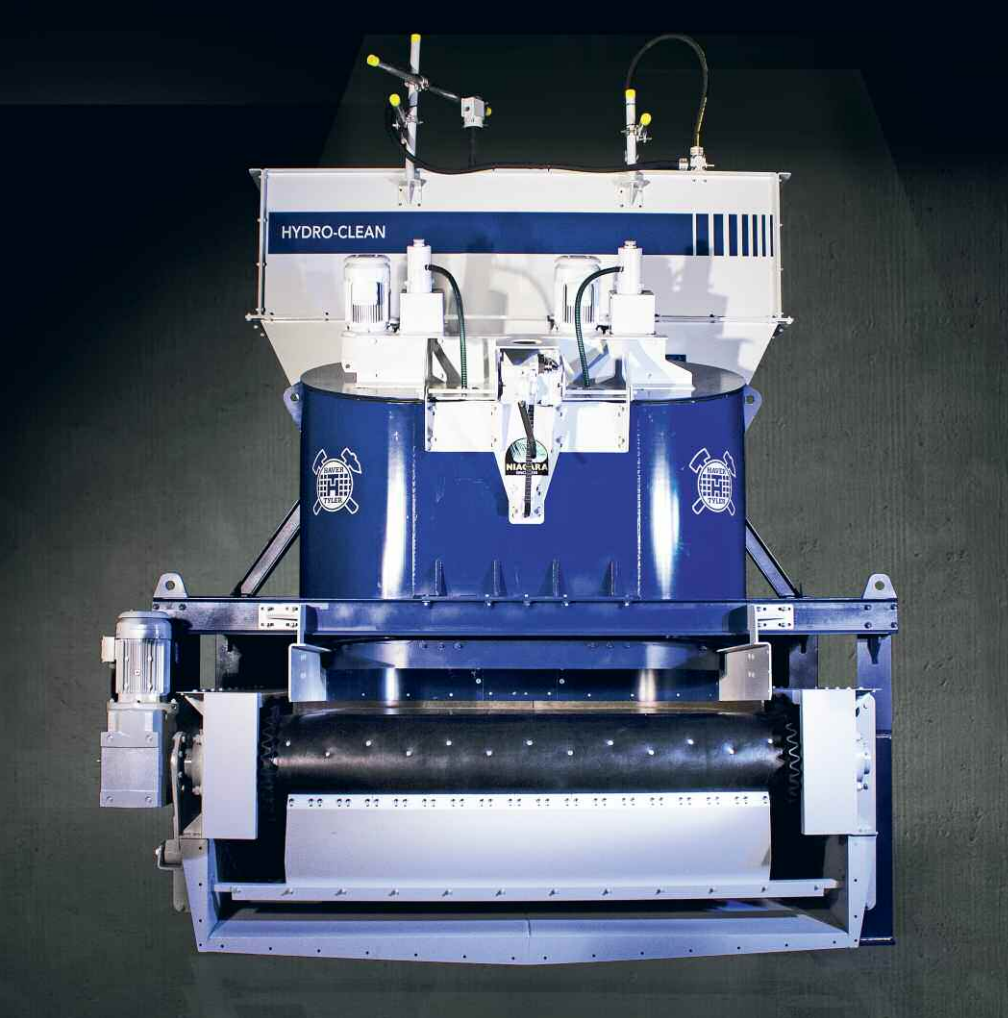


HAYER & BOECKER



HYDRO-CLEAN® WASHING SYSTEM

A HAYER & BOECKER Company



Before: sticky raw material with adhering fine content and agglomerates



After: cleanly washed product

NIAGARA® **HYDRO-CLEAN®**

A central task in mineral processing technology involves cleaning the feed material to remove adhering fine mineral particles and to dissolve any agglomerates that it may contain.

The requirement is to reduce the amount of rubble and effectively increase the proportion of usable product. This reduces the operating costs and increases the profit.

