WASHING AS IT SHOULD BE
An unrivalled heritage of over 60 years development experience and expertise in the washing solutions industry, has resulted in today’s world class leading equipment - turning virgin and waste materials and minerals into high value, saleable products.
Terex® Washing Systems (TWS) is the premier provider of advanced plant solutions for material and mineral washing needs in aggregates, recycling, industrial sands and mining.

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As stringent materials regulations and the need for clean aggregates increases internationally, TWS has become a world leader in providing high quality, high efficiency and rapid return on investment solutions.

Our design and manufacture is driven by a spirit of innovation, universal health and safety and response to market demands, resulting in unique, market leading products and world class machines designed for world beating performance.

A complete range of in-house project specialisations ensures that from customer brief to tailor-made solution, every aspect of every commission is unique and every aspect of client service is covered.

TWS is headquartered in Northern Ireland with additional centres of excellence in Europe, Asia and America. We also partner with qualified and respected organisations worldwide to bring our customers consistent lifetime service, local expertise and knowledge and local aftersales. Our modular machines and parts are held in stock regionally and with our distributors guaranteeing fast response to our end users.

A unique level of focus and specialisation and an unparalleled washing heritage have made TWS the supply partner of choice for a wide range of operators, from independently owned one-site quarries through to international mining and construction organisations.
Our constantly evolving product and process solutions ensure maximum productivity and most importantly product quality.

WHY RECYCLE?

Natural aggregates are crushed or uncrushed materials such as sand, gravels or stones, derived from the natural sources like river terraces, riverbeds, glacial deposits or rocks and boulders, for use in the production of concrete for structural purposes including mass concrete works. Aggregates are available in different types depending on their uses.

NATURAL v RECYCLED/SECONDARY AGGREGATES (RSA)

Using RSA has environmental benefits including:

- Conserving natural resources by decreasing the demand for virgin materials
- Protecting local ecosystems and maintaining biodiversity levels
- Reducing energy consumption, transport emissions and disposal of waste to landfill
- Reducing road haulage activities and therefore reducing road congestion and increasing road safety

Using RSA has financial benefits including:

- Producing recycled aggregate for resale is more cost-effective than sending un-wanted materials to landfill and incurring landfill tax and transport costs.
WASH RECYCLING

Wash recycling is the process of producing Aggregates from Waste.

**Sources of Recyclable Materials & Definitions**

- **C&D Waste** – Material derived from the demolition of buildings. (High % of concrete, brick. Contaminated with wood, plastic)
- **Site Excavation Waste / Muck-away** – Material derived from excavating construction sites. (The gradation is very variable and often containing high % of silts & clays (minus 0.075mm))
- **Road Sweepings** – Material derived from road sweeper / vacuum trucks. (Fine material regularly containing high % of plastics)
- **Contaminated waste** – Categorized as Non-Inert due to the presence of heavy metals and hydro carbons. (Eg. Material excavated after oil spill or earthen material from a chemical works)
- **Bottom Ash (IBA)** – Incinerator Bottom Ash (IBA) is the material discharged through the grate of a Waste to Energy facility after incineration of municipal solid waste (MSW). Depending on the waste being incinerated IBA can contain varying quantities of glass, ceramics, brick, concrete and metals in addition to clinker and ash.
- **Concrete Truck ‘Wash-Out’** – Concrete returned to the readymix depot which was surplus to requirements on site.

Washing Enables Recyclable Aggregates to Fulfil Their Greatest Potential. Recycling to higher value!

Creating:
- Superior product quality – Higher Value End Use
- More product grades (Finer screening)
- Greater utilisation of materials
Additional upgrades which can be incorporated into our washing systems to further benefit the final material specification.

**Attrition Cells**
Attrition Scrubbers, also known as Attrition Cells, are used to liberate deleterious material and remove it from competent aggregate material. They are also proven to liberate clays, reducing product turbidity, and to break apart loosely conglomerated clusters in Sand.

**Flat Bottom Classifiers / Upward Current Classification**
Used to remove light-weight, deleterious materials, such as lignites and organics, from sand product streams. These classifiers are primarily used by aggregate producers in the production of construction sands, but can also be used in sands production when organics or light weight trash is present.

