WEIR

Minerals

Sand Wash Plant

CONTENTS

150 years of experience

Every step of the way

Whether you are an experienced sand producer or new to the industry, Weir Minerals boasts extensive experience in providing expert support to the global sand market through its market leading brands, such as Warman®, Linatex®, Enduron® and Cavex®.

Our principles

Safety
Keeping people safe.

Support
Ensuring our customers have the support they need whenever they may need it.

Robust
Manufacturing our equipment using the most advanced materials and latest design methodologies to ensure they stand the test of some of the world's toughest operating conditions.

Expert engineering and solutions
Providing our customers with the very latest engineering and technological advancements which deliver excellent product quality and productivity.

The Weir Minerals sand wash plant

Our range of Weir Minerals compact sand wash plants feature industry leading materials technology, process equipment and are fully supported by Weir Minerals' unrivalled global service network.

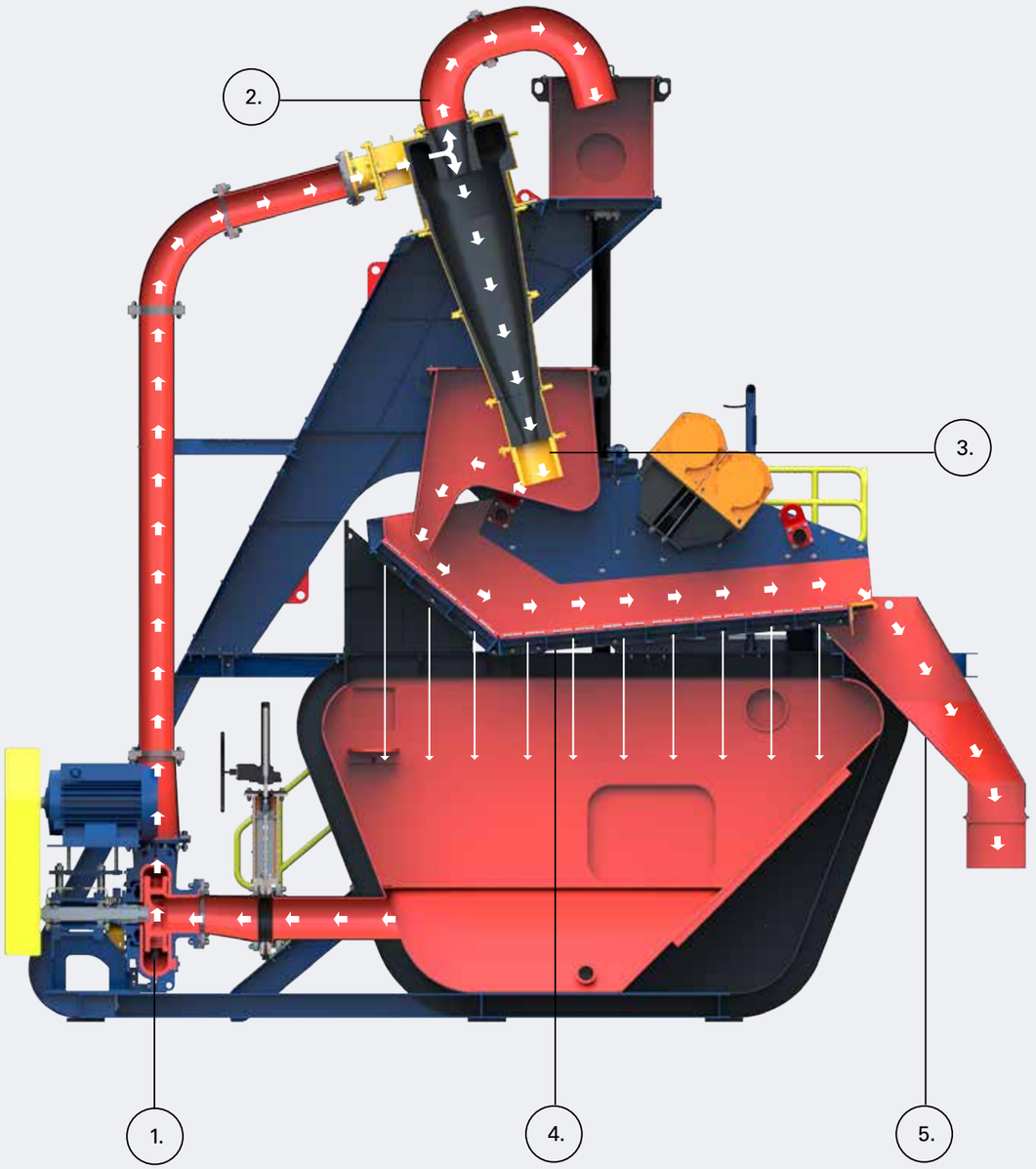
These plants contain our advanced technology and are designed to be portable, easy to assemble, maintain and operate. Weir Minerals sand wash plants are capable of meeting the needs of even the most experienced of sand producer while proving intuitive and easy to operate for a new entrant.

