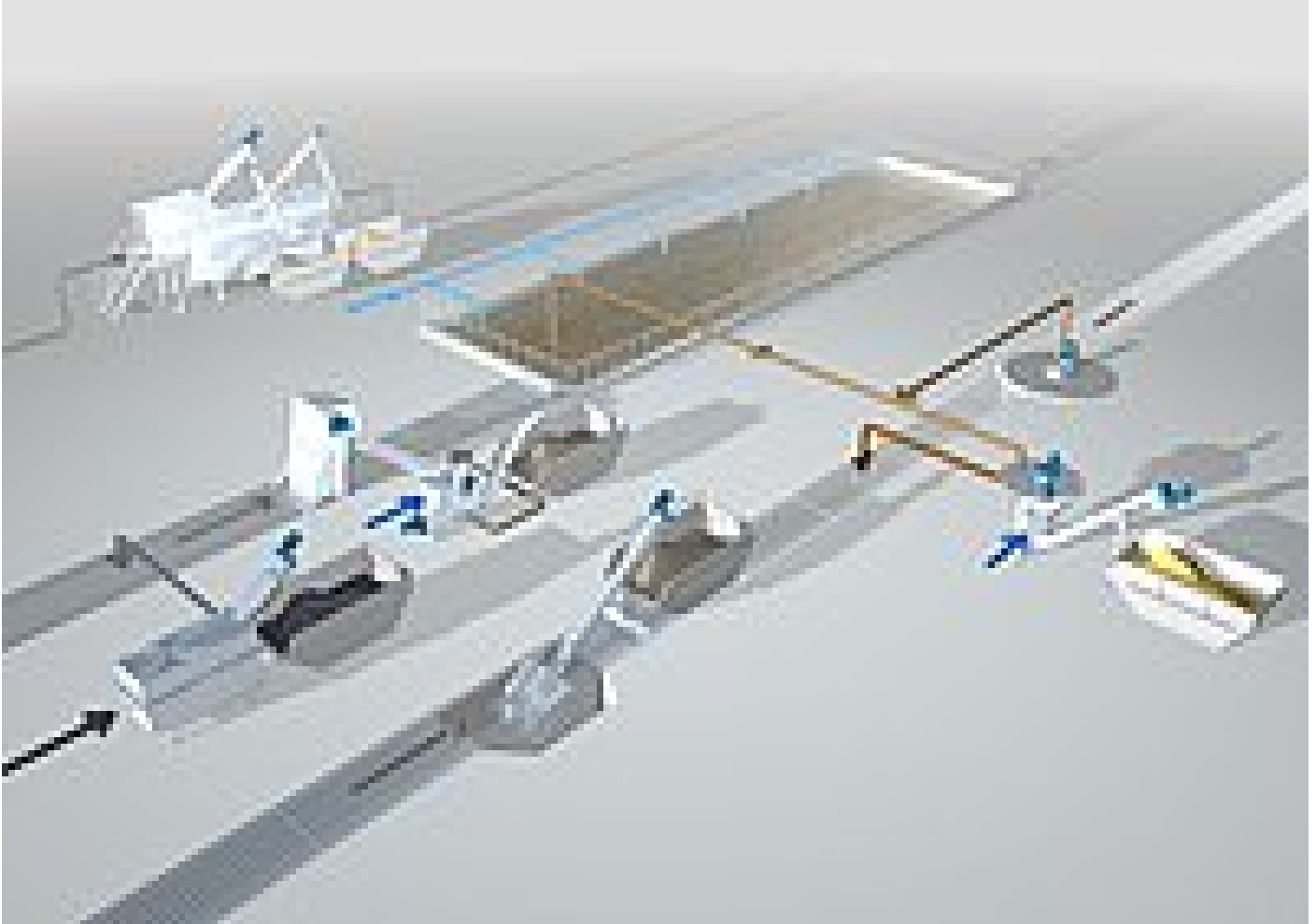


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## Energy-Efficient Mechanical Pre-treatment



Though pre-treatment requires only a small fraction of a plant's power, its energy-efficiency can be increased.

The following units should be investigated:

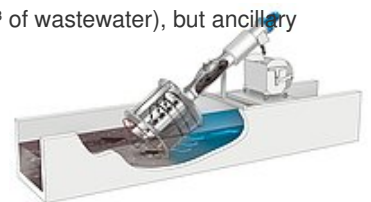
- **Pumping and lifting**
- **Screening and screenings treatment**
- **Grit removal and treatment**

### Screening and Screenings Treatment

Energy consumption of screens, screening conveyors and wash-presses is low (0.5 – 1.5 Wh per m<sup>3</sup> of wastewater), but ancillary equipment can consume much energy.

The following should be considered in respect to selection and application of [HUBER Screens](#):

- Rotating screens, e.g. our [ROTAMAT® Screens](#), consume less power than screens with travelling rakes.
- Power consumption of spray water supply is significant and must be taken into account.
- Power consumption of effective screenings washing and compaction (See e.g. [Wash-Presses WAP](#)) is negligible in comparison with fuel and cost savings for transport and disposal.
- Ventilation, heating and odour control of buildings consumes much energy. Bagging of screenings can avoid or reduce such



- Outdoor installation with thermal insulation and trace heating, where necessary for frost protection, not only saves construction costs but also heating and ventilation energy.

## Grit Removal and Treatment

Grit traps should be designed to remove over 95 % of sand particles with a diameter of 0.2 mm.

State-of-the-art equipment

- Aerated or not aerated grit channel with optional lateral grease trap (See our [ROTAMAT® Longitudinal Grit Trap Ro 6](#));
- Circular aerated grit chamber (See our [HUBER Circular Grit Trap HRSF](#));
- Circular vortex grit chamber with central propeller (See our [Circular HUBER Vortex Grit Chamber VORMAX](#)).



Removed grit slurries contain organic solids. Their organic content can be somewhat reduced with grit classifiers (See our [COANDA Grit Classifier RoSF 3](#)). However, only state-of-the-art grit washing can produce clean and reusable grit (See our [COANDA Grit Washing Plant RoSF 4](#)).

The following aspects should be considered:

- Circular Vortex grit chambers, like our [VORMAX Grit Trap](#), are more compact and consume far less power than aerated grit channels.
- Power consumption of grit channel aeration is 0.3 – 1.0 kWh/(PT•a).
- Even with good aeration and after classification, removed grit slurries still contain 20 - 50 % volatile solids plus much water.
- Our [Grit Washer RoSF 4](#) produces clean and reusable grit with < 3 % organics and < 10 % water with a power consumption of only around 0.1 kWh/(PT•a).
- Grit chamber aeration is not needed, or can be reduced, where grit slurry is thoroughly washed. This saves much power.
- Mass reduction by effective grit washing is 50 % or more. Fuel consumption and costs for transportation and disposal are thus minimized.

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