McLanahan

Environment and Process

LINCOM GROUP

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Industry-Leading Solutions for Sand and Aggregates

At Lincom Group, we are committed to delivering our customers the highest quality material processing solutions. Through our strong partnership with McLanahan, we provide access to industry-leading equipment known for its superior engineering and manufacturing standards.

Quality and reliability are at the core of everything we do. Our customers trust us, and McLanahan's equipment reflects those same values. With a reputation for durability, McLanahan's extensive expertise in the processing industry ensures exceptional performance.

As the distributors for McLanahan's sand and aggregates processing solutions across Australia, we offer a full range of equipment tailored to your needs, including:

- Washing & Classifying
- Tailings & Water Management
- Dewatering

MCLANAHAN

Modular Range

Integrated Washing

UltraWASH Modular Washing Plant *(MWP)*

Scrubbing

UltraSCRUB Scrubbing Module *(LW)*

Compact Sand Plants

UltraSAND Modular Sand Plant *(USP)*

Fines Recovery

UltraFINES Modular Fines Recovery *(UFR)*

Water Management

UltraCLEAR HRT Modular Water Management *(High Rate Thickener)*
UltraCLEAR DCT Modular Water Management *(Deep Cone/Paste Thickener)*

Screen Modules

UltraSCREEN Sizing Screen Modules
UltraDRY Dewatering Screen Modules

MODULAR WASH PLANTS

UltraWASH

UltraWASH Modular Wash Plants are designed with McLanahan's proven equipment, including vibratory screens, hydrocyclones, dewatering screens, sump and pump. UltraWASH plants provide a quick, easy-to-install processing system capable of producing up to three aggregate and two sand products.

UltraWASH Models

5164-21S, 5164-31S, 5164-22S, 5164-32S, 5164-21D, 5164-31D, 5165-21S, 5165-31S, 5165-22S, 5165-32S, 5165-21D, 5165-31D, 6206-21S,6206-31S, 6206-22S, 6206-32S, 6206-21D, 6206-31D

Designed for quick set-up and to be easily relocated as site conditions change, the UltraWASH includes all field-proven McLanahan equipment. Capable of producing up to three aggregate and two sand products, the UltraWASH has a compact footprint and is easily containerised for shipment. The entire plant comes with only one process water feed point and one effluent discharge point, and is pre-wired and pre-plumbed for rapid site deployment or easy relocation.

- Up to 3 Aggregate Products
- Up to 2 Sand Products
- Double washing or "pre wash" configuration available
- Single process water feed point
- Single effluent discharge point
- Modular designed for container shipment
- Pre-assembled into modules, pre wired, pre plumbed for rapid on-site deployment
- Fully integrated control with remote operation

Available for the following duties up to:

- UWP 5124 – 150mtph
- UWP 5165 – 250mtph
- UWP 6206 – 400mtph

UWP 5165 and UWP 6206

Standard Features

- Sizing screen available with two or three decks
- Feed water pressure indicator
- Variable speed discharge belt in the feed module
- Lined integrated screen feed chute (with water manifold)
- Manual folding head section for screen access in the feed module
- Sizing screen spray nozzles have individually adjustable pitch, as well as individual spray bar isolation and control valves
- Modular polyurethane screen decks
- Lined discharge hood on the sizing screen rolls out to facilitate easy maintenance
- Aggregate product discharge chutes lined with 10mm natural rubber
- Fully-lined, replaceable pump suction pipework in sump for easy maintenance
- Low level pump protection and water injection facility in sump
- Inlet pressure monitoring on both the coarse and fine
- fraction portions
- Patent-pending EZE-Riser for feed pipe disconnection
- Roll out pump feature to facilitate maintenance
- Galvanized flooring, tubular handrailings, standards, and access stairways

Optional Features

- Magflow flow metering
- Vibrating grid on the feed module
- Overband magnet on the feed module
- Hydraulically folding head section for screen access in the feed module upgrade option
- Woven wire side tension screen decks option
- Lined sand underpan with 6mm natural rubber
- Optional conveyor length

MODULAR SAND PLANTS

UltraSAND

With the separation efficiency of Hydrocyclones/Separators™, the UltraSAND provides a higher product yield than a stand-alone processing equipment. Producers can achieve a much lower moisture content from the Dewatering Screen, depending on the characteristics of the sand.

