Aqseptence Group

Noggerath®

Pre- & Primary Treatment Systems

Agenda

1. Product Family Sieves
2. Product Family Screenings Handling
3. Product Family Compact Combi Unit
4. Product Family Grit Treatment and Sewer Grit Receiving

Aqseptence Group

Noggerath®

Product Family Sieves

Noggerath® Product Family Sieves

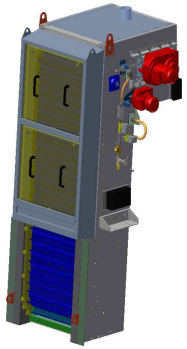
Product Overview

Aqseptence Group

Sieves

Band Screens

Continuous Belt Screen BS-C / XL



Band Screen Centre-Flo CF

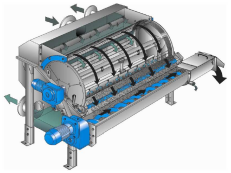
Drum Screens

Rotating Bar Screen RBS-DD

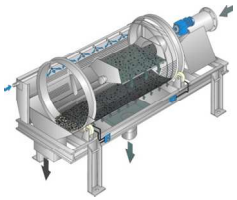
Rotary Drum Screen RSI-DD

Rotary Drum Screen RSI-DF

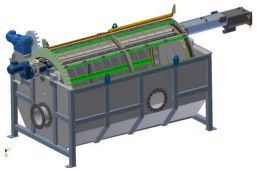
Rotary Drum Screen RSH-E



Rotary Drum Screen RSH-I



Rotary Drum Screen RSH-MG



Spiral Sieves

Spiral Sieve NSI / NSI-D

Spiral Sieve NSI-T / NSI-T-D

Spiral Sieve NSI-SRS

Spiral Sieve NSI-V

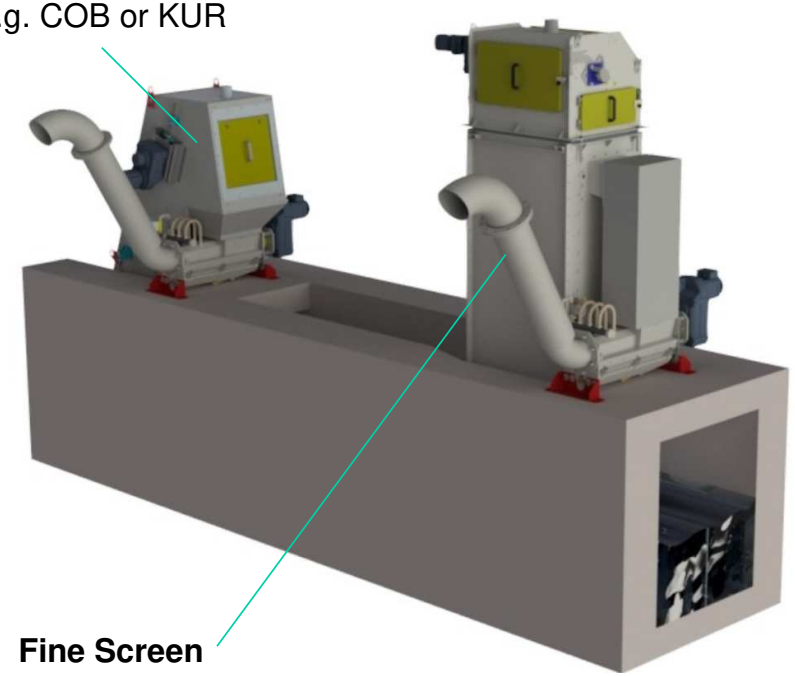
Overflow Screen OVF

Sieves

Screening/Sieving Plant Layout Needs

- As a fine screen in a 2-stage screening in STP headworks downstream of a coarse screen with bar spacing typically between 15-30 mm (see illustration)
- As a fine screen in a 1-stage screening STP headworks which is connected to pumping stations (impeller opening not larger than 100 mm) or subsequent to vacuum sewer systems (no gravity flow - see www.roevac.com)
- As a fine screen in a 1-stage screening STP headworks which is connected to a separative sewerage system (wastewater without stormwater)
- As a fine screen, upstream of membrane bioreactors (MBR processes)
- Channel inlet velocities typically should not be higher than 1.2 m/s

Coarse Screen
e.g. COB or KUR



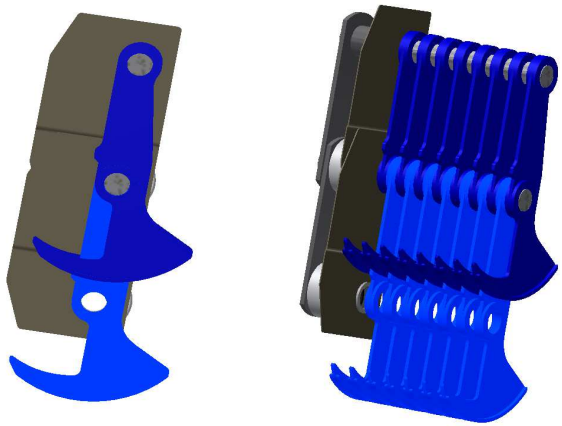
Fine Screen
e.g. Centre-Flo™ CF or RSI

Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Our **Noggerath® Continuous Belt Screen BS-C/ BS-XL** is a fine screen especially designed for mechanical pretreatment of waste water respectively process water as well as for the recovery of recyclable Materials

The most important feature is a slowly continuous endless sieve belt which consists of a multitude of identical elements

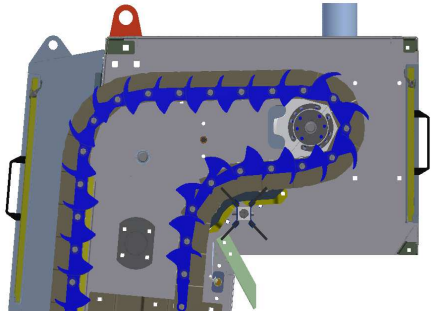


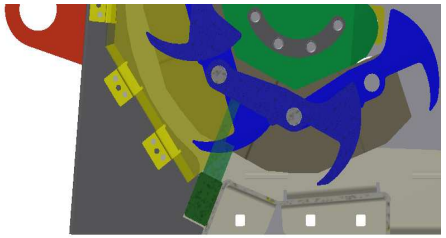
Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Function

- Solids captured by the screen accumulate in the sieve belt and eventually the upstream water level will increase
- On reaching the set operating water level, the screen rotates until the low operating water level is reached
- Solids conveyed to the header of the screen and at the deflection, the hook elements automatically swivel out
- Solids fall down vertically through the discharge
- At the next reverse deflection, the hook elements automatically swivel in
- A stripping device wipe off adhering solids from the screen belt and a spray bar additionally cleans the screen belt
- A flushing system cleans the upper edge of the chute
- Possible blockage is monitored with a motor load control





Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Sizes & Technical Data

	BS-C	BS-XL
Channel width [mm]	up to 1200	up to 3000
Channel depth [mm]	min. 500	min. 800
Discharge height [mm]	1000 - 7000	1300 - 10000
Bed drop [mm]	140	260
Screen mesh [mm]	1; 3; 6; (15)	1; 3; 6; (10; 15)
Throughput capacity [l/s]	up to 300	up to 3500

Materials & Equipment

Equipment	Materials
Machine frame	Stainless steel AISI 304 or AISI 316L
Screening element shafts	Stainless steel AISI 304 or AISI 316L
Filter elements	ABS plastic
Guide rails	Stainless steel AISI 304 or AISI 316L
Chain studs, bushes, rollers	Stainless steel AISI 420n hardened
Automatic spray bar with solenoid valve for belt cleaning	Brass or Stainless steel
Automatic spray bar with solenoid valve for discharge	Brass or Stainless steel
Stripping device (paddel)	Rubber
Lateral rubber strips for sealing the channel	Rubber
Geared motor SEW	

Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Advantages / Features

- High solids discharge capacities, e.g. at peak loads
- Additional filter effect due to accumulation of solids on screen
- Gentle transportation of solids
- No submerged bearings
- Self-cleaning to a high extent
- Overload protection
- No rolling back of solids
- Small footprint due to steep installation angle of 85°
- Easy to be integrated into tank and compact systems
- Low maintenance
- Replacement of each single filter elements possible

Band Screens

Noggerath® Continuous Belt Screen BS-C / XL

Noggerath® Band Screen Centre-Flo CF

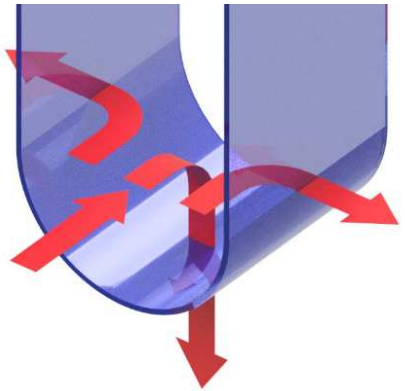
Our **Noggerath® Band Screen Centre-Flo™ CF** is a fine screen especially designed for mechanical pretreatment of wastewater and process water as well as for the recovery of recyclable Materials.

- Each machine is custom designed to suit the specific treatment needs, allowing the machine to handle all treatment processes, from conventional to membranes
- The product is manufactured either in Germany or Australia

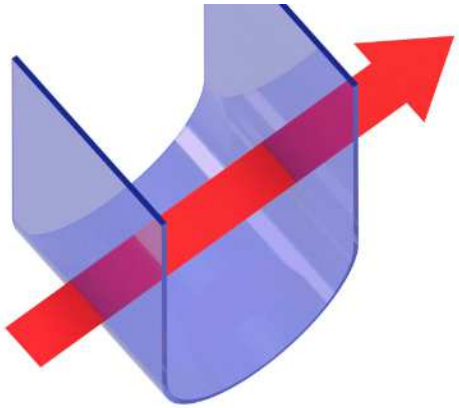
Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Band Screen Centre-Flo



Circular Revolving Screen



- The waste water enters the in-line gate of the screening machine between the sieve belt and guided by the rear wall
- The debris is being collected inside the screen
- The filtered water leaves the screen from inside-to-outside by both side 90°
- This design results in a large open area so increasing the screen capture rate as well as improved hydraulic capacity

Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Function

- Solids captured with the screening machine accumulate along the panels and eventually the upstream water level will increase
- On reaching the set operating water level, the screen rotates until the low triggering value is reached
- The captured screenings are carried by the filter panels and for larger solids by the lifters to the discharge cute
- At the upper turning point, the screenings are backflushed by a wash water system, located on the outside of the belt, into a trough installed near the top of the unit

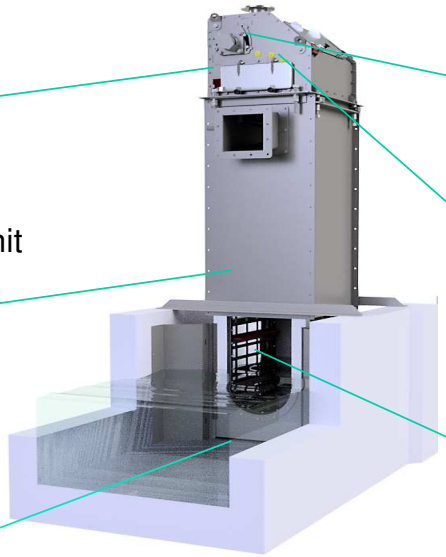
Band Screens

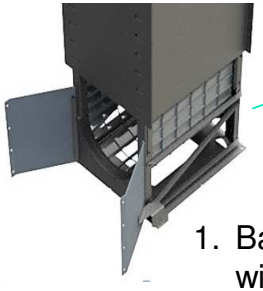
Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Machine components