Legal requirements, regulations and norms as well as the special requirements of the production process also present the raw materials and mining industry with the ever-increasing challenge of minimising the proportion of fine granules allowed in the product.

Based on its many years of global +experience in the field of mineral processing technology, HAVER & BOECKER has developed an innovative high-pressure washing system which fulfils the expectations of the raw materials and mining industries. The cleaning power, high throughput rate, availability, economy and maintenance-friendliness have been proved in a multiplicity of applications. The trendsetting, continuously operating, high-pressure washing system goes by the name of HYDRO-CLEAN® - a name which says it all.

Cleaning is effected exclusively by the impact of the high-pressure water jet and the shearing processes within the raw material bed. Without exception, all moving machine components are located outside the material bed, thus ensuring that they are not subjected to frictional wear.

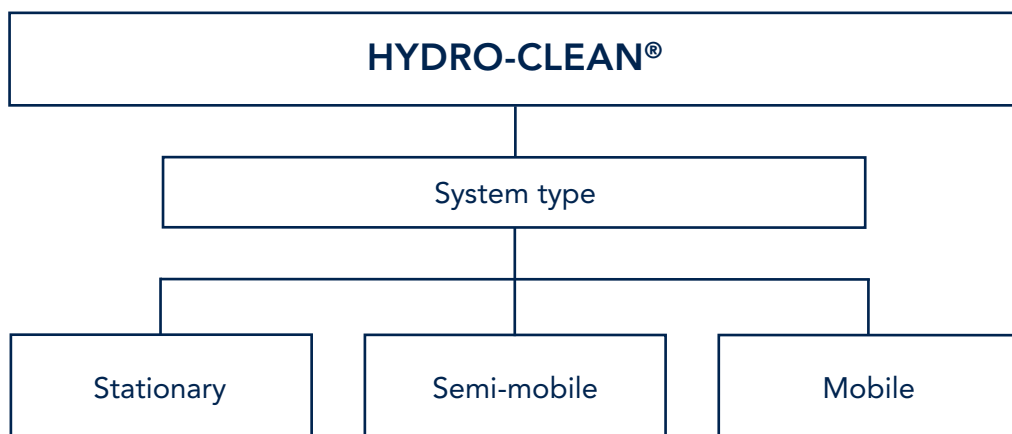
The frugal use of water as a natural resource of 0.1 to 0.2 m³ per tonne of feed raw material is environmentally friendly and significantly reduces the amount of waste water circulation. The electrical control system can range from „high-tech“ to „keep it simple“ depending on requirements, and thus qualifies the modular system for every application, location and type of operating personnel.

Areas of application

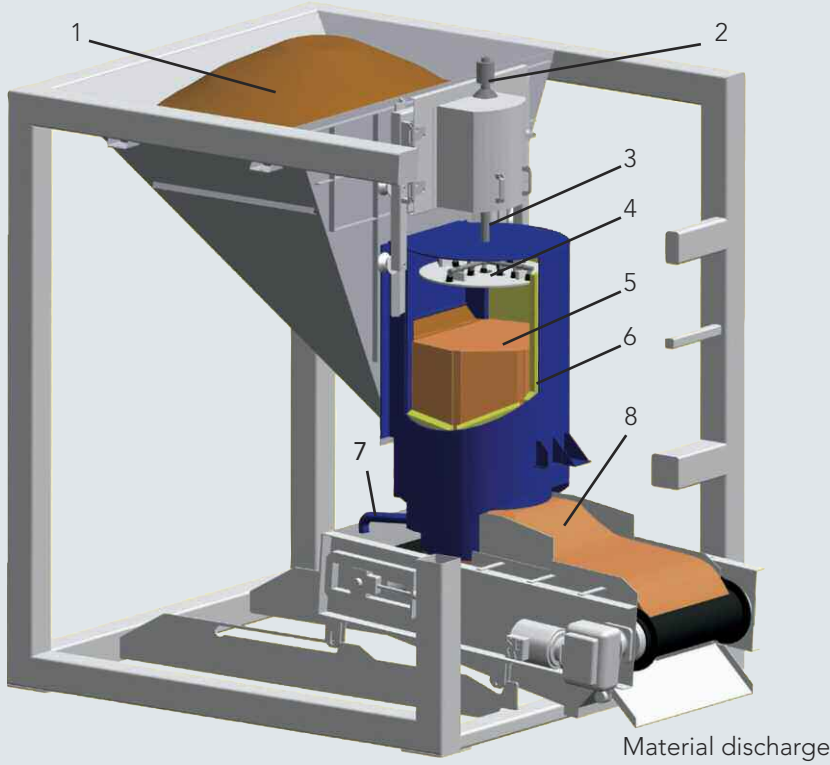
- Mining
- Industrial minerals
- Reclamation of building materials
- Recycling
- Exploration