**Wet Drum Magnets**
Wet magnetic drum separators are used to separate fine ferrous metal particles from slurries.

**PH Adjustment / Balancing**
When wash water is being released to the water course it often must meet local authority PH regulations. In cases such as this customers must employ PH balancing systems. A further example of where this system would be employed is to reduce flocculent demand and improve sludge treatment.

**Lime Dosing**
Lime dosing is the addition of lime milk, a mixture of anhydrous lime (quick lime) CaO, or hydrated lime (slaked lime) Ca(OH)₂ and water to a thickened sludge in order to help reduce filter press cycle times.
Water Treatment & Management

Terex Washing Systems offers a complete tailored solution for water treatment and management, including a full range of flocculant dosing systems, thickener tanks and a full range of filter presses. Combined this equipment can remove the need for settling ponds.

It is critical that systems are selected appropriate to your specific materials, so the solution can be refined according to your specific requirements. This includes qualified sampling and testing to ensure complete peace of mind for performance and the ability to handle inevitable feed variations.

Intelligent automation is common throughout our equipment range and this is particularly relevant to water management systems. The majority of our systems include fully automated control and adjustment of the flocculant dose, according to the amount of suspended solids and settlement time required. This ensures maximum performance even with highly variable feed materials such as materials derived from recyclable sources to ensure optimum levels of flocculant dosing.

Our wide choice of thickener models and formats ensures you are offered the best solution for your individual needs, all with low operational cost and maximum dewatering in mind.

Following the thickener you have a wide choice of filter presses, again depending upon your individual material characteristics and performance needs.
FILTER PRESSES

The Terex AquaClear side beam Filter Press is a high performance plate and frame filter press designed specifically for demanding aggregate, mining and recycling applications. The heavy duty construction and high pressure slurry pump technology and optimized hydraulic system ensures maximum performance and reliability, giving dryer cakes, higher production and faster cycle times. Pneumatically operated plate shakers are fitted as standard to aid removal of sticky cakes. The press also features stainless steel sliding doors for addition protection.

RAKE THICKENERS

TWS also offers a range of rake style, high rate thickeners which allow for minimal feed height, facilitating gravity feed from upstream cyclone based washing systems. Rake thickeners are designed specifically to deal with high volumes of slurry.

The integral scrapers aid transportation of material from the periphery of the tank to the outlet, thus accelerating the removal of sludge from the thickener.

FEATURES AND BENEFITS

- Produces sludge with 30 - 40% solids content
- Low level feed in height to enable gravity feed
- The facility to incorporate surface skimmer for removal of light weight trash.
- Can handle high volumes of slurry
- Combined thickening and clarification

FLOCCULANT DOSING SYSTEM

The AquaClear flocculant dosing system is designed to reduce flocculant consumption with high quality engineered components that optimise the mixing and dosing of the flocculant. The addition of real time dosage controller will reduce consumption even further. Automated controls reduces operator interaction time.

FEATURES AND BENEFITS

- Dry or emulsion polymer system
- Automated controls
- Ultrasonic Level Sensor
- Full Stainless Steel Construction
- Large Capacity Hopper
- Progressive Cavity Pump
- Real time flocculant dosage controller
  Reduces flocculant consumption by up to 30%

DEEP CONE THICKENERS

Deep cone thickeners are based on static decantation principles allowing for minimal footprint and virtually no moving parts. The deep cone and cylinder section imparts a greater pressure head on the settled slurry thus producing a higher percentage solids content than that of a standard rake thickener.

FEATURES AND BENEFITS

- Heavy duty frame construction
- Smaller footprint than rake style thickener
- Thicker sludge (over 50% solids) by weight
- No moving parts reduces maintenance
- Tanks also available in stainless steel
- Discharge under gravity eliminates requirement for sludge pump

THICKENERS

Terex Washing Systems offers a range of Thickener sizes and types to suit a variety of materials and applications. The TWS Applications team balance the client’s needs in terms of material type and slurry volume, desired sludge characteristics in order to propose the best thickener for each project.

FEATURES AND BENEFITS

- 100% Automated
- Touch Screen Control
- High Quality Filter Plates
- Stainless Steel Guarding
- Heavy duty frame construction
- High pressure design for drier cakes
- Electrohydraulic opening and closing system
- Various plate sizes and chamber configurations
- Fast cycle times
- Pneumatic shakers to aid cake removal
- Core blow out and wash out system

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EXAMPLE ENGINEERED SOLUTIONS

Incorporating a Terex Minerals Processing Systems crushing circuit.