UltraSAND Models

3-1S, 3-2S, 3-D, 4-1S, 4-2S, 4-1D, 5-1S, 5-2S, 5-1D, 6-1S, 6-2S, 6-1D,7-1S, 7-2S, 7-1D

UltraSAND Compact Sand Plant

The UltraSAND Plant is an alternative means of processing sand that offers higher yield, improved product consistency, and superior product dryness when compared to conventional wash equipment like fine material screw washers.

UltraSAND Plants

McLanahan's UltraSAND Plants (USPs) have been around for many years — they are a combination of a Sump, Pump, Hydrocyclone(s) and Dewatering Screen(s). They are typically fed material (<5mm) from the bottom deck of a wash screen. This discharge is nominally ≥35% solids by weight. Alternatively, they can be fed after a dry screen via a slurry box to hydrate the materials using high-pressure sprays. With the greater separation efficiency of Hydrocyclones/Separators™, UltraSAND Plants are proven to provide a higher product yield compared to Fine Material Screw Washers. Another advantage is a much lower moisture content from the Dewatering Screen, depending on the characteristics of the sand. The end result is almost immediate use of the product, steeper stacker angles for more stockpile capacity, reduced water loss, and better housekeeping. Sand equivalencies are also improved using this design of plant.

Why choose McLanahan Ultra Sand Plants?

McLanahan has the additional advantage of being a full equipment provider, being the sole supplier of the sump, Pump, Hydrocyclone, Dewatering Screen and structure. This allows McLanahan experts to customise and optimise the system to the process.

Popular Applications for UltraSAND Plants

The UltraSAND Plant is well-suited for a wide variety of applications from simple dewatering of sand to multistage wash systems. When a system is screen fed, it has the flexibility of receiving coarse material and making multiple products on a single screen. The most common use is to wash and dewater concrete, asphalt, and/or masonry sand, but can also be applied to different materials and industries. UltraSAND Plants are the industry standard to wash and dewater industrial sands (i.e. frac sand, foundry sand, glass sand, etc.) after classification of mid-size fractions.

How UltraSAND Plants Work

1. The UltraSAND is fed directly into the sump below the dewatering screen.
2. In certain cases where the feed is very dilute or contains a high concentration of -75um solids it will be directed to the collection sump first.
3. Slurry in the sump is pumped to a Separator ™ to remove the -75um solids and water.
4. Water and fine silts and clays report to the slurry pond or other down stream processes such as an UltraFINES Recovery System or Thickener.
5. Deslimed and partially dewatered solids are discharged onto the Dewatering Screen.
6. The Dewatering Screen removes excess moisture in the sand and discharges a "drip free" product.
7. Water and fines that pass through the Dewatering Screen report to the sump and are recirculated through the system, minimizing losses of sand size product.

Benefits of McLanahan UltraSAND Plants

- These plants are designed for each customer's application; unlike the one-size-fits-most modular concept
- USPs are typically a one-stop-shop featuring all in-house McLanahan equipment
- Highest recovery of useable sand, meaning less spec sand in your pond and higher yield
- Driest product, meaning more immediate use of inventory
- Can easily be combined with feed preparation and effluent treatment modules

Higher Product Yields

The UltraSAND Plant provides a 3-5% higher product yield over fine material screw washers due to the greater separation efficiency of Separators™.

Drier Products

The UltraSAND Plant products contain approximately 50% less water than screw washer products. Lower moisture products allow for more immediate use of product, higher angle of repose for more stockpile capacity, reduced water loss, and better house keeping.

Blending Flexibility

The UltraSAND Plant can be set up to make both coarse and fine sand products simultaneously. Through the use of another McLanahan first, a gate can be utilized to blend the sands together – allowing for control of the final product's FM (Fineness Modulus).

