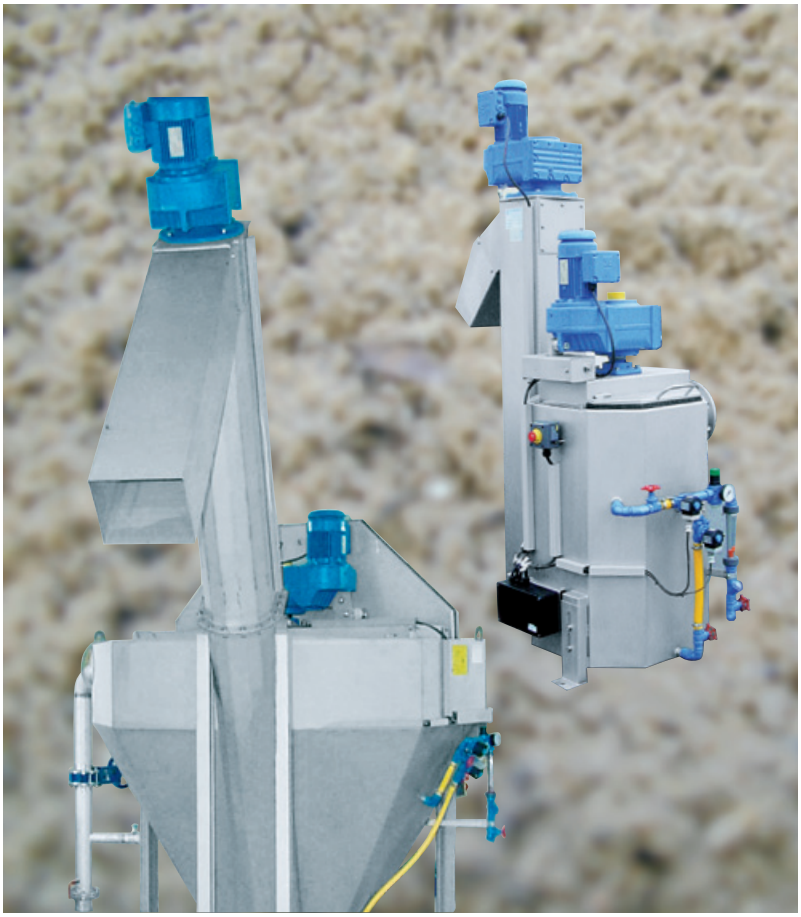


BILFINGER WATER TECHNOLOGIES

NOGGERATH® Sand Washer SW & SSW

TASK

Significant reduction of disposal costs by lowering the amount of organic matter in the washed sand.

SOLUTION

Bilfinger Water Technologies offers you the largest range of sand washing systems worldwide and the most comprehensive variety of constructional and process technological designs. We are, therefore, able to optimally tailor the sand treatment process to meet your specific requirements.

The NOGGERATH® Sand Washer SW provides washed wastewater sand with an ignition loss of less than 3 % and thus complies with the legal limit in accordance with the technical regulations for the disposal of urban waste to a grade 1 landfill. The cost saving achieved between a landfill site grade 1 and grade 2 is approx. 80 to 90 %. Moreover, there is a significant reduction in the amount of residue sand for disposal and, therefore, considerable savings on transport costs are achieved.

The recirculation of the washed organic matter leads to an increase in nutrient availability. This means that an addition of external carbon might not be necessary for the denitrification process and there is also an overall improvement in gas production in the sludge digestion.

BENEFITS

- Significant reduction in disposal costs due to lowering of the percentage of organic matter to ≤ 3 %
- Significant reduction in storage and transport costs due to reduction in mass of up to 80 %, depending on the raw material
- Washed sand throughput 0.1 – 1.0 m^3/h
- Coarse solids processible up to 35 mm
- Less fine sand discharge and lower wash water consumption
- Less turbulence in the washing zone and, therefore, a low ascending speed

BILFINGER WATER TECHNOLOGIES


SSW 750


SSW 1000

FUNCTION – NOGGERATH® SAND WASHER SW

The sand washer is designed to wash out the organic matter from pre-dewatered grit trap settlings or from sewer sand. The organic constituents are mechanically dissolved by means of an integrated agitator or swirled up and washed out by an infeed of washing water in an up-current flow process. The washed constituents are flushed out with the rinsing water through the outlet connections and conducted into the wastewater treatment plant for further processing. The washed sand is discharged from the sand washing tank by means of a spiral conveyor which operates in an interval mode.

FUNCTION – NOGGERATH® CIRCULAR GRIT CHAMBER SAND WASHER SSW

The sand / liquid mixture is fed tangentially into the circular grit chamber and after an orbit of approximately 300° flows into the outlet of the washing tank via an overflow weir. In the course of this circular movement, the sand sinks to the bottom of the washing tank by gravity. The circulating movement of the agitator mounted in the washing tank causes a separation of the sand into light and heavy components. The agitator fingers mounted in the lower area of the washing tank rub off organic residues which have adhered to the sand. The residues are washed out in an up-current flow process.