3. Top frame with drive unit and spray water system

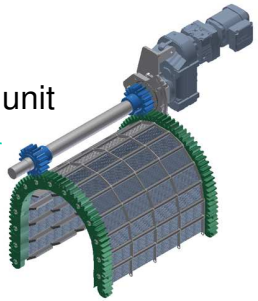
2. Main frame with discharge and guides

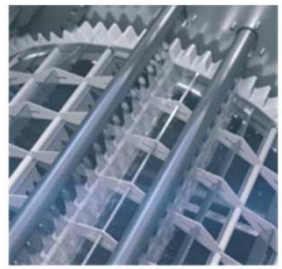




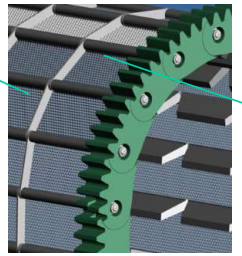
1. Base plate with deflector plates

4. Drive unit





7. Spray Water System



5. Sieve belt

6. Honeycomb filter panel

Band Screens

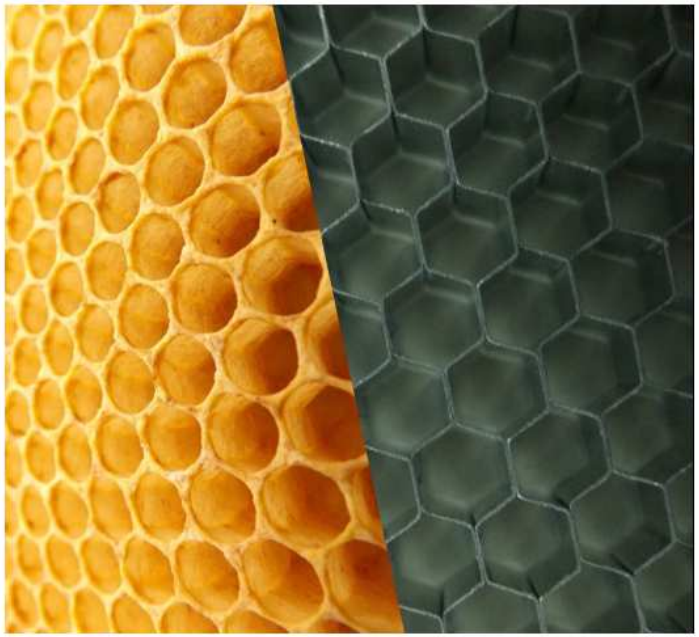
Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Unique selling points

We believe,
nature develops the best solutions, like the honeycomb

Inspired by nature we have made use
of this engineering masterpiece

Honeycomb Hex Hi-Flow Filter Panel
- high stability
- maximum space usage
- optimized open area
- higher flow throughput
- increased screenings capture rate



Centre-Flo™ Honeycomb / Hex Hi-Flow Filter Panel

Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Unique selling points

- External chainless drive (drive sprocket and shaft on clean side of screen)
- Guide and drive link arrangement means no wearing chains to be replace on the sieve belt
- For assembly and/or re-assembly in an event of repairs, the base plate structure bolted to the channel floor easily guides the main frame

Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Sizes & Technical Data

- Model designation based on width and depth of Centre-Flo unit, **CF 450-600**
- The height is customized to suit installation (max. height ~ 8m)

Flow capacities from 200l/s to 3000 l/s
(can be higher depending on channel dimensions and downstream level)

Aperture / opening
- Perforated Panel hole width 1 - 6 mm
- Hex panel (Honeycomb Hex panel) 2 - 10 mm

Panel open area
- 64% on Polyurethane Perforated Panel (multi head drilled)
- 92% on Stainless Steel Honeycomb Hex panel

Gate Width	Belt or panel depth (length in flow direction)									
	300	**450**	**600**	**750**	**900**	**1050**	**1200**	**1500**	1800	2100
300	x	x	x							
450	x	x	x	x	x					
600		x	x	x	x	x	x			
750			x	x	x	x	x	x		
900				x	x	x	x	x	x	
1050					x	x	x	x	x	x
1200					x	x	x	x	x	x

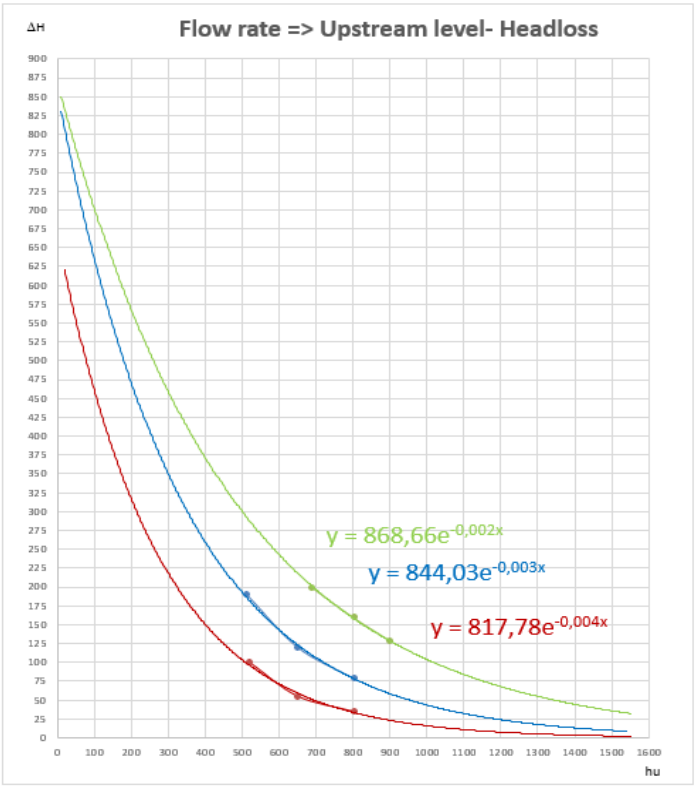
Materials
- Screen panels → Polypropylene PP, UHMW PE, or Stainless Steel AISI 304 or 316L
- Guide links → UHMW PE
- Lifters → Injection moulded PVC
- Gaskets → EPDM rubber
- Fixings, frame, etc. → Stainless Steel AISI 304 or 316L (others on request)

Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

Hydraulic testing by Rosenberger Engineering GmbH

- Test series with three different Band Screen Centre-Flo™ sizes
- Each size is fed with three different flow rates
- Each flow rate is tested with four different downstream water levels
- Blinding simulation of filter elements
- For other sizes, the values were calculated using exponential equations



Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

NSEF (UK) Test

Noggerath® Band Screen Centre-Flo™ CF was successfully tested at the National Screen Evaluation Facility, August 2018

Results :

- Average screen capture rate with 3mm perf **= 92%**
- Average screen capture rate with 6mm perf **= 83%**
- Average screen capture rate with 5mm Honeycomb (hex-panel) **= 87%**

Comparison with traditional / conventional perforated plate screen

	Noggerath® Band Screen Centre-Flo™, hex 5mm	Conventional perforated plate screen, hole 5mm
Open area	**90%**	**60%**
Screen capture rate	**87%**	**78%**

Advantages / Features of increased hydraulic performance :

- Require smaller channel to pass flow = reduced civil costs for new inlet works
- Ability to retrofit into existing channels with challenging hydraulics
- **Smaller unit can be offered** = equipment cost savings
- Lower panel-through flow velocities possible due to more open area

Band Screens

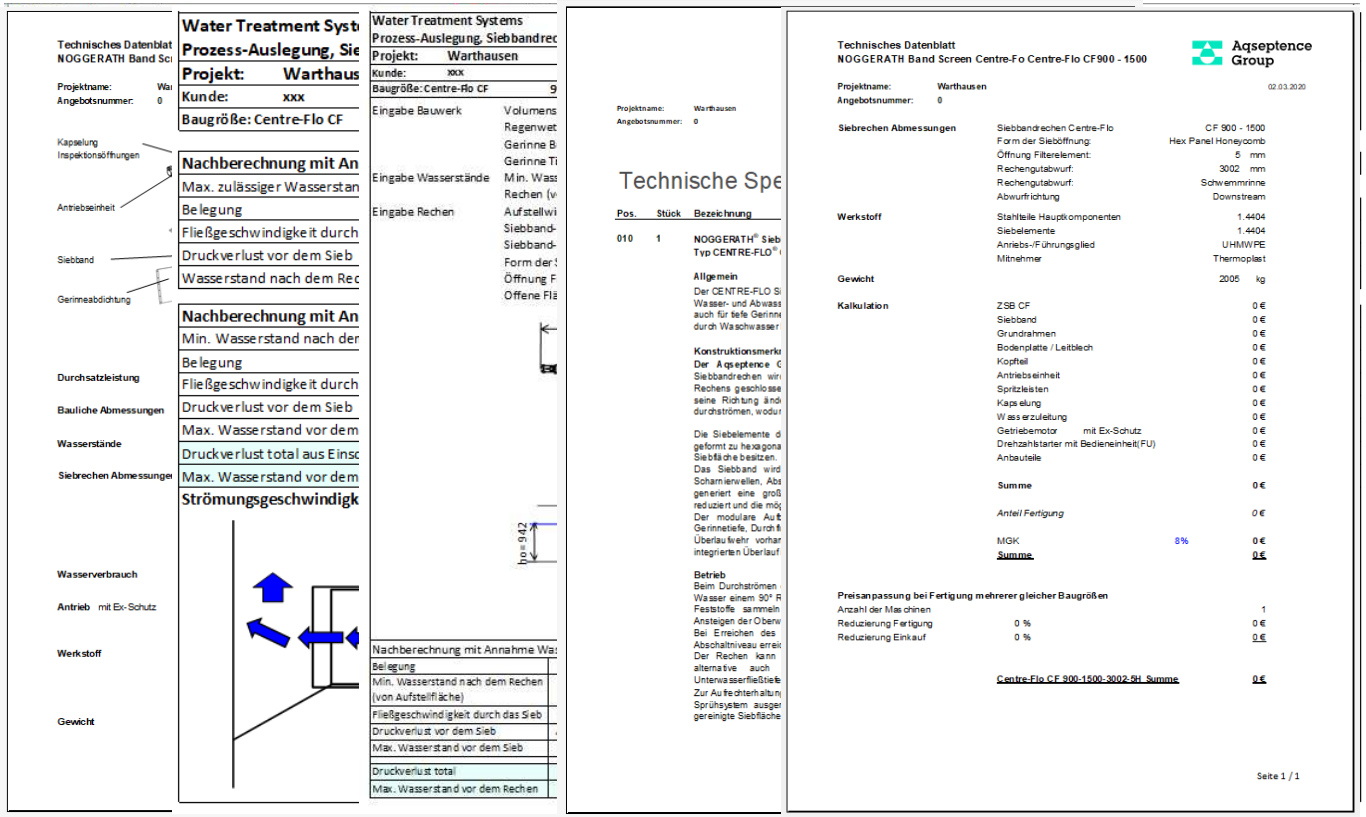
Noggerath® Continuous Belt Screen BS-C / XL

Noggerath® Band Screen Centre-Flo CF

Process-Design-Calculation-Program

- An VBA based Excel-program outputs all values for the project after entering the relevant data

- All departments already have the necessary information about the project-related machine when preparing a quotation



Band Screens

Noggerath® Continuous Belt Screen BS-C / XL | Noggerath® Band Screen Centre-Flo CF

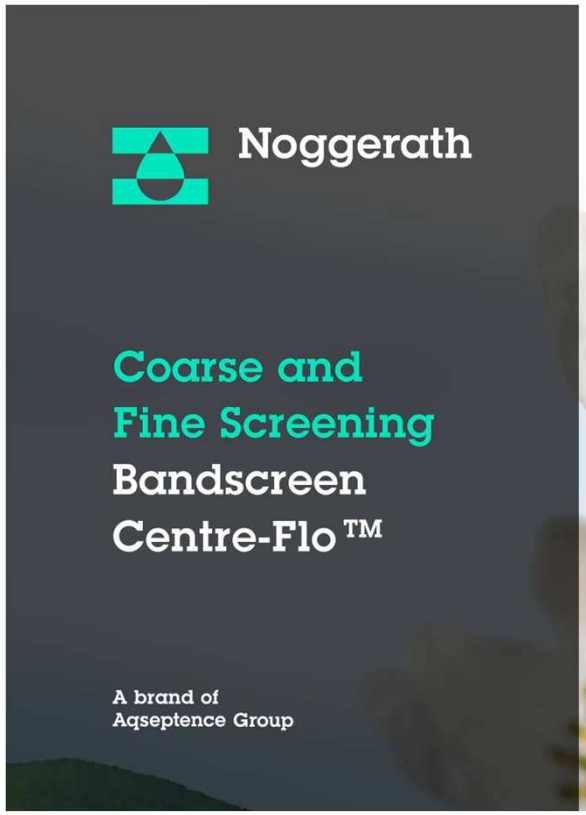
Advantages / Features

- Clean side and dirty side strictly separated, i.e. no “taking over” of solids
- Externally arranged drive, no deposit on drive elements, good accessibility during maintenance
- Guide and drive link without chains, wear-resistant, easy to maintain
- Individually exchangeable screening elements without connecting parts (click-in-groove)
- Honeycomb screening element with extremely high open area of up to 90%
- The thickness of our panels is designed specifically to reduce hair pinning
- Openings of the panels made with full bore (non-tapered holes)
- Maximum open area
- No clogging at high pressure cleaning
- Flexibility for custom designs which is especially useful for retrofit projects

Band Screens

Noggerath® Continuous Belt Screen BS-C / XL

Noggerath® Band Screen Centre-Flo CF



Video

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

The **Noggerath® Rotating Bar Screen RBS-DD** (double drive) is combined machine consisting of a screen, a spiral conveyor, a screenings compactor and a washing zone.
The product is manufactured either in Germany or Italy.