Design

- Lined with Linatex® premium rubber
- Compact skid design (within standard transport parameters)
- Sump features a mesh layer to prevent larger particles from damaging the Warman® pump or Cavex® hydrocyclone
- Sump inspection hatch facilitates easy maintenance
- Flexible platform and stairs configuration
- Panels and spigot can be easily replaced if required
- Constructed using world-class components
- A Variable Frequency Drive (VFD) (optional) ensures the plant continues to operate optimally regardless of any changes in feed
- The VFD can reduce the plant's overall power consumption and commissioning time, while increasing the wear-life of the pump
- Flexibility to process wet and dry slurry
- A floating ball switch is located inside the sump to protect the Warman® pump from dry runs.
- Minimal foundation work required during installation
- All discharge and connection points are designed to be operated with ease

Performance

- Drier product compared to sand screw plants
- Fewer moving parts compared to sand screw plants
- Rapid assembly
- Maximum recovery
- Low energy consumption
- Low total cost of ownership
- 100% direct washing is enabled through the Cavex® hydrocyclone
- Supported by the Weir Minerals global service network



How does the plant work?

The sump is fed through the feed entry hole at the side of the plant.

1. The Warman® centrifugal slurry pump, pumps the slurry from the sump to the Cavex® hydrocyclone at the top of the plant.

   The Cavex® hydrocyclone separates fine from coarse particles.
2. Finer particles are discharged at the top of the hydrocyclone which are then passed to an overflow box at the side of the hydrocyclone and is then fed to the effluent treatment via hoses and pipes.
3. Coarse particles are fed to the Enduron® dewatering screen through the underflow of the hydrocyclone.

   The Enduron® dewatering screen removes the water and residual fines from the product. The Enduron® screen also features spray bars if further cleaning of the material is required.
4. Water and residual fine material are discharged through the screen media and passed into the sump.
5. Saleable sand is discharged at the front of the screen through chutes where it is stockpiled ready for sale.

Linatex® premium rubber is used to protect areas of high wear throughout the entire plant.

Component products

The combination of these products ensures our plant delivers exceptional results in the following applications:

Applications

- Sand washing
- Removing unwanted fines and/or clays
- Converting “crusher dust” into saleable sand
- Recovering saleable sand from effluent streams
- Silica sand
- Frac sand
- Tailings recovery
- Washing of recycled materials
- Construction waste recycling
- Grit recovery

Cavex® hydrocyclones

Cavex® hydrocyclones use a proven design to separate material while delivering maximum efficiency, capacity and a long wear life. The laminar spiral inlet geometry of a Cavex® hydrocyclone is fundamental to increasing productivity while lowering total ownership costs.

By minimising flow resistance through the feed chamber, Cavex® hydrocyclones can process substantially higher volumes of sand than conventional hydrocyclones. Cavex® hydrocyclones also feature a cut point perfectly suited to sand wash applications.

Enduron® dewatering screens

Enduron® dewatering screens are proven performers in sand washing applications. Effective in reducing moisture content in sand products, these screens also offer exceptionally high throughput per unit screening area.