Advantages

- Incomparable material cleanliness
- Up to 60% less water circulation
- Slim-line system design

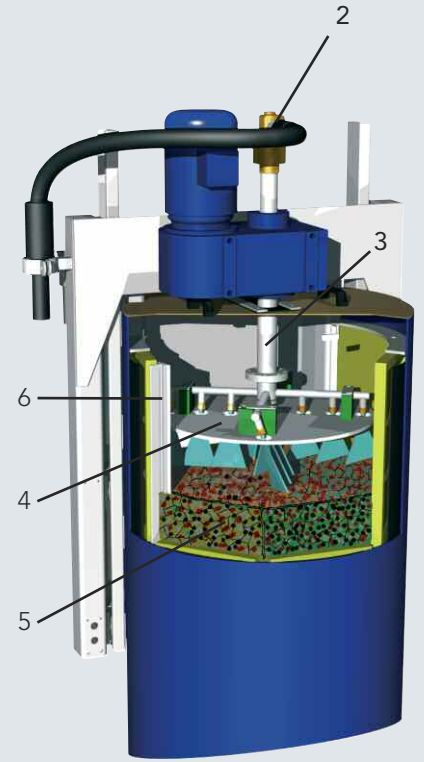


Material feed



- 1 Feed hopper with raw material
- 2 Rotary feedthrough for high-pressure water pipe
- 3 Rotor drive shaft
- 4 Washing rotor with high-pressure nozzles
- 5 Material bed inside washing drum
- 6 PU filter panel for waste water discharge
- 7 Separate drain pipe for waste water
- 8 Corrugated-edged belt with washed bulk material

HYDRO-CLEAN® Schematic drawing with one washing rotor



Washing drum in detail

UP TO 60%

LESS WATER CIRCULATION

Cleaning by high-pressure water jets

The cleaning of the bulk material to remove adhering fine mineral particles and to dissolve any agglomerates that it may contain takes place in the HYDRO-CLEAN® high-pressure washing system in two operations:

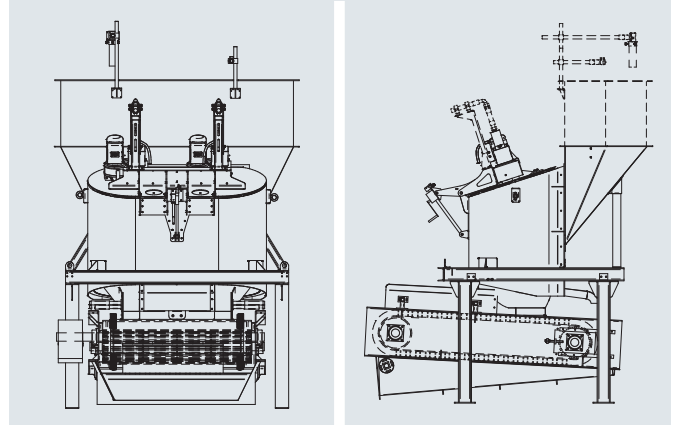
The feed material passes into the washing drum of the HYDRO-CLEAN® which contains one or two washing rotors depending on the size. The washing rotors work with rotating, high-pressure water jets which are directed onto raw material with a size of 0/120 mm by the rotor nozzles. This action ploughs through and turns over the raw material. In doing so, the adhering minerals and agglomerates are exposed and the fine content is dispersed and separated with the waste water.