- The Rotating Bar Screen can be used as a compact Septage Receiving Station for the effluent discharged from vacuum trucks (septage tank collection)

- The Rotating Bar Screen has two main features:
  - a screen drum composed by high performance and very robust bars type teardrop profile Papro (compared to the perforated screen or traditional flat bars can handle higher capacities)
  - the cleaning rake and spiral conveyor are independently driven. This solution allows a screen drum design in the inlet area without a suspended rotary arm to minimize the clogging risk

Noggerath® Product Family Sieves

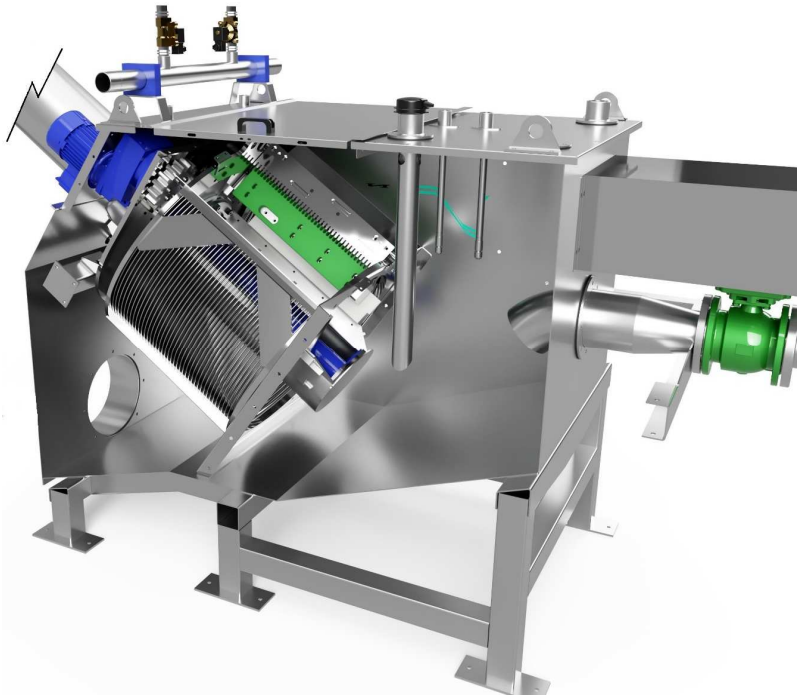
Product Overview

Aqseptence Group

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

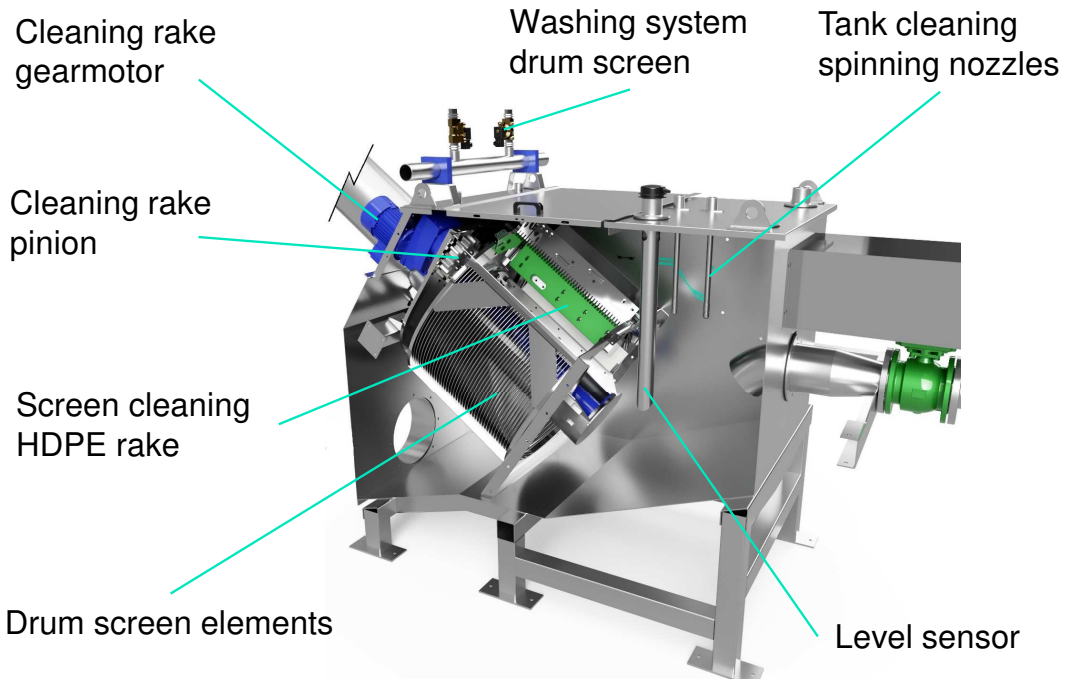
Function

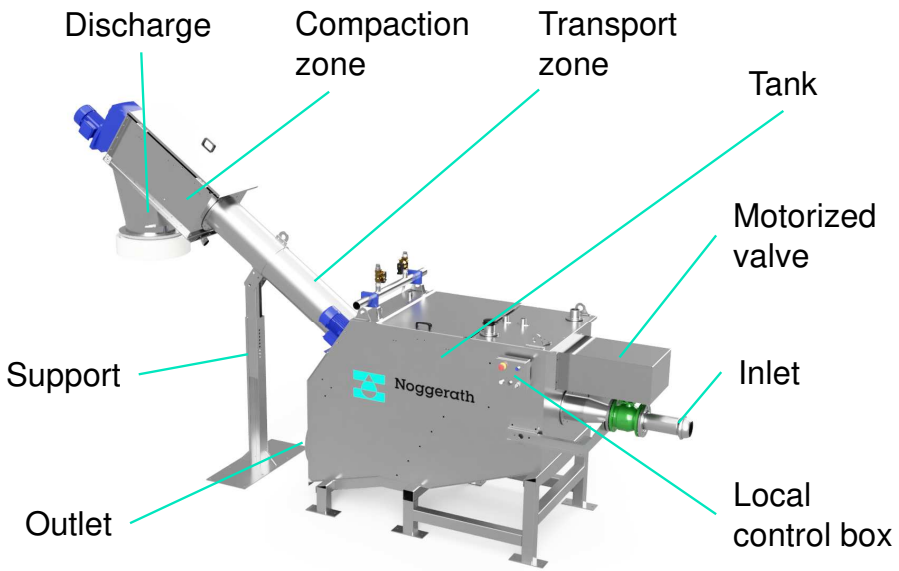
- Solids captured by the fixed bar rack drum accumulate on the inner surface of the bar rack drum cylinder and so the upstream water level will increase
- On reaching the set operating water level, the drives are activated and the rotating rake lifts the collected solids upwards and supported by a spray bar, which flushes off captured solids, drops it into the centrically arranged screw conveyor
- An additional cleaning comb installed in the discharge area removes all remaining residues
- The rotating rake and the screw conveyor starts rotating independently until the low operating water level is reached
- A spiral conveys the screenings to the compaction zone where they are dewatered, compacted and discharged by gravity to further treatment



Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Machine components



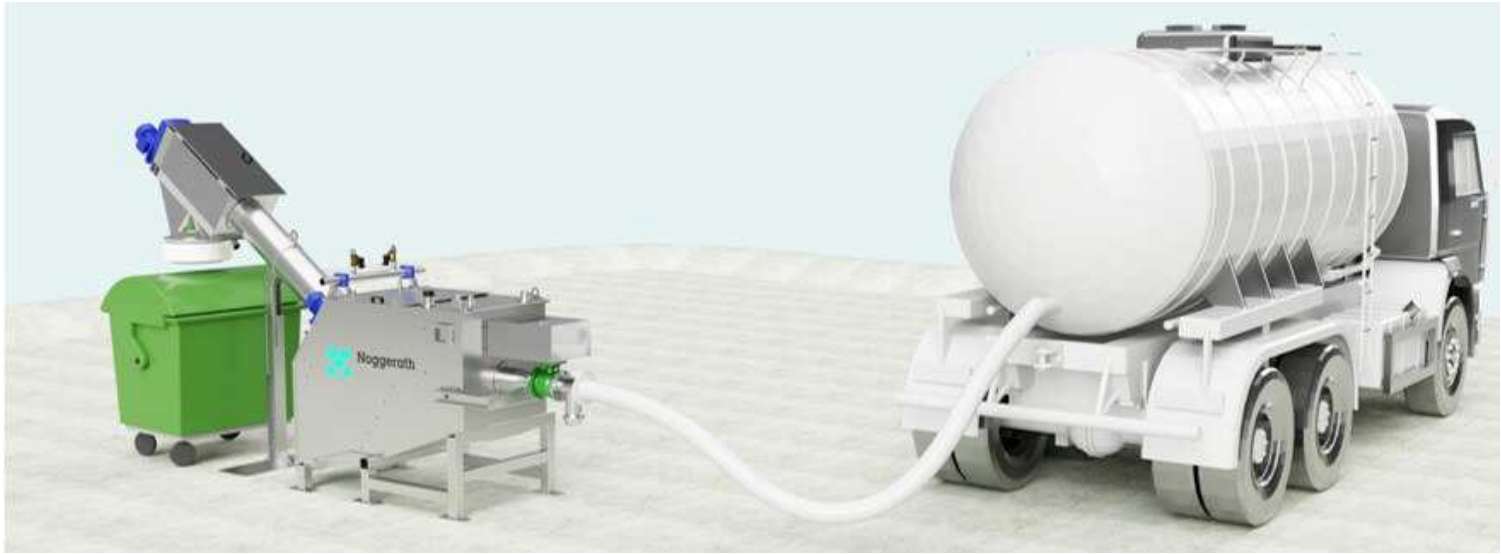


Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Septage Receiving Station RBS-SRS

The Rotating Bar Screen is typically used as a compact Septage Receiving Station for the effluent discharged from vacuum trucks (septage tank collection).

- Perrot coupling for tank with automatic ball valve
- Automatic compaction zone flushing with solenoid valve
- Automatic tank flushing with solenoid valve
- Connections for measuring unloader parameters



Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Sizes & Technical Data

Model designation based on drum diameter **RBS-DD 800**

- Drum diameter
  800 - 1200 mm
- Aperture / opening
  bar spacing 6 - 10 mm
- Throughput capacity
  up to 650l/s (2350m³/h)
- Dry substance content of screenings approx. 35 %
- Volume reduction of discharged screenings up to 70%
- Installation angle 35 °

Size Range (mm)	Bar spacing (mm)	Flow Rate * (m³/h)
800	6 - 10	680 - 874
1000	6 - 10	1180 -1520
1200	6 - 10	1983 - 2350

* Based on 400mg/l TSS concentration

Materials:

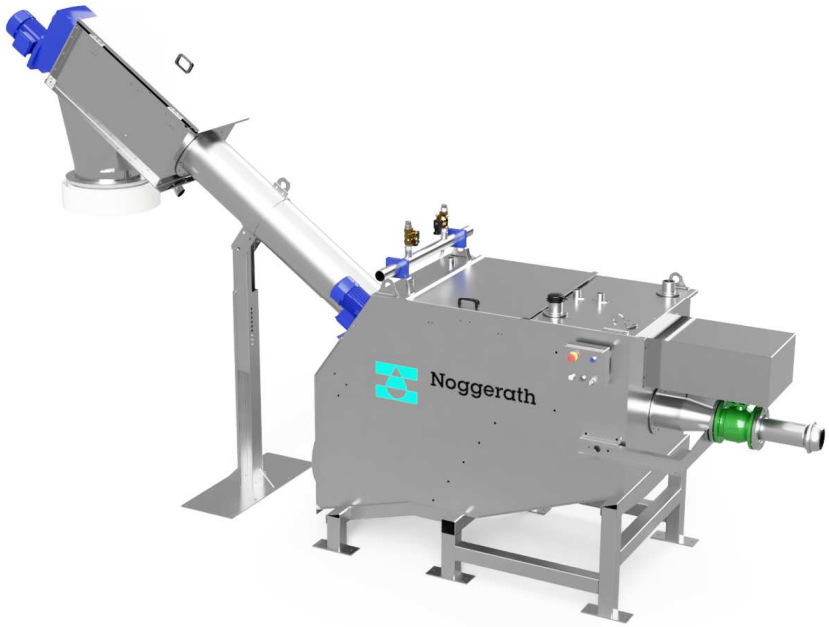
Frame, support and screen drum:
- Standard: Stainless steel AISI 304 or AISI 316L
- Others on request

Spiral :
- Special Micro Alloy Steel alternatively stainless steel AISI 304 or AISI 316L