Design Features

Highest Production Rates

Special Designed High Strength Urethane Screen Media – McLanahan Dewatering Screens have the highest production rates per metre of width in the industry. Our modular urethane screen media is specifically designed to survive the heavy loads generated by high production plants.

Heavy Duty Rubber Lined Slurry Pumps

Designed for pumping sand slurries, the McLanahan Horizontal Centrifugal Slurry Pump is supplied with molded rubber impellers and casing liners.

Dewatering Screen

The McLanahan Dewatering Screen combines the right G force and amplitude to provide the best product dewatering. McLanahan has designed its Dewatering Screen to withstand high loads and provide maximum wear life.

Separator™

The McLanahan Separator™ is critical to the successful operation of the UltraSAND Plant. This rubber lined vacuum assisted cyclone separates valuable solids from undesirable fine sand, silts, and clays.

RECOVERY SYSTEM

UltraFINES

The McLanahan UltraFINES Recovery System, or simply UFR, is a combination of a Sump, Pump, Hydrocyclones and a Dewatering Screen in a module that is specifically designed to recover nominally (38µm) solids from a wash plant effluent stream. The recovered material is conveyable and stackable and is suitable for multiple industries, including sand, iron ore, coal recovery, ash, industrial sands, frac sand, and more. UFRs provide the finest size-fraction recovery available without the use of added chemicals.

UltraFINES Recovery Systems

UltraFINES modular plants recover fine solids to produce a standalone product and reduce the amount of solids reporting to the settling pond or downstream equipment.

UltraFINES Models

3, 4, 5, 6-1S

Benefits of McLanahan UltraFINES Recovery Plants

- Maximum fines recovery without chemicals
- Potential saleable product
- Reduce fines reporting to the pond
- Possible reduction in flocculant cost in Thickener
- Increase pit yield when utilizing the fines
- Use the recovered fines for property rehabilitation
- Low-cost operation
- Rapid return on investment
- Modular construction

Popular Applications for UltraFINES Recovery Plants

In the aggregates industry, any effluent stream that has (150µm) fractions is a very good candidate for a UFR, with excellent ROI if the materials are marketable. In the coal industry, certain effluent streams may contain valuable coal due to inefficiencies in the process.

Frac Sand Plants reject amounts of sand that cannot be used in the range of specification products most often in the (105µm), which are fractions left over from the 70×140 production. Any Industrial Sand Plant making tight specifications is likely to reject recoverable fractions to waste given their relatively low value compared with the core products. Covering up valuable reserves with ever-increasing pond space does not make economic sense when a UFR can significantly reduce the amount of fractions reporting to the pond.

RINSING & SIZING MODULE

UltraSCREEN

McLanahan UltraSCREEN units will form part of the UltraWASH fully integrated modular washing plant and can also be supplied as an independent unit complete with supporting structure, access walkways and maintenance platforms. Inclined Screens elliptical motion and Horizontal liner motion versions are available.