The washed particles are continuously removed by means of a corrugated-edged belt ready for subsequent water spraying and classification.

The high-pressure water pump is driven by an electric motor and is mounted within the high-pressure washing system. In areas of unstable energy supply, a diesel aggregate produce the electricity.

Type

- HYDRO-CLEAN® 350
- HYDRO-CLEAN® 700
- HYDRO-CLEAN® 1000
- HYDRO-CLEAN® 2000



HYDRO-CLEAN® 2000 with two washing rotors



Washing rotor with rotating high-pressure water jets



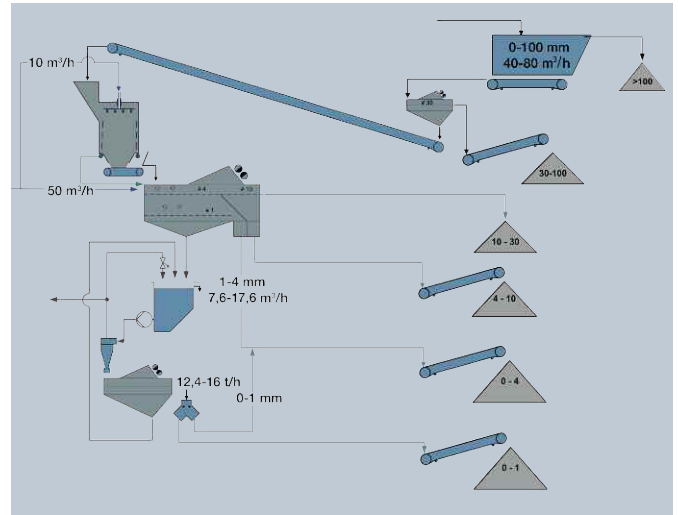
System technology: 1 Classifying screen – 2 HYDRO-CLEAN® – 3 Scoop wheel

SLIM-LINE **SYSTEM DESIGN**

Due to its compact size and weight, overall operating and structural costs are considerably lower than with traditional washing systems – which also require more equipment and a greater footprint. A traditional washing system can require up to three screens along with a log washer or screw. With a HYDRO-CLEAN® unit, the producer only needs an additional wash screen for the HYDRO-CLEAN® discharged material.

Advantages and benefits

- Minimal wear, as all moving machine parts of the washing rotor unit are located outside the material flow
- Frugal use of water as a natural resource of 0.1 to 0.2 m³ per tonne of feed raw material
- Profit increase by reducing operating costs
- High availability thanks to optimum workmanship and selected components
- Excellent cleaning of the feed material resulting from the high-pressure water jets penetrating the pores and crevices of the required fraction
- Gentle handling of pure noble metals and precious stones in the washing process
- High throughput rate of up to 320 t/h
- Ideal for cleaning clayey/loamy components in excavated material with a size of 0/120 mm
- Maintenance-friendly thanks to modular system concept
- Minimal water consumption reduces the amount of waste water circulation and reduces operating costs
- Compact design for easy system integration
- Clear and simple operation
- The use of diesel aggregates are possible
- Electrical control system design ranging from „high-tech“ to „keep it simple“ depending on requirements for every application, location and type of operating personnel
- Innovative high-pressure washing system,
Made in Germany



Schematic diagram of the washing process

Sectors

- Sand and gravel processing
- Alluvial gold extraction
- Track ballast processing
- Diamond processing
- Building rubble recycling
- Moraine gravel processing
- Spoil heap recycling
- Bauxite processing
- Gypsum/anhydrite processing

HYDRO-CLEAN® 350 is available as a test and hire unit for washing trials on site.

HAYER & BOECKER OHG

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