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Advantages / Features

- Double drive, independent cleaning rake and conveyor operation
  - minimized clogging risk
  - no submerged arm in the inlet zone and more flexibility in case of high solid concentration
- Drum screen elements made by teardrop profile bars
  - reduce the hydraulic losses and maximize the flow
  - high cleaning efficiency of the drum
- Screw conveyor equipped with segmented cleaning brushes
  - simple and quick exchanges
- No submerged lower bearing
  - no wearing parts in the water
- Compact design requires less space



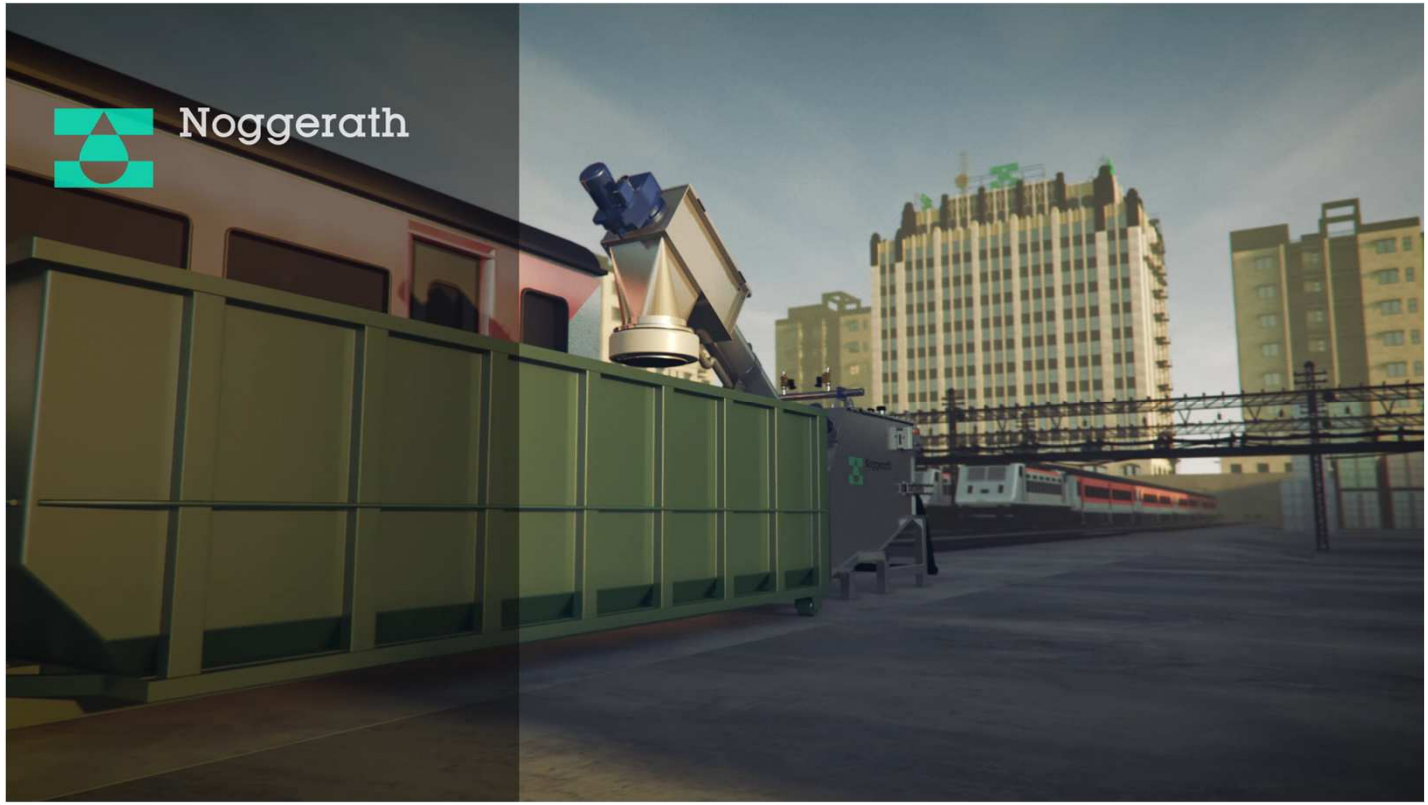
Noggerath® Product Family Sieves

Product Overview

Aqseptence Group

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Video



Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

The **Noggerath® Rotary Drum Screen RSI-SD** (single drive) is a combined machine consisting of a screen, a spiral conveyor and screenings compactor. This is a proven concept, wherein the drum is driven directly by a rotating arm of the spiral.

Function

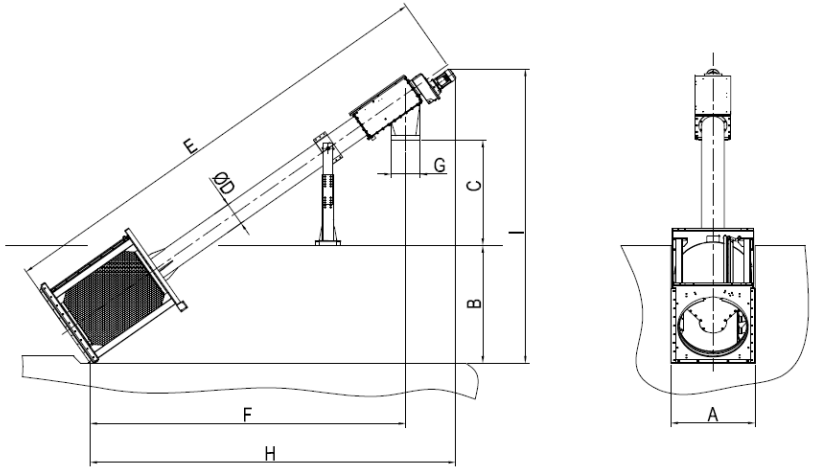
- Solids captured by the screen accumulate on the inner surface of the drum cylinder and so the upstream water level will increase
- On reaching the set operating water level, the drive is activated and the drum starts rotating until the low operating water level is reached
- Captured solids moved upwards and - supported by a spray bar - fall down into the feeding hopper of a spiral press in the drum's center
- A spiral conveys the screenings to the compaction zone where they are dewatered, compacted and discharged by gravity to further treatment

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Sizes & Technical Data

Model designation based on drum diameter / length - channel depth - discharge height from the channel bottom **RSI-SD 1400-1200-3500**

- Drum diameter
  600 - 2600 mm
- Aperture / opening
  Perforation 1 - 10 mm
  Wedge Wire 0.5 - 7 mm
- Throughput capacity
  up to 2100 l/s (7560 m³/h)
- Dry substance content of screenings approx. 35 %
- Installation angle 35 °



Model		RSI-SD-8	RSI-SD-10	RSI-SD-12	RSI-SD-14	RSI-SD-16	RSI-SD-18	RSI-SD-20	RSI-SD-22	RSI-SD-24	RSI-SD-26
A		800	1000	1200	1400	1600	1800	2000	2200	2400	2600
B		800	1000	1200	1400	1600	1800	2000	2200	2400	2600
C		1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
D		219	323	323	323	323	406	508	508	508	508
E		4800	5400	5700	5950	6150	6630	7600	7800	8000	8100
F		3350	3700	3800	3900	4000	4200	4800	5000	5200	5400
G		Ø273	Ø406	Ø406	Ø406	Ø406	Ø508	640X640	640X640	640X640	640X640
H		3850	4500	4550	4600	4750	4900	5200	5600	6240	6400
I		3010	3450	3650	3800	4000	4200	4800	5000	5250	5450

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Advantages / Features

- Screw conveyor equipped with suitable brushes in the drainage zone
  - to clean the drainage area in the conveyor
  - brushes are made in segments, bolted on the spiral, allowing an easy replacement of the worn pieces only
- Easy and fast maintenance and thus low costs due to bolted main parts of the unit
- The drum seal is designed and tested for solids down to 200 µm
- Compact design requires less space

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Noggerath® Rotary Drum Screen RSI-DD (double drive)
Contrary to the conventional technology, the sieve drum and the spiral conveyor are driven independently. This allows a drum design in the inlet area without a suspended rotary arm.
The inlet zone is permanently open and offers great benefits not for the incoming solids only, but also for the head loss.

Function

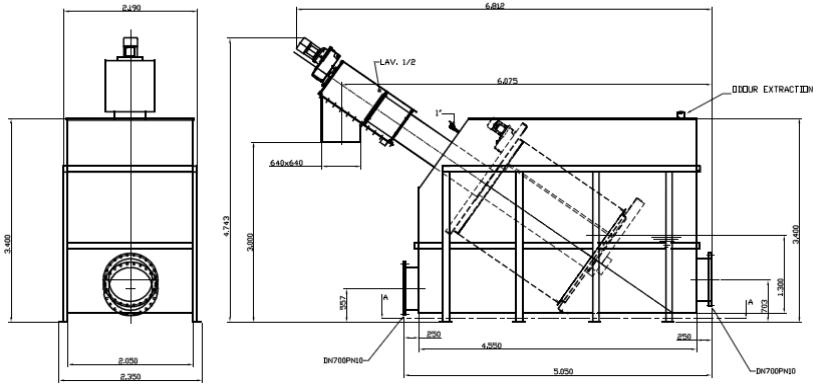
- Solids captured by the screen accumulate on the inner surface of the drum cylinder and so the upstream water level will increase
- On reaching the set operating water level, the drives are activate and the screen drum and screw conveyor starts rotating independently until the low operating water level is reached
- Captured solids moved upwards and - supported by a spray bar - fall down into the feeding hopper of a spiral press in the drum's center
- A spiral conveys the screenings to the compaction zone where they are dewatered, compacted and discharged by gravity to further treatment

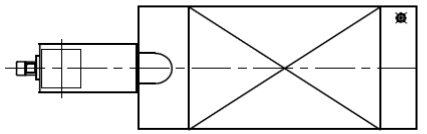
Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Sizes & Technical Data

Model designation based on drum diameter / length - channel depth - discharge height from the channel bottom **RSI-DD 1400-1200-3500**

- Drum diameter
  800 - 2600 mm
- Aperture / opening
  Perforation 1 - 10 mm
  Wedge Wire 0.5 - 7 mm
- Throughput capacity
  up to 1670 l/s (6000 m³/h)
- Dry substance content of screenings approx. 35 %
- Installation angle 35 °





Model		RSI-DD-8	RSI-DD-10	RSI-DD-12	RSI-DD-14	RSI-DD-16	RSI-DD-18	RSI-DD-20	RSI-DD-24	RSI-DD-26
A		800	1000	1200	1400	1600	1800	2000	2400	2600
B		800	1000	1200	1400	1600	1800	2000	2400	2600
C		1500	1500	1500	1500	1500	1500	1500	1500	1500
D		Ø19	323	323	323	323	400	500	500	500
E		4800	5400	5700	5950	6150	6630	7600	8800	8100
F		3350	3700	3800	3900	4000	4200	4800	5200	5400
G		Ø273	Ø406	Ø406	Ø406	Ø406	Ø508	640X640	640X640	640X640
H		3850	4500	4550	4600	4750	4900	5200	6240	6400
I		3010	3450	3650	3800	4000	4200	4800	5250	5450

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Advantages / Features

- Double drive, rotation of the drum is independent of the rotation of the spiral
  - screenings can be run empty in the hopper of the conveyor trough
- Without drive arm at drum inlet zone
  - free inflow of the screenings
  - without rotary arm lower head loss
  - no entangling of long particles
- Screw conveyor equipped with suitable brushes in the drainage zone
  - to clean the drainage area in the conveyor
  - brushes are made in segments, bolted on the spiral, allowing an easy replacement of the worn pieces
- The drum seal is designed and tested for solids down to 200 µm
- Compact design requires less space