UltraSCREEN Models

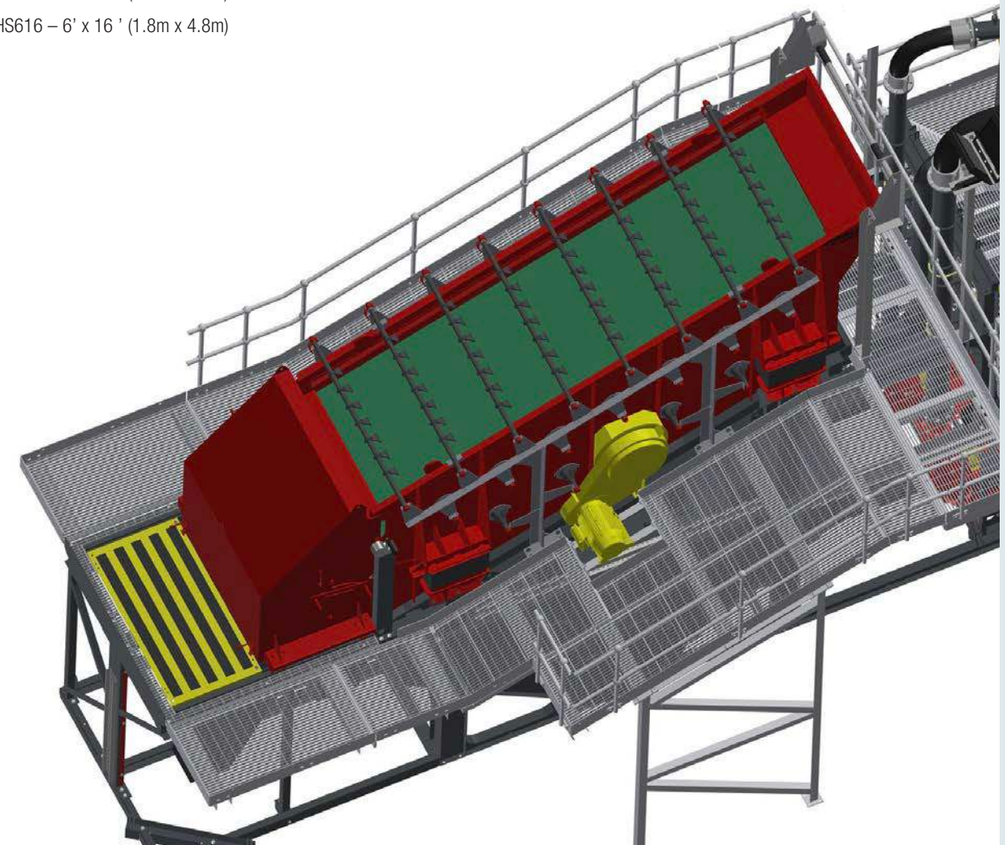
McLanahan UltraSCREEN : Series Vibrating Screen 5’ x 16’ (1.5m x 4.8m)

Inclined Screens

- IS516 – 5’ x 16 ’ (1.5m x 4.8m)
- IS620 – 6’ x 20 ’ (1.8m x 6.1m)
- IS824 – 8’ x 24’ (2.4m x 7.2m)

Horizontal Screens

- HS512 – 5’ x 12 ’ (1.5m x 3.6m)
- HS616 – 6’ x 16 ’ (1.8m x 4.8m)



DEWATERING SCREEN

UltraDRY

Dewatering screens offer multiple advantages for construction and specialty aggregate producers, including a dry “drip free” product that other types of equipment cannot provide. With hundreds of units in service, the Dewatering Screen exemplifies the unbeatable toughness you expect from McLanahan Corporation.

UltraDRY Dewatering Screens

Dewatering Screens feature custom engineered, heavy-duty screen media for the high capacity applications encountered in today’s production conscious market. Side frames and beams are huck bolted together, not welded, so individual components can be replaced. They also have a combination of standard, wear resistant side wear linings, optional deck dividers, and dams. Performance flexibility is enhanced by variations in screen media and the use of deck dividers. McLanahan Dewatering Screens have the highest capacities available in the industry and can process up to 400 tph of coarse sand on a single machine.

UltraDRY Models

Available sizes are 3’ x 8’, 4’ x 10’, 5’ x 12’, 6’ x 12’, 7’ x 12’, and 7’ x 16’ (.9m x 2.45m, 1.2m x 3m, 1.5m x 3.6m, 1.8m x 3.6m, 2.1m x 3.6m, 2.1m x 4.8m).

Dewatering Screens have several functions:

- Dewatering
- Desliming
- Degritting
- Rinsing
- Scrubbing
- Washing

Benefits

- High Capacities Per Foot Width
- Consistent, Drip-Free Product
- High G Force
- Upward Inclination Of Deck Helps To Handle
- Fluctuations In Feed Solids
- Reduces Water Losses To Product
- Better Stockpile Management
- Quiet & Low Power Consumption
- Driven By Vibratory Motors

Features

- High Quality Wear Liners
- Optional Deck Dividers
- Huck Bolt Construction
- Heavy-Duty Urethane Screen Media

Improves

By applying worldwide industry experience and just the right combination of frequency and amplitude, the McLanahan’s Dewatering Screens provide drip-free discharge for applications that range from primary sand products to UltraFINES recovery. The resulting improvements in housekeeping and immediate availability of products mean bottom line benefits!