Simple Seamless Integration

PLANT DESCRIPTION:
- 150 - 200tph plant
- AggreSand (TM) 206, 3 Deck, 2 Sands
- Surge Bin
- MC1000
- AggreScrub 150 (TM)
- 165D 3 Deck
- Rake Thickener & Flocculant Dosing Unit

OUTPUTS:
- 4 Aggregates
- 2 Sands
EXAMPLE ENGINEERED SOLUTIONS

Feeding via AggreScalp, heavy duty modular scalping unit

PLANT DESCRIPTION:
- 120 - 150tph
- AggreScalp
- AggreSand 165
- AggreScrub 150
- Rake Thickener & Flocculant Dosing Unit

OUTPUTS
- 3 Aggregates
- 2 Sands
EXAMPLE ENGINEERED SOLUTIONS

Compact innovative solution incorporating screening, scrubbing, trash removal and sand recovery on one mobile chassis.

PLANT DESCRIPTION:
- 60 - 70tph
- H9 Feeder
- Feed conveyor with over-band magnet
- AggWash 60-1

OUTPUTS
- 3 Sized
- Aggregates
- 1 over-size
- 1 Sand
EXAMPLE ENGINEERED SOLUTIONS

Incorporating a pre-wash / double wash to achieve highest grade of sand.

PLANT DESCRIPTION:
- 150 – 200tph
- AggreScalp
- Feed Conveyor
- 20 X 6R-2D
- Logwasher 200
- Pre-Wash System
- FinesMaster 120C
- Transfer Conveyor
- 20 X 6D-2D

OUTPUTS
- 4 Aggregates
- 1 Sand
Terex Washing Systems offer 4 SITE, a comprehensive project management service which provides you with enhanced levels of support during every step of your project. We believe that rapid response, qualified, and effective support is crucial in meeting end-user needs, letting you deliver on your promise as well as developing long term client relationships.

TWS offer a range of Project Management Service packages to choose from. Each of our project management packages include 4 Key Steps:

- **APPLICATION REVIEW**: Cross functional kick off meeting, Production control, Cost control, Risk management and mitigation, Tested equipment, Quality control from start to finish, Basic civils design, Electrical control, Shipping arrangements and machine packing.
- **SIEVE ANALYSIS**: Tailored installation plan specific to your project, Flexible levels of installation service team support, Schedule risk management and project log, Clear line of communication during installation and commissioning, Electrical support.
- **EQUIPMENT SELECTION AND OPTIONS CONFIRMED THROUGH OUR APPLICATION AND ENGINEERING REVIEW PROCESS**: Initial Process Flow Diagram created and data reviewed, Crossfunctional team review based on prior lessons learned, Initial Process Flow Diagram created and data reviewed.
- **CROSSFUNCTIONAL TEAM REVIEW BASED ON PRIOR LESSONS LEARNED**: After sales and Engineering support via our Helpdesk, Ongoing Project support from time of order right through to commissioning.

Perhaps the only thing more comprehensive than our vast product line is our wide range of effective finance and leasing solutions, structured to complement customers’ cash flow and budgets.

Our team of finance professionals knows the importance of working closely with your customers to understand the unique challenges of their business and their financial goals and requirements. Obtaining financing is often a time consuming task, so we work hard to provide a reliable, flexible and responsive service.

The Terex® Financial Services™ (TFS) team can help assist in all areas of asset management, from the analysis of future equipment values through the disposition of used equipment.

TFS is part of the Terex® family, so you’ll work directly with financial professionals who understand your business and can help you get the equipment you need with financial solutions based on your business goals and objectives.

TFS Is a one-stop shop for effective financing solutions:

- Helping you manage cash flow and conserve working capital
- Ownership and lease options

Build the fleet you want with competitive financing rates, as well as special lease and purchase options from TFS. It’s a great way to have the equipment you need while managing your cash flow.

Contact: TWS.sales@terex.com to discuss finance packages available to you.

Rates from as low as
INSTALLATIONS

AggreScalp™ Scalping Unit

Ireland’s largest Wash Recycling plant incorporating a Crushing Circuit

Engineered solutions

Pre-wash System

Overband Magnet