The washed sand accumulates at the bottom of the washing tank and thus creates an increase in the torque to be applied by the agitator motor. The sand is removed by the discharge conveyor when a certain density of sand has been reached – this level is set as resisting torque on the motor load monitor and the removal is carried out at pre-determined intervals.

FUNCTION – NOGGERATH® LONGITUDINAL GRIT TRAP SAND WASHER SSW

A longitudinal grit trap is installed upstream of the Sand Washer SW to cope with larger infeed loads or to enable the washing of sand / water mixtures such as, for example, sewer sand. As a result of the buffer volumes of the longitudinal grit trap and the resulting calming of the flow, the contaminated sand sinks directly into the grit collector spiral under its own weight. The water is conducted into the subsequent wastewater treatment process. The contaminated sand is transported to the sand washer by the rotating movement of the spirals. The sand washing process is equivalent to that of the Sand Washer SW as described above.

PRODUCT VARIANTS

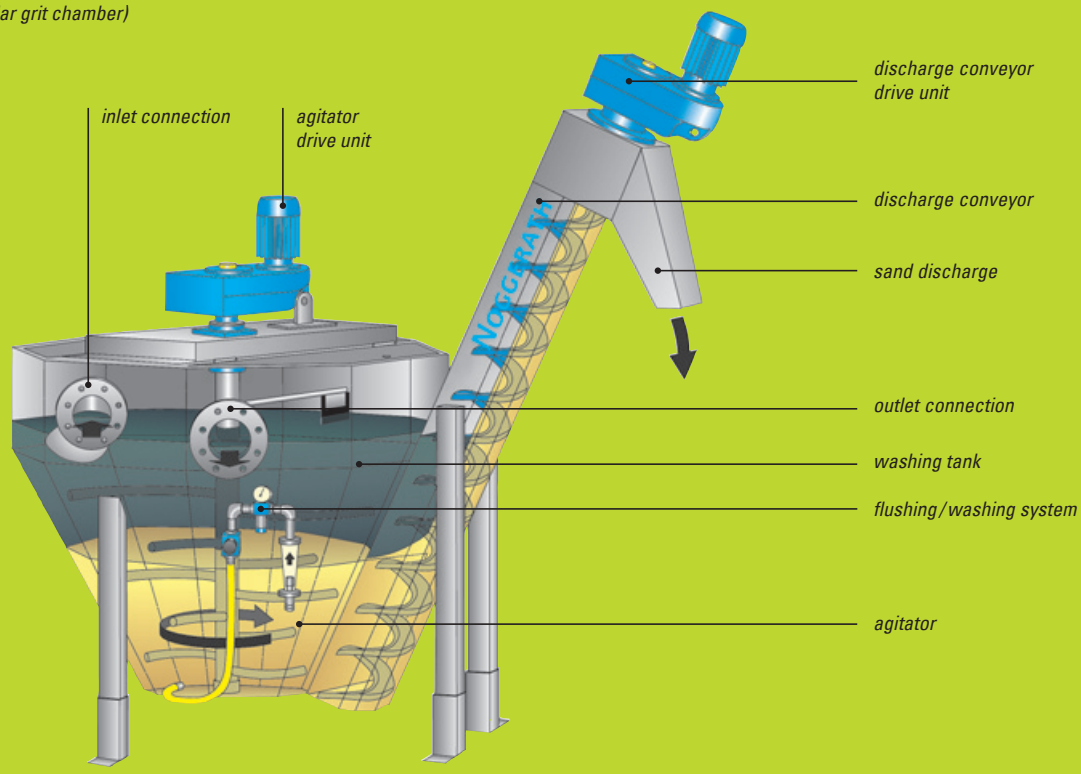
The sand washer is designed for dry or wet feeding, depending on the respective requirements:

NOGGERATH® Sand Washer SW
Feeding of dewatered moist sand (dry feeding)

