



Compact Sand Plant

COMPACT SAND PLANT

The Hydroset Compact Hydrocyclone Plants are used to wash and classify sands and other fine materials. Each consists of three main modular components - a pumping set, a hydrocyclone assembly and a dewatering screen. The selection of this equipment with the appropriate configuration and sizing enables it to exactly match the operational duties and conditions required for every application. Their use is mainly in sandwashing, classification and fine sands recovery, as well as in the production of special sands, bentonite regeneration and lignite removal.



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CONSTRUCTION

The compact and effective design of the Hydrosset Compact Plants ensures significant user benefits, such as speedy assembly and installation, ease of operation, low maintenance and a reduced footprint. Each plant consists of:

The Pumping Group comprises the Sump Assembly, fabricated from mild painted steel, with protective paint and rubber lined wear parts, automatic level control device, all mounted on a skid chassis, creating a compact unit with the plant's other components; the Centrifugal Pump (split-system), with replaceable hydraulic parts made of abrasion and corrosion resistant materials and centrifugal, or pressurized-water, shaft seal; the electric motor is mounted above the pump base.

The Hydrovortex Hydrocyclone fabricated from mild steel, with protective paint, equipped with elastomer liners, or built entirely of polyurethane. When the equipment is subjected to particularly heavy wear, liners can be supplied in ceramic material.

The Vibroflux Dewatering Screen of modular design is equipped with modular polyurethane filter panels mounted in the screen trough. Heavy-duty vibrators with high capacity roller bearings ensure a high-frequency and low-amplitude vibration ideal for the dewatering duty.

APPLICATIONS

Sand Washing for concrete production, in substitution of settling bucket-wheels or screw classifiers.

Recovery of Fine Sands lost in water effluents from bucket-wheels or screw classifiers. The fine sand recovered in the hydrocyclone may be added to the washed sand generated by the bucket-wheel or screw, or it is stocked separately.

Production of Ultra-fine Sand for fibre-optic laying and telephone cable, as well as for agricultural crops, horserace courses, golf courses and special mortars. The sand contained in the effluents from sand-washing equipment with a particle size distribution over 30 Qm is processed in special hydrocyclone plants that include small-diameter, high precision cut-off hydrocyclones combined with dewatering screens specifically designed for the dehydration of ultra-fine particles. The special sands thus obtained are in great demand in the above mentioned markets, which at the same time affords to minimize environmental impact by reducing the solids content of the effluents.

Sand Classification, by combining hydrocyclones with high-frequency vibrating screens or hydroclassifiers, one or two types of sands can be obtained with a particle size distribution adjusted to a specific spindle, according to the new E.C. standards.

Preparation of Mortar Sand, with the simultaneous production of sand for concrete, by combining hydrocyclones, sieve bend screens and built-in dewatering screens integrated in high-capacity compact plants with low operating costs and great ease of operation.

Double Washing of Sands, by means of a compact plant equipped with two washing stages in a single unit, when the sand to be washed contains over 15 % harmful particles to be eliminated. Sand containing up to 40% clay can be treated.

Bentonite Regeneration, for use in slurries for foundation piles, concrete diaphragm walls and tunnel construction. Fully automated, high-capacity plants with up to three stages can be designed for the recovery of high-quality bentonite, necessary for today's large-diameter tunnel-boring machines.

GENERAL DESCRIPTION

ERAL UK's wide experience in the design and development of efficient solutions for the wet processing of sand enables us to offer a variety of hydrocyclone plant configurations suitable for the needs of every intended use and for meeting the material quality requirements established by all international standards for sands and aggregates. ERAL UK selects the most appropriate configuration of compact plant on a case-by-case basis after analyzing the process variables and the particular features of the material to be processed. The results enable us to offer a wide diversity of plant configurations, such as:

- compact, two-stage washing plants;
- plant that simultaneously produce sand for mortar and concrete; and
- plants equipped with small-diameter hydrocyclones with high classification efficiency - for meeting the requisites of every application.

OPERATION

The slurry feed, which is usually from by a vibrating screen, in the case of a sand washing process, or as an overflow effluent from a screw classifier or bucket-wheel, in fine sands recovery processes, is fed to the Pumping Group from where it is pumped to the Hydrocyclone, which eliminates undesirable particles (clay, silt, etc.). The washed product discharged from the hydrocyclone is delivered to the Dewatering Screen to reduce the moisture content of the final product and thus obtain an easy-to-handle, top-quality material. The hydrocyclone overflow containing rejected particles is discharged to settling ponds or reprocessed in the subsequent clarification and filtering stages, thus minimizing environmental impact and reusing the water employed in the process.

MANUFACTURING PROGRAMME
The manufacture of these compact plants is based on the appropriate combination of their main components, as determined by the operating conditions of the plant to be installed.



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