Noggerath® Product Family Sieves

Product Overview

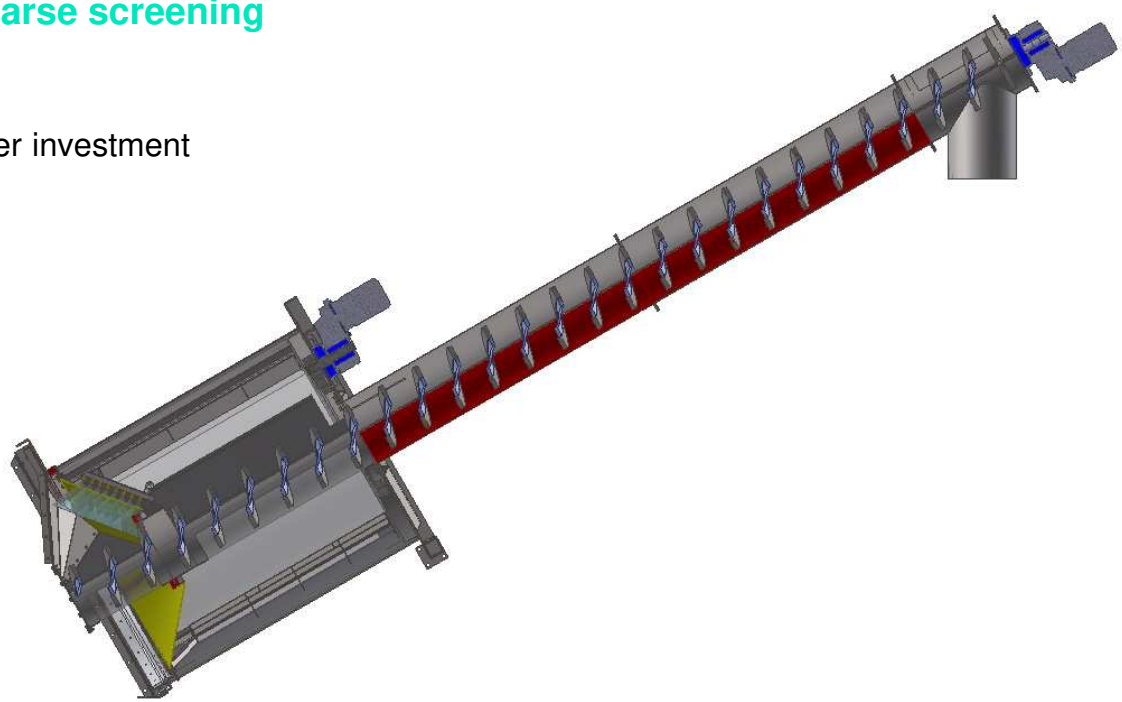
Aqseptence Group

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

The possibility to have in the same unit a fine and coarse screening

Our **Noggerath® Rotary Drum Screen RSI-DF** (double filtration)
is a 2-in-1 solution and therefore allows a lower footprint and fewer investment

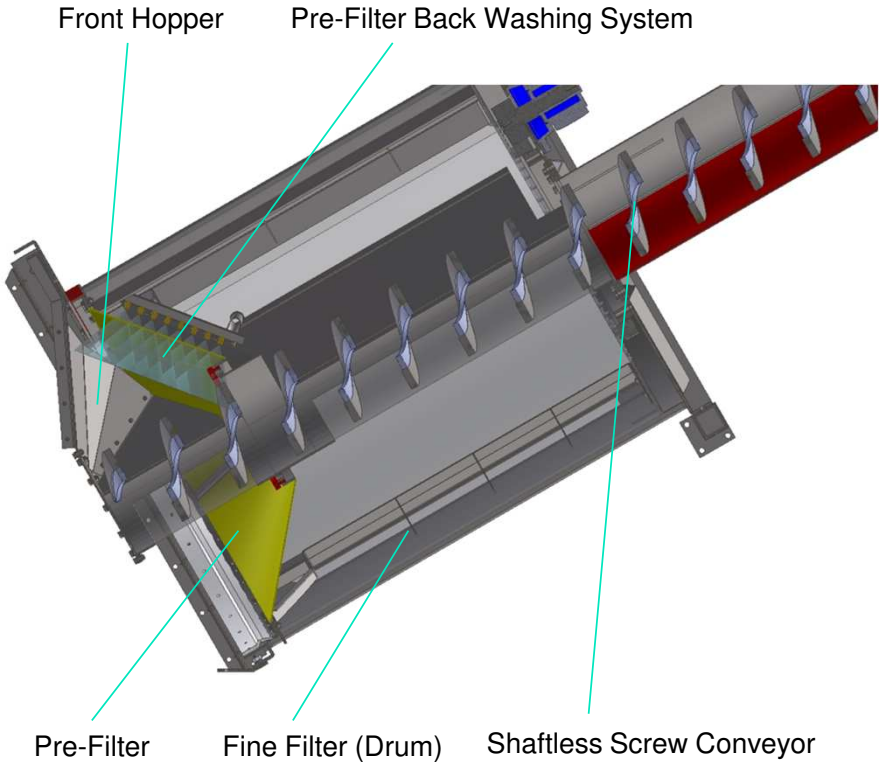
- With a double filter system it is possible to operate both a pre-filter and a fine sieve. Furthermore, contrary to the conventional technology, the sieve drum and the spiral conveyor are independently driven (such as our RSI-DD)
- This allows a drum design in the inlet area without a suspended rotary arm



Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Function

- The pre-filter at the inlet of the drum captures the coarse debris, while the so pre-filtered medium flowing into the drum
- Solids captured by the fine sieve accumulate on the inner surface of the drum cylinder and so the upstream water level will increase
- On reaching the set operating water level, the drives are activated and the screen drum as well the screw conveyor starts rotating independently until the low operating water level is reached again
- Captured solids moved upwards and - supported by a spray bar - drop into the feeding hopper of a spiral press within the drum's center
- A spiral conveys the screenings to a compaction zone where they are dewatered, compacted and discharged by gravity to further treatment



Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Sizes & Technical Data

Model designation based on drum diameter / length - channel depth - discharge height from the channel bottom **RSI-DF 1400-1200-3500**

- Aperture / opening

	Pre-Filter (Coarse screen)	Fine Filter (Drum screen)
Perforation	6 - 10 mm	0.9 - 2 mm
Wedge Wire		0.5 / 1 / 2 mm (up to 6mm)

- Drum diameter : 800 - 2600 mm
- Throughput capacity: up to 1670 l/s (6000 m³/h)
- Dry substance content of screenings approx. 35 %
- Installation angle 35 °

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Advantages / Features

- Double filter system: a fine and coarse screening within the same unit
  - Fine sieve is protected by overloading in case of large solid
  - Coarse filter with back wash system
  - Reduction of total investment and footprint by omission of a separate coarse screen
- Double drive: rotation of the drum independent from the rotation of the spiral
  - screenings can be run empty in the hopper of the conveyor trough
- Without drive arm at drum inlet zone
  - free inflow of the screenings
  - without rotary arm low head loss
  - no entangling of particles
- Screw conveyor equipped with suitable brushes in the drainage zone
  - to clean the drainage area in the conveyor
  - brushes are made in segments, bolted on the spiral, allowing an easy replacement of the worn pieces only
- The drum seal is designed and tested for solids down to 200 µm
- Compact design requires less space

Noggerath® Product Family Sieves

Product Overview

Aqseptence Group

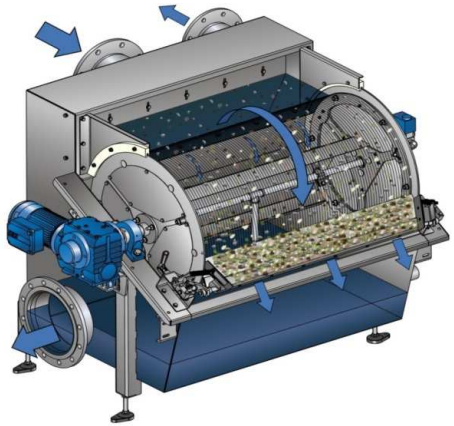
Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Our **Noggerath® Rotary Drum Screen RSH-E** (externally fed) is a continuous screen system with automatic cleaning device

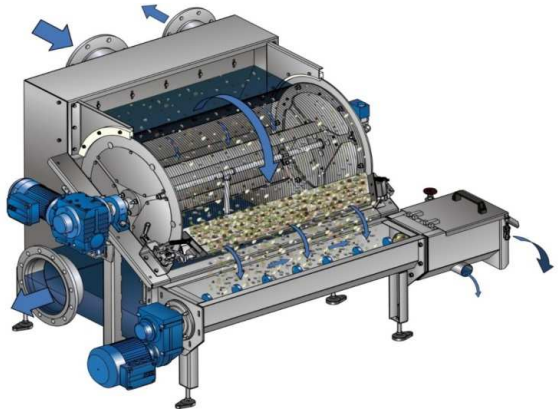
The product is manufactured in Germany

- A horizontally arranged sieve drum is flowed through from outside to inside, where solids are effectively separated
- Separation of floating, greasy and sticky solids
- The Noggerath® Rotary Drum Screen RSH-E / D is additionally equipped with an integrated Spiral Press SCD for the dewatering of screenings

RSH-E



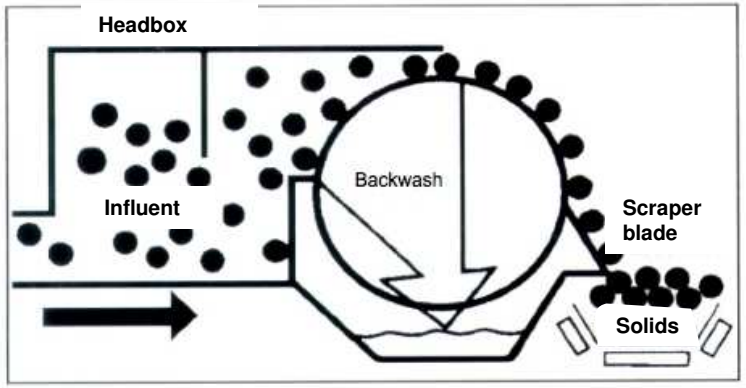
RSH-E / D

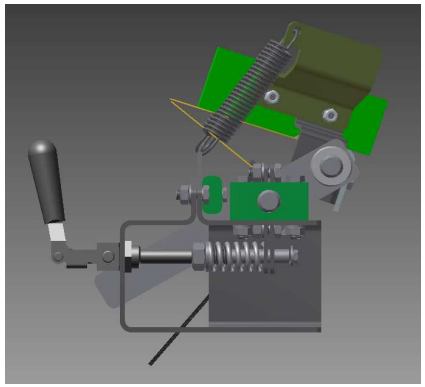


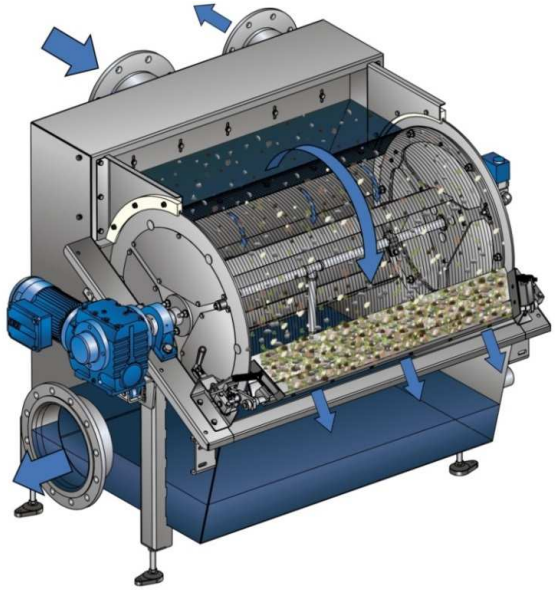
Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Function

- The liquid to be filtered, enters the headbox
- Overflowing to the screen drum surface → solids effectively separated
- Continuous drum rotation → solids transported to the scraper blade
- Gentle separation of the solids → into a dumpster, wash press, compactor or conveyor.
- Internal water spraying system → cleans additionally







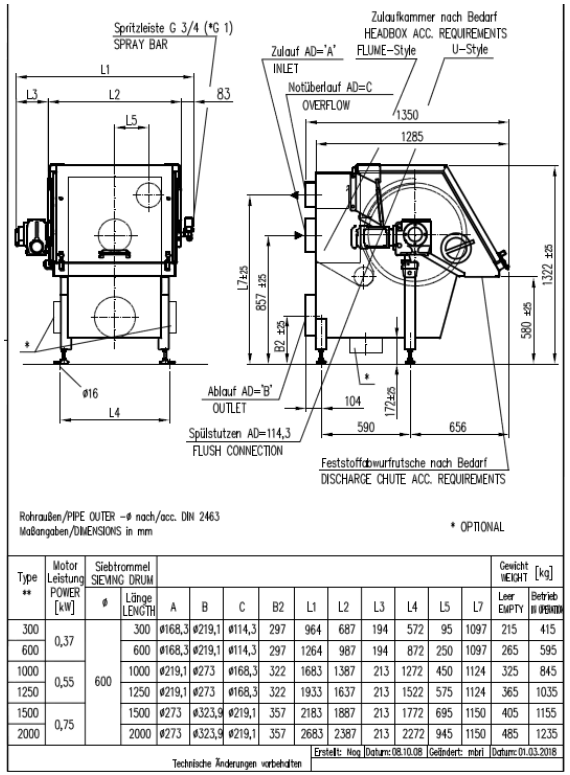
Optional equipped with a double scraper (doctor blade). The working movement of the double scraper is initiated by a control pivot at the rotating screen drum.