How UltraDRY Screens Work

1. Slurry feeds onto a steeply inclined screen surface to achieve rapid drainage
2. A pool of water forms in the valley as sand builds up on the inclined surface
3. Counter rotating motors create a linear motion that forces solids uphill while water drains through the screen media
4. The uphill slope of the screen along with a discharge weir creates a deep bed that acts as a filter medium, allowing retention of material much finer than the screen openings

Applications

- Aggregates & Industrial Minerals
- Cyclone/Separator Underflow
- Hydrosizer Underflow
- Feed To VSI, Dryers Or Other Moisture Sensitive Operations
- Fines Recovery
- Aglime
- Screw Discharge
- Coal
- Coal Spiral Products
- Shaking Table Products
- Heavy Media Feed Preparation
- Underground Mine Clean-up
- Hard Rock Mining
- CIP/CIL Circuits
- Trash
- Loaded Carbon
- Safety Screens
- Carbon Quench
- Flotation Tailings

SCRUBBING MODULE

UltraSCRUB

Capable of removing water soluble materials from the toughest of clays, McLanahan UltraSCRUB Modular Scrubbing Systems provide a flexible washing option for aggregate feeds.

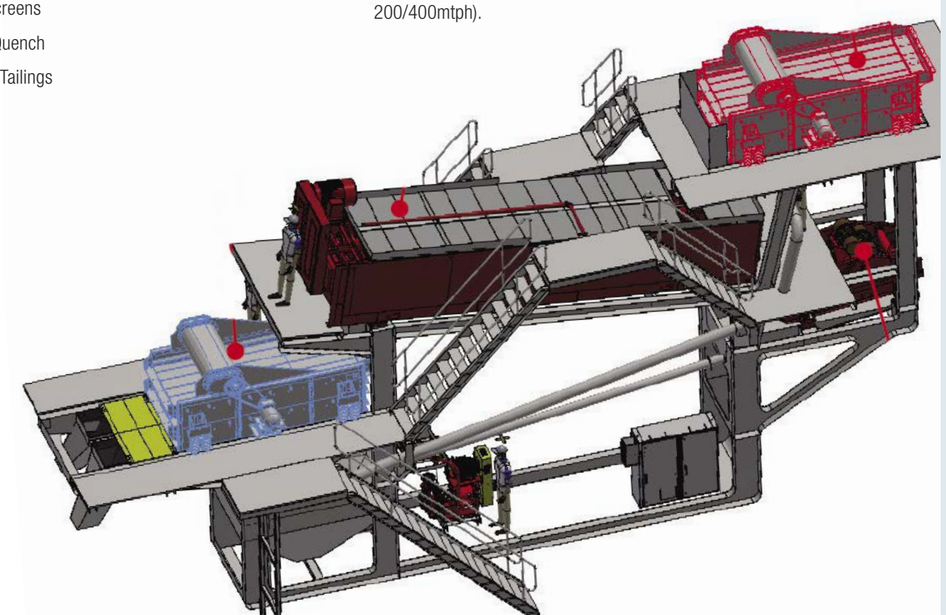
UltraSCRUB Scrubbing Module

Arriving on-site in containerised modules, producers will benefit from the shorter lead times, quick set-up and ease of transportation offered by the UltraSCRUB.

- Material and water are introduced in the feed end of the unit.
- Paddles provide scrubbing and agitation
- This scrubbing along with rising current water breaks down and washes off light coatings and light clays
- Organics removal (i.e. wood, leaves, etc.)
- The “cleaned” product is then conveyed to the discharge end of the box
- A rinse screen typically follows the Log Washer 2, 3 or 4 Aggregate Products
- With desanding screen (optional), log washer, horizontal rinsing screen, trash screen (optional) sand sand transfer sump and pump, transfer/ product conveyors.