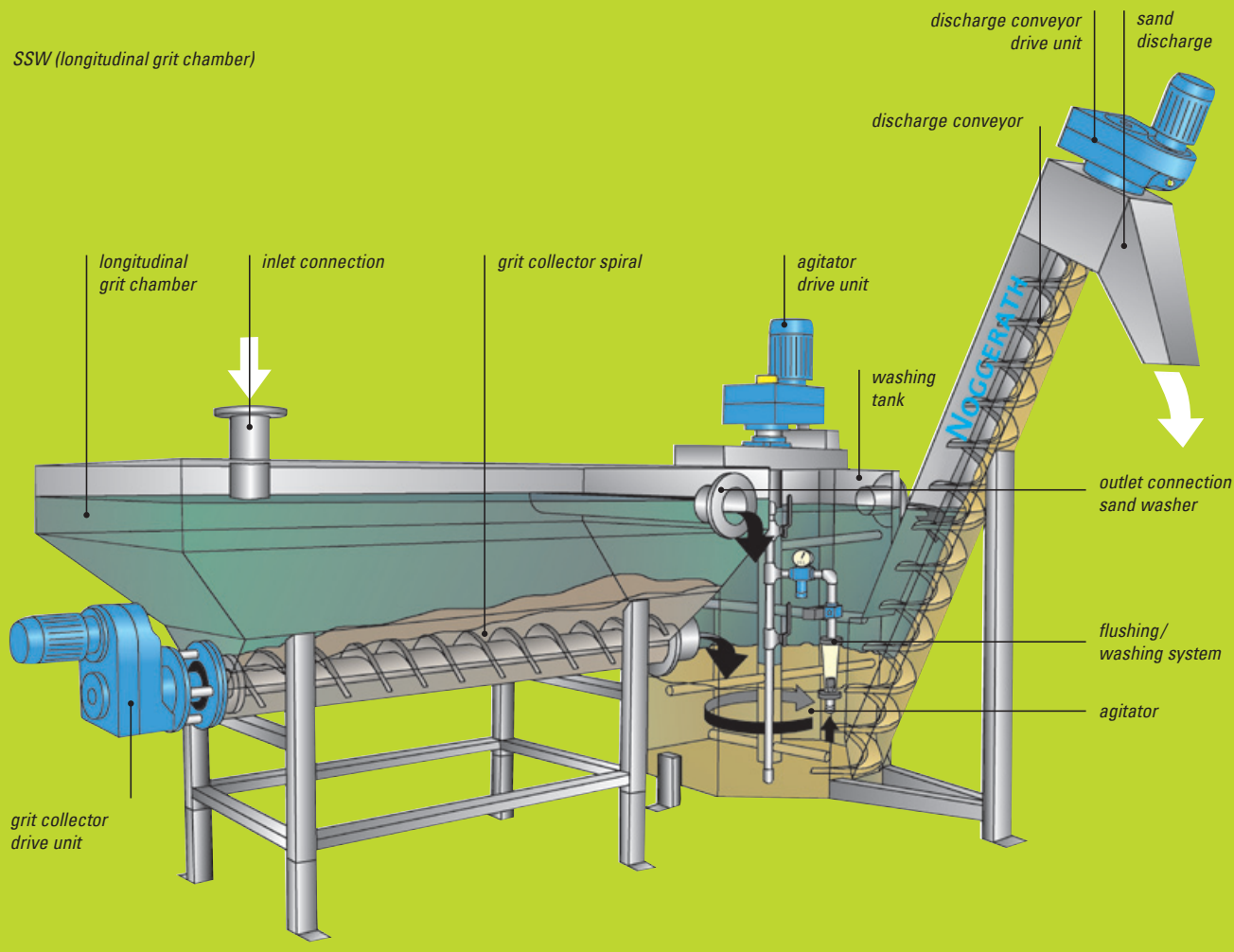
NOGGERATH® Sand Trap Sand Washer SSW
Feeding of sand / water mixtures (wet feeding)

- Longitudinal Sand Trap-Sand Washer SSW 100, SSW 200, SSW 400 and SSW 1000:
  – as a combination of an upstream Longitudinal Sand Trap and Sand Washer
  – strictly mechanical separation between wash and sedimentation tanks
- Circular Grit Trap-Sand Washer SSW 300, SSW 750 and SSW 900:
  – tangential grit trap and sand washer in one common tank

SSW conical (circular grit chamber)



SSW (longitudinal grit chamber)



DESIGN SIZES & PERFORMANCE

Conical (combined settling and washing tank)		
	Washed sand output [m³/h]	**max. infeed [l/sek.]**
SSW 300	0.3	8
SSW 750	0.75	12
SSW 900	0.9	16

Cylindrical (separate settling and washing tank)		
	Washed sand output [m³/h]	**max. infeed [l/sek.]***
(S)SW 100	0.1	10
(S)SW 200	0.2	20
(S)SW 400	0.4	30
(S)SW 1000	1.0	up to 60

** In SSW design in standard design length*
Special design: SWC 80 (similar to SW 100)

MATERIALS

Tanks, covers, supports:	stainless steel EN 1.4301 (AISI 304), alternatively stainless steel EN 1.4571 (AISI 316Ti)
Spirals:	special steel in accordance with NOGGERATH® standard, alternatively stainless steel EN 1.4571 (AISI 316Ti)
Agitator arms:	HARDOX

FIELDS OF OPERATION

In municipal wastewater treatment:

- Sand dewatering
- Sand washing (grit trap settlings)
- Washing of sewer sand

UNIQUE FEATURES

The well-designed construction ensures a long service life with minimal wear and tear:

- Robust, thick-flight spirals
- Spirals and agitator have bearings at drive end only, no submerged bearings
- No separate outlet for organic matter required
- No compressed air required

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