These linear motion screens feature a lock-bolted frame with epoxy adhesive applied between all mating surfaces, adding a layer of moisture and corrosion protection. Modular screen deck panels deliver long life and easy handling and maintenance, making it simple to replace areas of localised wear. Moulded rubber buffers are used on all four support points to isolate live frame vibrating loads. Enduron® dewatering screens are lined with Linatex® premium rubber and offer excellent water removal and high load capacity, while lowering total cost of ownership.

Warman® WGR® Gen 2 slurry pump

Weir Minerals has specifically designed and engineered the Warman® WGR® pump for sand and aggregate applications.

This pump offers several innovative features including improved hydraulic design, enhanced gland options and a simplified wet-end. In addition, it also delivers added features for improved safety and reduced maintenance such as a drainage plug situated on the casing (which can be pulled in cold months so that the pump does not freeze or clog when stopped).

Linatex® hose and rubber lining

Linatex® premium rubber is a 95% natural rubber that exhibits outstanding resilience, strength and resistance to cutting, tearing and abrasion. With over 90 years of handling aggressive materials in quarries across the globe, Linatex® is still ranked as the premium wear resistant rubber for protecting processing equipment in wet or highly abrasive applications.

It is the unique liquid phase compounding process that gives Linatex® premium rubber its extraordinary physical properties and outstanding performance. This unique process causes minimal mechanical disturbance to the molecular structure of the finished rubber, resulting in significant cost benefits for customers. With Linatex® premium rubber, there is no equivalent when it comes to wet abrasion.

Isogate® WS slurry knife gate valve

The Isogate® WS series slurry knife gate valve has a unique robust design providing reliable service, together with ease of maintenance and cost effectiveness in a light weight, compact package.

The Isogate® WS series knife gate valve combines a low maintenance design and rugged heavy-duty construction with a wide range of available materials, making it perfectly suited to sand washing applications.

Plant configuration

MODEL	SP25	SP50	SP70	SP100	SP150	SP200	SP300
Plant capacity	25TPH	50TPH	70TPH	100TPH	150TPH	200TPH	300TPH
Warman® WGR® series slurry pump	100 F3-WGR	150 F4-WGR	150 F4-WGR	200 F4-WGR	250 F5-WGR	250 F5-WGR	250 F5-WGR
Pump motor requirements (kW)	15	30	37	45	75	90	110
Cavex® CVX series hydrocyclone	250CVX	400CVX	500CVX	500CVX	650CVX	650CVX	650CVX
Enduron® dewatering screen	VD 6	VD 9	VD 9	VD 12	VD 15	VD 18	VD 24
Screen motor requirements (kW)	2x1.1	2x1.9	2x1.9	2x4.53	2x4.53	2x4.53	30
Isogate® knife gate valve	WS 6	WS 8	WS 8	WS 10	WS 12	WS 12	WS 12
Linatex® slurry hose	100NB	150NB	200NB	200NB	250NB	250NB	250NB

Plant specifications

MODEL	SP25	SP50	SP70	SP100	SP150	SP200	SP300
Dimensions (m)	4.5 (l) x 3.2 (w) x 4.8 (h)	5.2 (l) x 4.2 (w) x 5.3 (h)	6.6 (l) x 2.9 (w) x 5.8 (h)	6.3 (l) x 4.6 (w) x 6.3 (h)	6.9(l) x 5.1(w) x 7.8(h)	7.9(l) x 5.5 (w) x 8.2 (h)	9.4 (l) x 6.7 (w) x 9.7 (h)
Weight (kg)***	3,875	7,750	8,600	10,050	16,000	16,700	22,800
Feed spout height for dry feed loading (m)	2.1	2.8	N/A	3.08	3.7	3.7	4.4
Feed nozzle height for slurry feed (m)	1.5	2	1.765	2.2	2.68	2.68	2.4
Tailing disposal height (m)	4.2	4.5	5.05	5.5	7.1	7.1	8.1
Input tonnage (TPH)	25	50	70	100	150	200	300
Input flowrate (m3/hr)	85	169	190	337	507	676	722
Expected output range (MTPH)*	20-22	42-45	50-63	85-90	127-135	170-180	260-270
Product moisture	12-15% maximum						
Power per ton (kW)**	1-1.2						

- *Based on 15% fines from input material. Varies depending on input particle size distribution.
- **Based on utilisation of single stage washing system. Depends on equipment used both upstream and downstream.
- ***The weight stated above includes the optional Isogate® valve.
- Please note: Plant will also require power to operate the control cabinet, power requirements may vary depending on the control cabinet selected. For more information please contact your local Weir Minerals representative.