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Sizes & Technical Data

Model designation based on drum diameter - drum length
RSH-E 600-1000

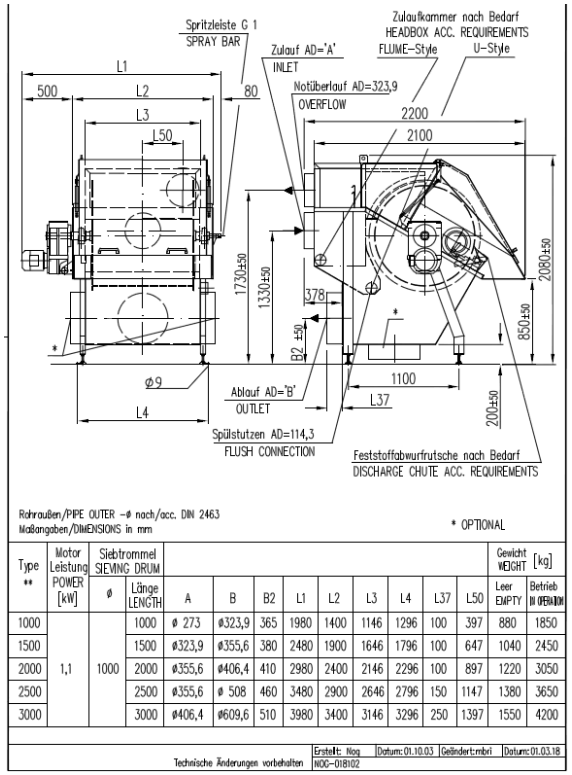
- Drum diameter
  600 and 1000 mm
- Drum length
  300 - 2000 mm (RSH-E 600)
  1000 -3000 mm (RSH-E 1000)
- Aperture / opening
  Wedge Wire 0.25 - 2.5 mm
- Throughput capacity
  up to 550 l/s (2000 m³/h)



Rohraußen/PIPE OUTER –ø nach/acc. DIN 2463
Maßangaben/DIMENSIONS in mm

Type **	Motor Leistung POWER [kW]	Siebtrommel SIEVING DRUM ø	Länge LENGTH	A	B	C	B2	L1	L2	L3	L4	L5	L7	Gewicht WEIGHT [kg] Leer EMPTY	Betrieb IN OPERATION
300	0,37	600	300	ø168,3	ø219,1	ø114,3	297	964	687	194	572	95	1097	215	415
600			600	ø168,3	ø219,1	ø114,3	297	1264	987	194	872	250	1097	265	595
1000	0,55		1000	ø219,1	ø273	ø168,3	322	1683	1387	213	1272	450	1124	325	845
1250			1250	ø219,1	ø273	ø168,3	322	1933	1637	213	1522	575	1124	365	1035
1500	0,75		1500	ø273	ø323,9	ø219,1	357	2183	1887	213	1772	695	1150	405	1155
2000			2000	ø273	ø323,9	ø219,1	357	2683	2387	213	2272	945	1150	485	1235

Technische Änderungen vorbehalten | Erstellt: Nog | Datum: 08.10.08 | Geändert: mbri | Datum: 01.03.2018



Rohraußen/PIPE OUTER –ø nach/acc. DIN 2463
Maßangaben/DIMENSIONS in mm

Type **	Motor Leistung POWER [kW]	Siebtrommel SIEVING DRUM ø	Länge LENGTH	A	B	B2	L1	L2	L3	L4	L37	L50	Gewicht WEIGHT [kg] Leer EMPTY	Betrieb IN OPERATION
1000	1,1	1000	1000	ø 273	ø323,9	365	1980	1400	1146	1296	100	397	880	1850
1500			1500	ø323,9	ø355,6	380	2480	1900	1646	1796	100	647	1040	2450
2000			2000	ø355,6	ø406,4	410	2980	2400	2146	2296	100	897	1220	3050
2500			2500	ø355,6	ø 508	460	3480	2900	2646	2796	150	1147	1380	3650
3000			3000	ø406,4	ø609,6	510	3980	3400	3146	3296	250	1397	1550	4200

Technische Änderungen vorbehalten | Erstellt: Nog | Datum: 01.10.03 | Geändert: mbri | Datum: 01.03.18 | NOG-018102

Noggerath® Product Family Sieves

Product Overview

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Advantages / Features

- Compact design:
  - Small footprint
  - Integrated emergency overflow
  - Full encapsulation prevents dripping water loss (encapsulation of bearing and doctor blade included)
- Low operating and maintenance costs
- Automatic double scraper blade (doctor blade) cleaning optional
- RSH-E/D with an integrated Spiral Press SCD
- Not suitable for
  - specific large and heavy solids
  - Solids with long fibers

Noggerath® Product Family Sieves

Product Overview

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

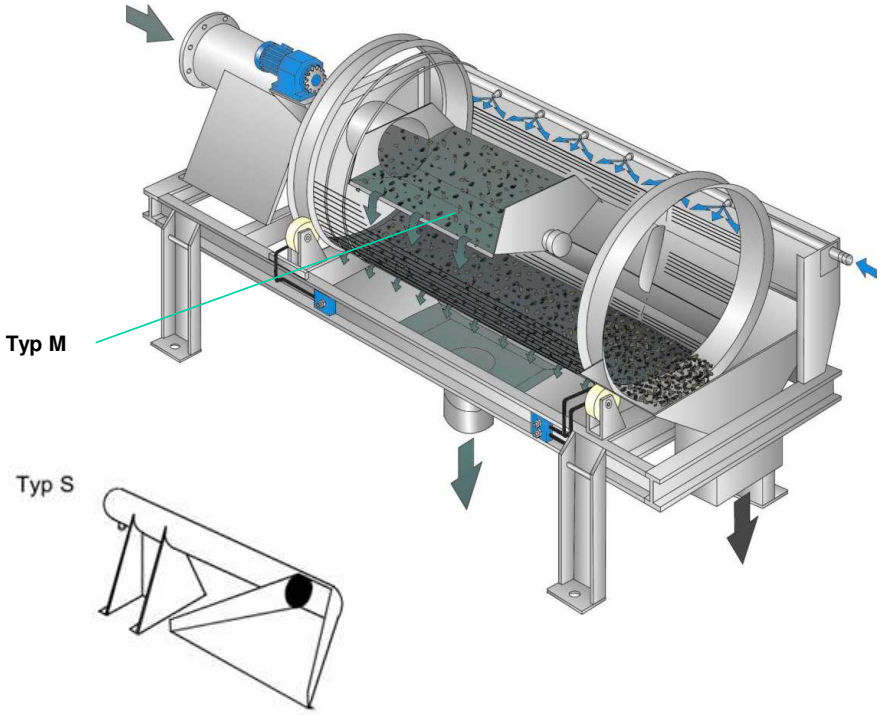
For more than 25 years, the **Noggerath® Rotary Drum Screen RSH-I** (internally fed) has been used successfully in municipal and industrial applications.

- The sieving is carried out by a horizontally arranged sieve drum, which is flowed through from inside to outside, whereby the solids are effectively separated
- The solids captured in the drum are transported axially by flights which are mounted on the inner walls
- Drum rotation guarantees a permanent free sieving surface
- Suitable for continuous operation and gentle handling of solids
- Direct (standard) or chain drive of drum

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Function

- Liquid to be filtered, enters the headbox
- Medium reaches the inner surface of the rotating drum via the headbox. (model T and M on both sides, model S on one side)
- Tangential feeding of the sieve drum allows a self-cleaning effect of the sieve surface
- Solids are separated in the drum and the filtrate drains into the discharge base
- Solids are conveyed through the drum by inner diverters and are dewatered at the same time
- An external spray bar system prevents solids or dirt from sticking to the screen drum



Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Sizes & Technical Data

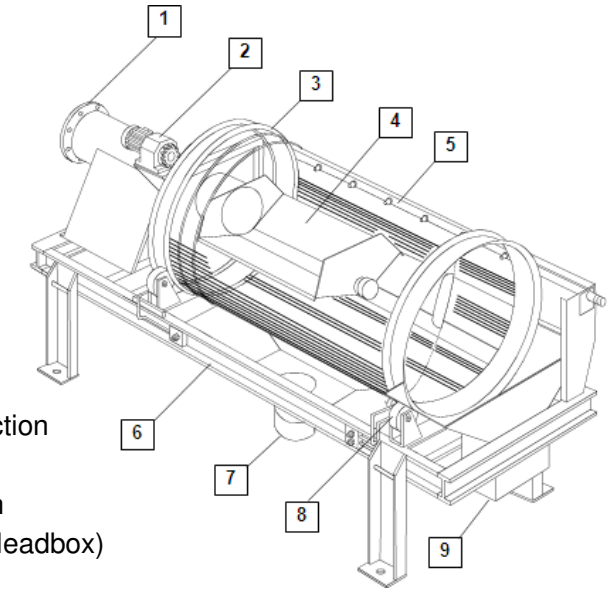
Model designation based on internal drum diameter - drum sieve length (in inches)
RSH-I 3648 (36“→ 914mm / 48“ → 1220mm)

- Drum dimensions

Model	Drum Diameter [mm]	Sieve Length [mm]
RSH-I 3648	914	1220
RSH-I 3672	914	1830
RSH-I 4860	1220	1500
RSH-I 4872	1220	1750
RSH-I 4884	1220	2000
RSH-I 4896	1220	2500
RSH-I 6096	1524	2350
RSH-I 60120	1524	2950
RSH-I 60160	1524	3850
RSH-I 80160	2032	4064

- Aperture / opening
  Perforation 3 - 50 mm
  Wedge Wire 0.25 - 3 mm
  Mesh size 40-500 µm

- Throughput capacity (Flow rate)
  up to 970 l/s (3500 m³/h)



1 Inlet connection
2 Drive unit
3 Screen drum
4 Inlet base (Headbox)
5 Spray bar
6 Machine frame
7 Outlet connection for screened liquid
8 Roller
9 Discharge connection for solids

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

Advantages / Features

- Continuous operation and gentle treatment of solids
- Optimal adjustment of the inlet area (headbox) to the individual conditions of the medium
- Sectioning of drum length into sieving and dewatering zone
- Torsion-stable drum design due to spiral at the outer circumference
- Axial guiding trunnion wheels stabilizes drum position
- Fully stainless steel encapsulation
- Good possibilities in combination with grit chambers and sand washers
- Optional integrated emergency overflow (10° installation)
- Optional drum cleaning by traveling nozzle and high pressure
- Optional large volume feeding hopper with integrated spiral conveyor for dosed infeed of solids into the drum

Fine sieving:
Support drum made of 80x80 mm openings covered with a stainless steel mesh with ~ 50µm mesh size.

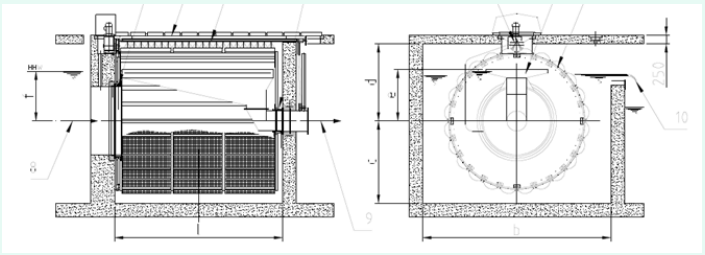
Noggerath® Product Family Sieves

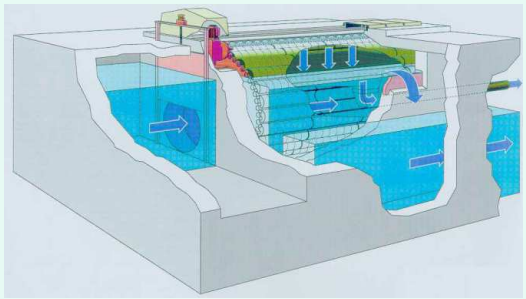
Product Overview

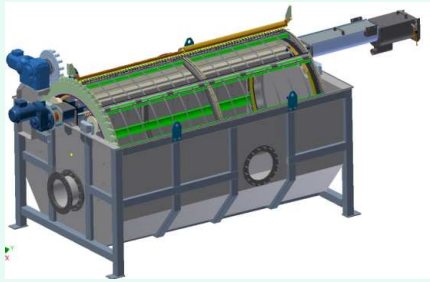
Aqseptence Group

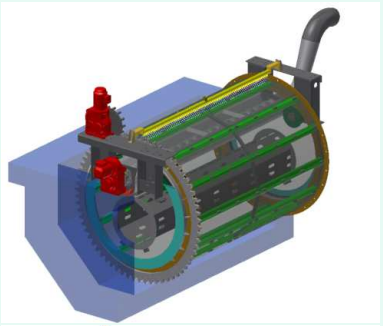
Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

