributor and feed pipe; flocculant manifold, injectors, valves and flexible hoses; and automatic feed dilution or controlled feed dilution system. The installation of Vector™ units can be completed and have your improving your performance and reducing costs within three days.



Vector™ Thickener Feed Distributor



Sizing For Base Range Elevated High Rate Thickeners (HRTs)

	Thickener Model Number									
		HRT-E-10	HRT-E-15	HRT-E-20	HRT-E-25	HRT-E-30	HRT-E-35	HRT-E-40	HRT-E-45	HRT-E-50
Tank Diameter	(ft) (m)	33 10	50 15	65 20	82 25	100 30	115 35	130 40	148 45	164 50
Tank Height	(ft) (m)	13 4.1	17 5.1	19 5.9	20 6.1	21 6.3	23 7.1	25 7.5	26 7.9	27 8.2
Indicative Mass	(stph) (t/hr)	78 70	168 150	315 280	500 450	730 650	1,000 900	1,350 12,000	1,680 15,000	2,000 18,500
Indicative Volume	(gpm) (m ³ /hr)	2,200 500	4,000 900	7,500 1,700	12,000 2,700	17,500 4,000	24,000 5,500	32,000 7,250	40,000 9,000	48,000 11,000
Installed Torque	(ftlbs) (kNm)	29,000 40	60,000 80	110,000 150	170,000 230	240,000 330	330,000 450	440,000 600	550,000 750	700,000 950

Relative Underflow Yield Stress As A Function Of Thickener Design