Weir Minerals SP-Series
Single-grade sand wash plants

The Weir Minerals SP-series sand wash plant is designed to remove excess fines or coarse material in a simple way, providing exceptional washing results while delivering clean, low moisture product for conveying or stockpiling.

The Weir Minerals SP-series creates one type of sand which is discharged using the discharge chute at the front of the plant.

Plant configuration

MODEL	DP70	DP100	DP150
Plant capacity	70TPH	100TPH	150TPH
Warman® WGR® series slurry pump	WGR-100	WGR-150	WGR-150
Pump motor requirements (kW)	18.5	22	30
Cavex® CVX series hydrocyclone	400 CVX	400 CVX	500 CVX
Enduron® dewatering screen	VD12	VD15	VD18
Screen motor requirements (kW)	4.53x2	4.53x2	4.53x2
Linatex® slurry hose	150NB	150NB	200NB
Linatex® hose bend	150NB	150NB	200NB

Plant specifications

MODEL	DP70	DP100	DP150
Dimensions (m)	6.5(l) x 3.25(w) x 6.1(h)	7.2(l) x 3.45(w) x 6.2(h)	7.5(l) x 3.75(w) x 6.9(h)
Weight (kg)	5900	6,300	8,500
Feed spout height for solid loading (m)	4.2	4.35	4.35
Feed nozzle height for slurry feed (m)	3.6	3.75	3.75
Tailing disposal height (m)	5.2	5.45	5.5
Input tonnage (TPH)	50-70	80-110	140-180
Input flowrate (m3/hr)	112	165	225
Expected output range* (MTPH)	M-sand: 21 P-sand: 40	M-sand: 44 P-sand: 59	M-sand: 80 P-sand: 55
Product moisture	15-20% max		
Power per ton (kW)**	1-1.2		

- *Based on 15% fines from input material. Varies depending on input particle size distribution.
- **Based on utilisation of single stage washing system. Depends on equipment used both upstream and downstream.
- Please note: Plant will also require power to operate the control cabinet, power requirements may vary depending on the control cabinet selected. For more information please contact your local Weir Minerals representative.

Weir Minerals DP-series
Dual-grade sand wash plants

Weir Minerals DP-series sand wash plants feature the same industry-leading technology and benefits of the SP-series sand wash plant. The dual-sand sand plant has added functionality which enables it to create two separate sand products, simultaneously.

Where the SP-series discharges the finer particles from the Cavex® hydrocyclone. The DP-series feeds the product onto one side of the partitioned Enduron® dewatering screen. The fine sand helped by the screen vibration and high pressure spray bars falls through the screen panels into the sump and the coarser sand is discharged via the chute. The fine material is then pumped back to the Cavex® hydrocyclone which removes ultra-fines to the overflow and discharges clean, fine sand to other side of the dewatering screen's deck.

Some blending of fine sand back into coarse sand is possible using a blending mechanism located on the discharge chutes.

Our Expertise

The Weir Minerals team has been responsible for successfully designing, manufacturing and optimising sand processes around the world. Our teams take the time to understand your objectives and design a solution which fully meets your needs.

After delivery and commissioning, our partnership continues through our unmatched global service network. Our local service experts remain on-hand to assist with any maintenance, operational or improvements needs you may have, as your process or operating conditions change.

In addition to our range of sand wash plants, you may also be interested in the following products. Get in contact with your local Weir Minerals representative to find out more.