UltraSCRUB Models

LW3625 (up to 100/200mtph) and LW3830 (up to 200/400mtph).



HIGH RATE THICKENER

Water Recovery

High-Rate Thickeners, or Clarifiers, recover immediately reusable process water for mineral and aggregate producers, as well as environmental contractors. Thickeners are beneficial in a variety of applications, including areas where water is in short supply or very expensive, re-circulated water is not suitable for reuse in a plant, ponds are located on minable reserves, or ponds must be reduced in size due to permitting issues.

UltraDRY Dewatering Screens

High-Rate Thickeners provide immediately reuseable process water and recover approximately 85% of the water from an effluent feed. This high level of water recovery keeps water consumption at sustainable levels, as well as drastically reduces the slurry volume reporting to tailings dam.

Integration of McLanahan High-Rate Thickeners into a plant is simple. Control systems take care of most of the operation; however, McLanahan can train operators in the preparation and use of flocculants, as well as general Thickener operation.

UltraCLEAR HRT Models

HRT8 - 8m Dia, HRT10 – 10m Dia, HRT12 – 12m Dia, and HRT15 – 15m Dia.

Benefits

- Recovers immediately reusable process water
- Reduces demand on make-up water and helps keep water consumption at sustainable levels
- Drastic reduction in slurry volume reporting to tailings dam
- Reduces the Kilowatts required to pump fresh water
- Tanks can be supplied as welded together or bolt together and with either concrete or steel bottoms
- Minimum drag rake arm design reduces the amount of torque required to move the rakes through the settled solids and minimizes the disturbance of the already settled solids
- Hydraulic drive to power rakes and operate the rake lift
- Accurate rake torque monitoring
- Rakes can operate in forward or reverse

How Water Recovery Works

High-Rate Thickeners separate liquids from solids using hindered settling. Rotating rake arms collect settled sludge and move it toward the center discharge cone. They use minimal amounts of polymers/chemicals to drop the solids, making High-Rate Thickeners environmentally friendly Thickeners are operated and controlled by a touch-screen programmable logic controller system. Operating logic allows for customisation of the unit for plant needs, including the ability for the Thickener to shut down without an operator being present during extended hours of operation. The hydraulic drive gives an accurate sense of torque on the rakes. At high torque conditions, a rake lift will activate to draw the rakes up from the mud. The system then steps the rake down, monitoring torque on the way.

DCT - PASTE (DEEP CONE) THICKENER

UltraCLEAR

Maximising pulp concentration and keeping underflow slurry uniform is a key focus to enhance productivity and keep efficiency high. The Deep Cone Thickener uses cutting-edge technology to ensure operation runs at peak performance. The thickener is ruggedly dependable and intuitively designed to outlast and provide continually impactful results.

UltraCLEAR Deep Cone Thickener

Paste Thickeners can help producers eliminate the need for settling ponds and other structures. They are meant to achieve the highest solids concentrations possible through gravity separation. The resulting mud, described as a paste, is often so thick that it becomes non-segregating — no further separation of water and solids can be achieved. As a guide, a paste material is measured with a Yield Stress of >150 Pa.

Pastes are then moved to impoundment structures via positive displacement pumps. Because of the high percentage of solids in the resulting space, producers can greatly reduce — and sometimes eliminate — impoundment size, structure and volume. They are also able to eliminate freestanding water or ponds. Not only does this create a safer working environment, it also helps with permitting and regulatory requirements.

UltraCLEAR HRT Models

DCT10 – 10m Dia, DCT12 – 12m Dia, and DCT15 – 15m Dia

Benefits

- Produces the highest solids concentration of sludges achievable by gravity thickening alone
- Maximum water recovery
- Underflows often achieve paste consistency, meaning there is no further separation of free water
- Rotating pickets provide pathways to release water from sludge and allow for further compaction
- Paste sludges require less infrastructure for impoundments

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