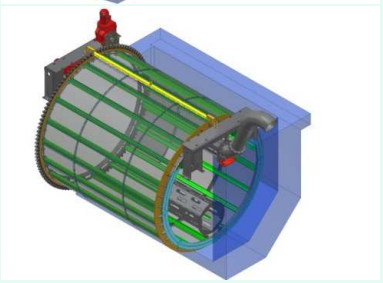
Rotary Drum Screen Micro Sieve RSH-M (MTSM)	Rotary Drum Screen Micro Sieve RSH-MG-T	Rotary Drum Screen Micro Sieve RSH-MG
Channel (Tank) mounted	*Tank mounted*	*Channel mounted*
Micro Screening (mesh 10-160 µm)	Ultra-Fine Screening (mesh 200-1000 µm)	
closed drum *(drum end faces closed)*	**open drum** *(drum end faces open, sealing by rubber gasket)*	











Noggerath® Product Family Sieves

Product Overview

Aqseptence Group

Noggerath® Rotary Drum Screens inclined installation				Noggerath® Rotary Drum Screens horizontal installation		
RBS-DD	RSI-SD	RSI-DD	RSI-DF	RSH-E	RSH-I	RSH-M -MG

	RSH-M (MTSM)	RSH-MG-T	RSH-MG
	Channel (Tank) mounted	*Tank mounted*	*Channel mounted*
	Micro Screening (mesh 10-160 µm)	Ultra-Fine Screening (mesh 200-1000 µm)	
	closed drum *(drum end faces closed)*	**open drum** *(drum end faces open, sealing by rubber gasket)*	
Discharge	outlet via trough with flush water **Centric** through front side of drum	outlet via trough with flush water or spiral conveyor or screw press **Acentric** in horizontal line	
Inlet	**Centric** inlet pipe through front side of drum	**Acentric** inlet pipe directly into drum or via inner diffusor pipe	**Acentric** inlet pipe with inner diffusor
Outlet	vertically adjustable overflow weir, discharge into lateral channel(s)	vertically adjustable overflow weir, discharge into integrated outlet channel	vertically adjustable overflow weir, discharge into lateral channel(s)
Drive	top drive via bolt pinion and gear rim		
Bearing	bearing by centric raw water inlet and centric water outlet stubs	bearing by 2 upper trunnion wheels each side, not wetted	
Fields of application	discharge from secondary clarifier; sea & river water intake (paper mills, power plants, chemical industry); rain water treatment; drinking water treatment; desalination plants (up to 95% red tides removal)	pre-treatment of waste water and for protection of following process stages; elimination of all coarse Materials such as hairs and fibers from the waste water to prevent hair-pinning and blockages of membrane modules (MBR); improvement of primary settling tank efficiency; replacement for primary settling tanks (upstream fine screening compulsory)	
Sizes	Ø [mm]: 1000, 1600, 2000, 3000, 4000 length [mm]: 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500	Ø 1000; length [mm]: 1000, 1500, 2000 Ø 1600; length [mm]: 1500, 2000, 2500 Ø 2000; length [mm]: 2000, 2500,3000	Ø [mm]: 1000, 1600, 2000, 3200, 4000 length [mm]: 1500, 2000, 2500, 3000, 3500, 4000, 4500

Please refer to separate presentation Aqseptence Group WPS Process Technologies / Carbon Extract

Noggerath® Spiral Sieves				
NSI	NSI-T	NSI-SRS	NSI-V	OVF

The **Noggerath® Spiral Sieve NSI** is a well-proven product for fine screening of wastewater with a perforated or wedge wire screen basket, including conveyance of screenings, dewatering, compacting (NSI/D) and discharge

Function

- Liquid to be filtered, enters inside the channel
- Medium reaches the inner surface of the sieve basket
- Continuous layer of solids is thus formed on the surface of the screen, reducing free passage through it and causing the level of the liquid upstream of the screen basket to rise
- When the maximum level is reached, the drive of the spiral screen is automatically activated
- The spiral conveys the materials to the discharge (NSI) or to the discharge/compaction zone (NSI/D)

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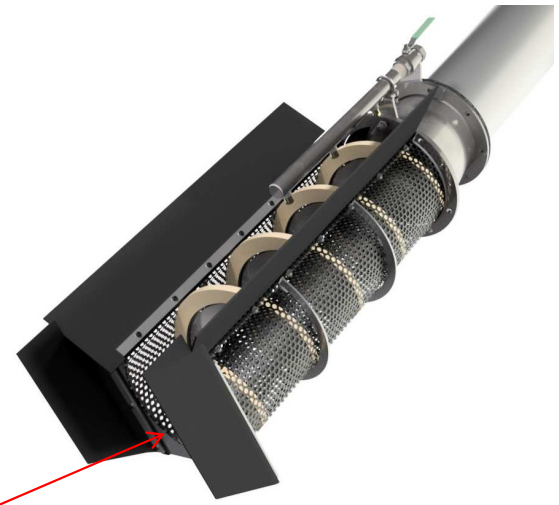
Noggerath® Spiral Sieves				
NSI	NSI-T	NSI-SRS	NSI-V	OVF

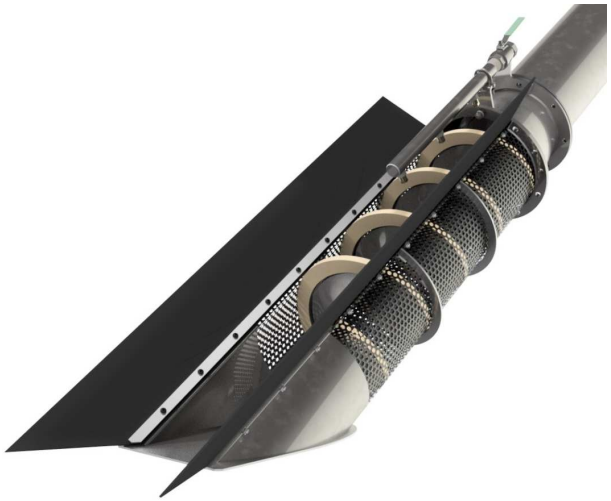
Sizes & Technical Data

- Basket diameter
  200 - 700 mm
- Aperture / opening
  Perforation 2 - 10 mm
  Wedge Wire 0.25 - 6 mm
- Throughput capacity (Flow rate)
  up to 295 l/s (1062 m³/h)



No accumulation of coarse
Materials in front of the spiral blade

Sieve basket, short version



Sieve basket, long version

Noggerath® Spiral Sieves				
NSI	NSI-T	NSI-SRS	NSI-V	OVF

Advantages / Features

- Fine screening and dewatering in one unit
- Simple retrofitting
- No bed drop required
- Complete hygienic stainless steel encapsulation

Noggerath® Spiral Sieves				
NSI	NSI-T	NSI-SRS	NSI-V	OVF

The **Noggerath® Spiral Sieve in Tank NSI-T** is a well-proven product for fine screening of wastewater with a perforated or wedge wire screen, including conveyance of screenings, dewatering, compacting (NSI/D-T) and discharge.

Function

- Liquid to be filtered, enters inside the tank
- Medium reaches the inner surface of the internal basket
- Continuous layer of solids is thus formed on the surface of the screen, reducing free passage through it and causing the level of the liquid upstream of the screen basket to rise
- When the maximum level is reached ,the drive of the spiral screen is automatically activated
- The spiral convey the Materials to discharge/compaction zone and the basked cleaned

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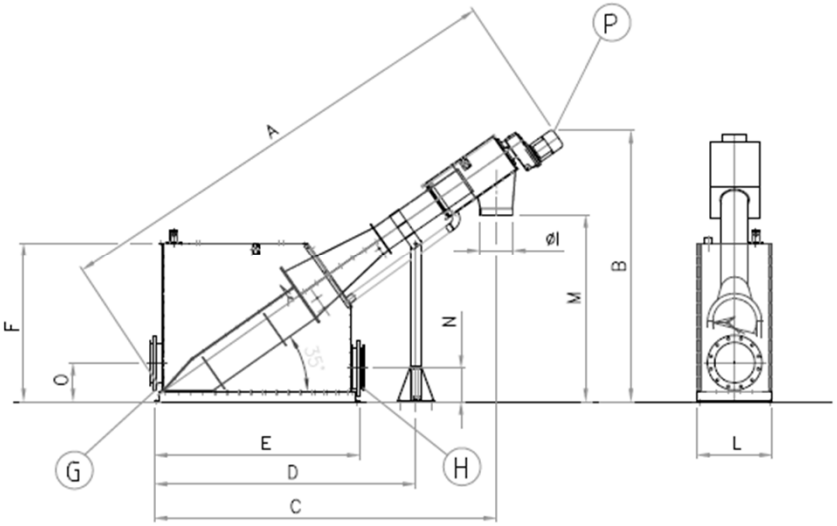
Noggerath® Spiral Sieves

NSI	NSI-T	NSI-SRS	NSI-V	OVF

Sizes & Technical Data

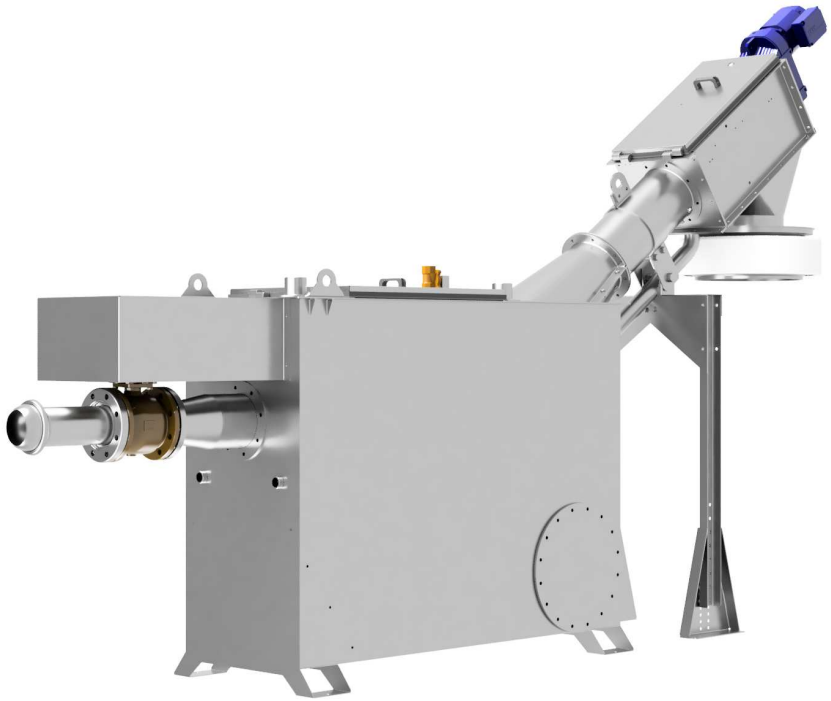
- Basket diameter
  200 - 700 mm
- Aperture / opening
  Perforation 2 - 10 mm
  Wedge Wire 0.25 - 6 mm
- Throughput capacity (Flow rate)
  up to 295 l/s (1062 m³/h)



SPIRAL SIEVE IN TANK incl. Dewatering NSI-D-T						
	NSI-2T	NSI-3T	NSI-4T	NSI-T5	NSI-T6	NSI-T7
A (mm)	3790	3790	3790	3790	4200	5070
B (mm)	2200	2200	2200	2200	2450	2950
C (mm)	2750	2750	2750	2750	2980	3700
D (mm)	1990	1990	2185	2110	2320	3050
E (mm)	1300	1300	1605	1675	1755	2080
F (mm)	990	990	1200	1290	1320	1630
G (DIN EN 1092-1)	DN200 PN10	DN200 PN10	DN250 PN10	DN300 PN10	DN400 PN10	DN500 PN10
H (DIN EN 1092-1)	DN200 PN10	DN200 PN10	DN250 PN10	DN300 PN10	DN400 PN10	DN500 PN10
I (ø)	273	273	273	273	406	406
L (mm)	406	406	516	616	716	916
M (mm)	1500	1500	1500	1500	1560	2070
N (mm)	205	205	235	255	310	370
O (mm)	255	255	285	315	380	440
P (kW)	0.55	0.55	0.55	0.55	1.1	1.1

Noggerath® Spiral Sieves				
NSI	NSI-T	NSI-SRS	NSI-V	OVF

The **Noggerath® Spiral Sieve in Tank NSI-SRS** can be used as a compact Septage Receiving Station for the effluent discharged from vacuum trucks (septage tank collection).