Trio® washing products

Linatex® lined flat bottom classifiers

Enduron® dewatering screens

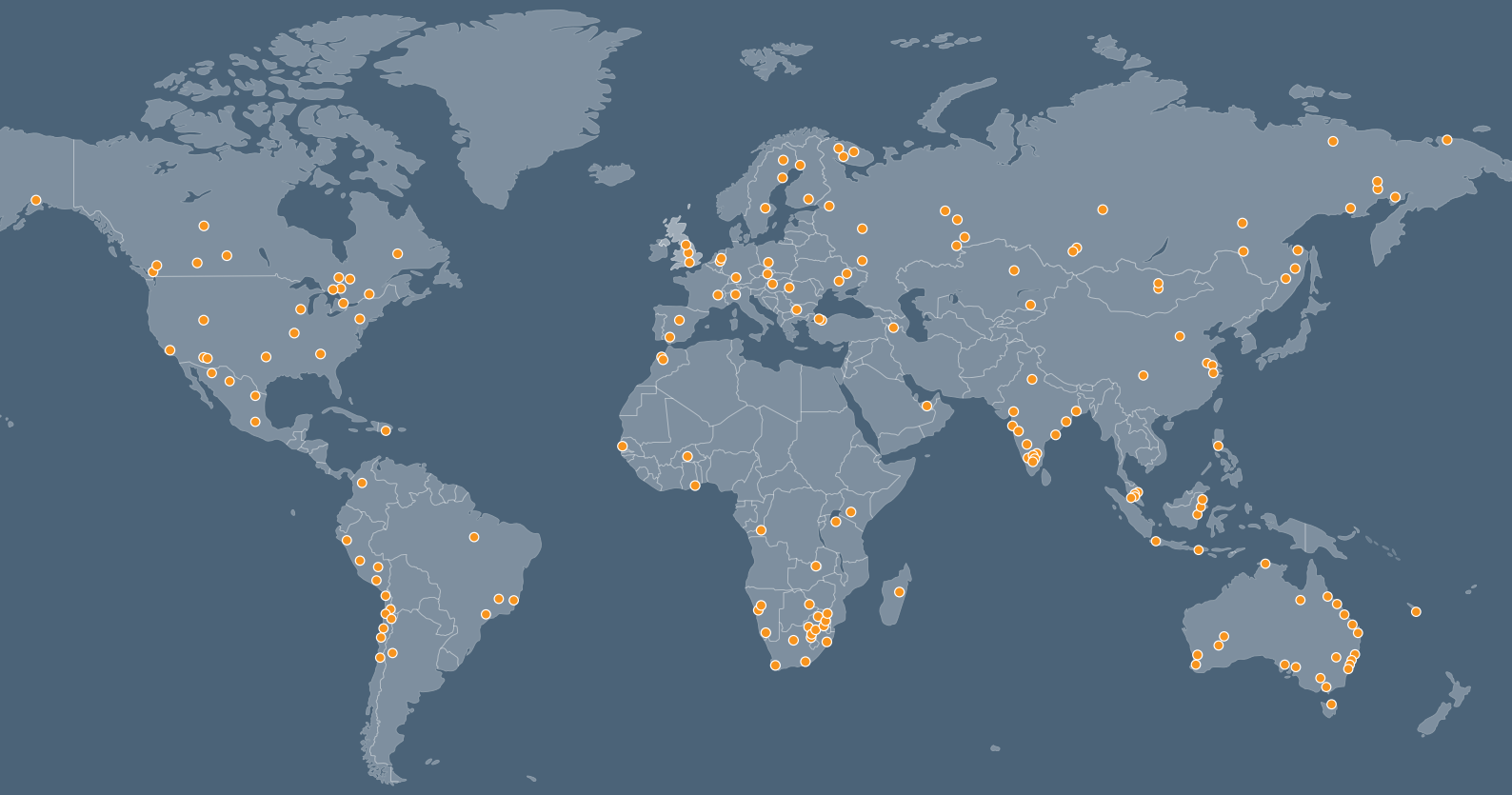
Trio® crushing products

Trio® screens

Isodry® Thickeners

Minerals

www.global.weir
sandwashplants@mail.weir



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