Advantages / **Features** (NSI-SRS)

- Perrot coupling for tank with automatic pinch valve
- Automatic compaction zone flushing with solenoid valve
- Automatic tank flushing with solenoid valve
- Connections for measuring unloader parameters
- Reduction of COD and BOD associated to a solid removal
- Discharge from tank/truck very fast

Noggerath® Spiral Sieves

NSI	NSI-T	NSI-SRS	NSI-V	OVF

The **Noggerath® Vertical Sieve Screen NSI-V** is for fine screening of waste water collected in sumps or pumping stations by a perforated screen basket. The unit includes a vertical conveyance of screenings, dewatering, compacting and discharge.

Function

- During operation liquids flow into the screen basket. At a pre-set level, the drive of the spiral sieve is automatically activated to convey solids upwards and cleaning the sieve (by brushes).
- Used to protect downstream pumps and process equipment

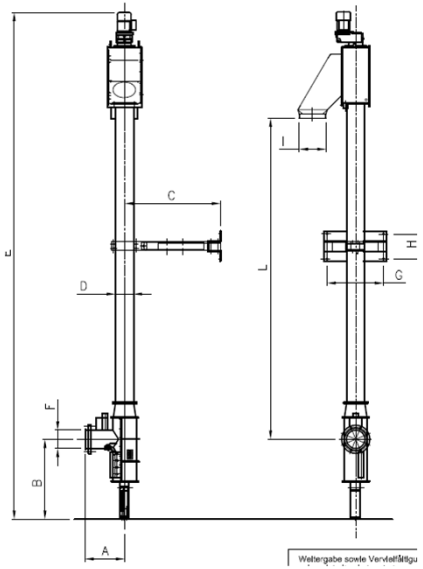
Noggerath® Spiral Sieves

NSI | NSI-T | NSI-SRS | NSI-V | OVF

Sizes & Technical Data

- Basket diameter
  200 - 700 mm
- Aperture / opening
  Perforation 2 - 10 mm
  Wedge Wire 1 - 2 mm
- Throughput capacity (Flow rate)
  up to 305 l/s (1080 m³/h)
- Channel Dimension
  Depth 500 - 11000 mm
  Installation angle 90°

MODEL	A (mm)	B (mm)	C (mm)	D (ø)	E (mm)	F (UNI EN 1092-1)	G (mm)	H (mm)	I (ø)	L (mm)	M (kW)
NSI-V 2	395	940	1160	219	6110	DN150 PN10	680	300	323	4000	0.55
NSI-V 3	475	965	1160	219	6132	DN200 PN10	680	300	323	4000	0.55
NSI-V 4	475	1185	1170	219	6355	DN200 PN10	680	300	323	4000	0.55
NSI-V 5	620	1345	1170	219	6515	DN300 PN10	680	300	323	4000	0.55
NSI-V 6	620	1460	1450	323	6900	DN300 PN10	930	300	406	4000	1.1
NSI-V 7	895	1460	1450	323	6900	DN400 PN10	930	300	406	4000	1.1

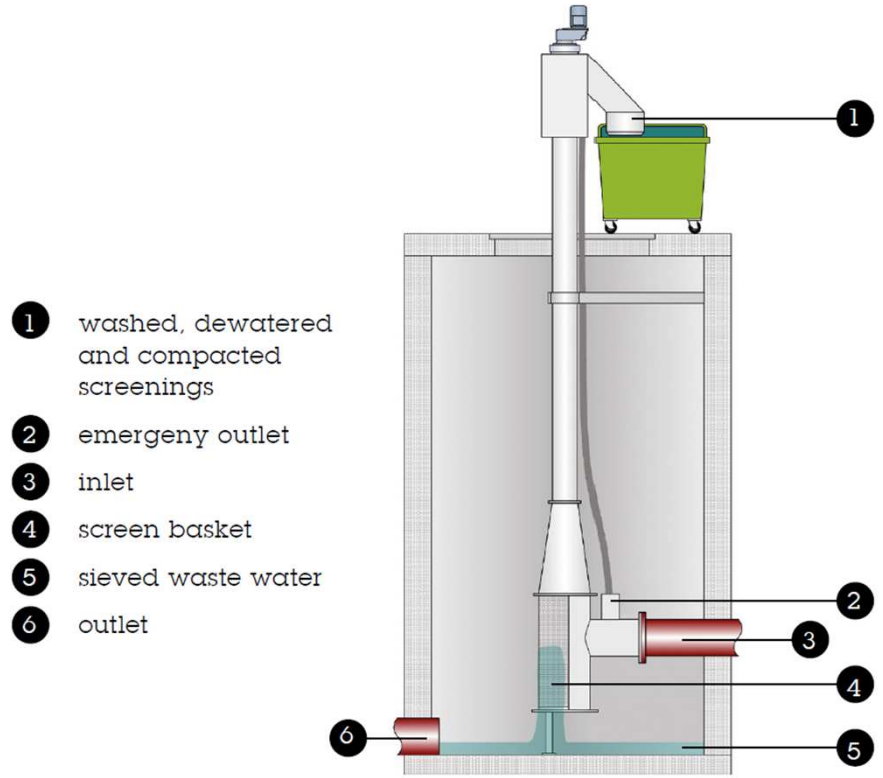


Noggerath® Spiral Sieves

NSI	NSI-T	NSI-SRS	NSI-V	OVF

Advantages / Features

- Fine screening, washing and dewatering in one unit
- Simple retrofitting of existing plants
- Complete hygienic stainless steel encapsulation
- No bearing in contact with the effluent
- Quick and easy installation



Noggerath® Spiral Sieves

NSI	NSI-T	NSI-SRS	NSI-V	OVF

The **Noggerath® Overflow Screen Type OVF** is a self-cleaning Spiral Sieve to mechanically separate solids from wastewater.

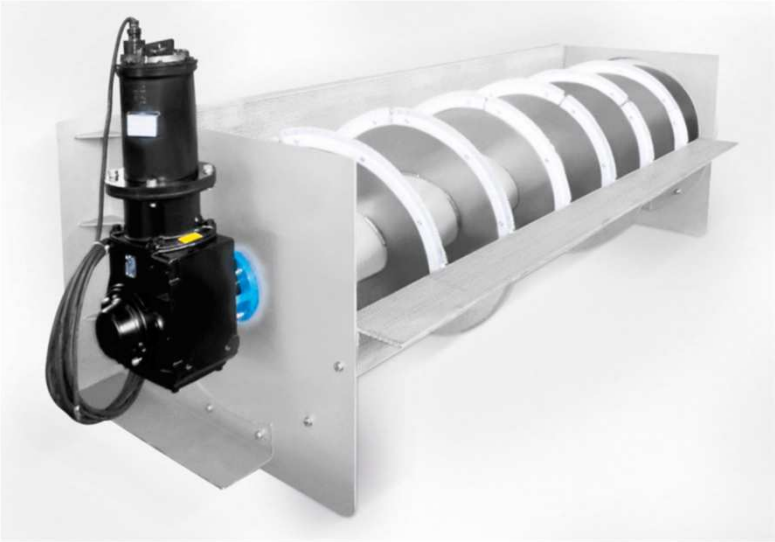
Function

- Usually installed at the headworks of a wastewater treatment plant and used in case of overflow of the plant or in case of failure on the main inlet as bypass
- Composed of a semi cylindrical screen panel with an internal conveying / cleaning screw
- The spiral screw is automatically activated based on water level to convey the solids
- Cleaning brushes fixed to the flight edges of the spiral will clean the screen panel surface
- Screening for overflow basins and stormwater emergency discharge

Noggerath® Spiral Sieves				
NSI	NSI-T	NSI-SRS	NSI-V	OVF

Sizes & Technical Data

Size OVF	Internal sieve Diameter [mm]	Length [mm]	Perforation [mm]
300	310	1000 - 6000	3 - 10
500	512	1000 - 6000	3 - 10
700	717	1000 - 6000	3 - 10
1000	1020	1000 - 6000	3 - 10



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Noggerath® Spiral Sieves				
NSI	NSI-T	NSI-SRS	NSI-V	OVF

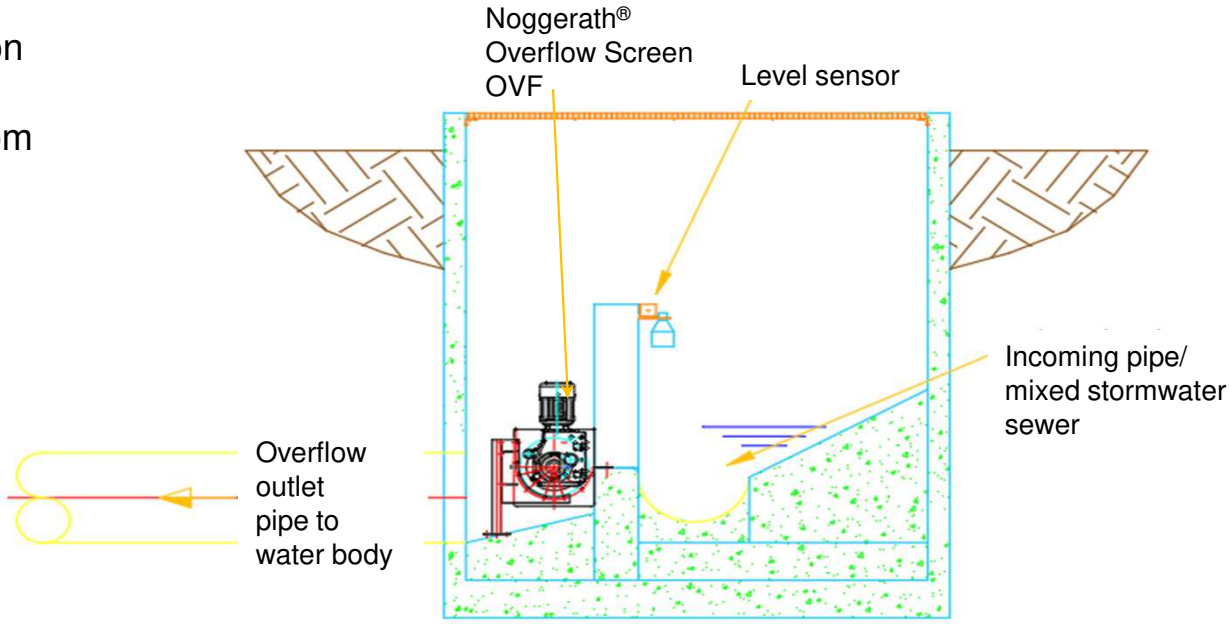
Advantages / Features

- Low requirements for civil engineering
- No bearing in touch with the effluent
- Quick and easy installation
- High operational reliability, with no risk for blockages, pigtailing or pressing of screenings through the mesh surface
- No service water required
- Outlet totally free to avoid any blockage on the discharge
- Reliable and automatic self-cleaning operation

Noggerath® Spiral Sieves

NSI	NSI-T	NSI-SRS	NSI-V	OVF

Main applications are with overflow basins (wet/storm water overflow), partly rain retention basins as well as to regulating plant for the discharge and pre-cleaning of the overflow from combined or rainwater sewer systems.



Primary sewer emergency outlets or overflow basins

Property	Noggerath Bandscreen Centre-Flo CF	Step Screens PSS	Rotary Drum Screen RSI (with perf. drum)	Multi Rake Bar Screen KUR
Screen capture rate	83 to 92%	35 to 55%	55 to 70%	30 to 60%
Typical downstream issues due to screen capture rates	None	Screenings build up in channels, tanks, mixers, pumps etc.	Very little	Screenings build up in channels, tanks, mixers, pumps etc.
Flow path	90 degree change in directions - very good	Straight through - results in screenings 'blow through' effect and loss of 'screen mat'	90 degree change in directions - very good	Straight through - results in screenings 'blow through' effect and loss of 'screen mat'
Hair pinning	No	No (low capture rate)	Yes *	No
Typical wearing parts (depends on exact unit)	Turning shoe - although rated for life of unit	Chain, bearings, bushings, springs, lamella guide	Drum bearings, shaft bearings, trunnion wheels, brushes, wear bars	Rake, chain, bearings, sprocket, turning shoe, wear strip, slide bar
Replacement parts if damaged by solids impact	Panels - easy to remove and replace	Static or moving lamellar plates to be replaced or repaired	Drum screen - either repair broken section or replace drum	Complex! Chain and rake elements
Result if screen is damaged from impact	Screen can continue to operate	Screen is isolated until damage is repaired	Screen can continue to operate	Screen is isolated until damage is repaired

1. Product overview
Product comparison

Aqseptence Group

Property	Noggerath Bandscreen Centre-Flo CF	Step Screens PSS	Rotary Drum Screen RSI (with perf. drum)	Multi Rake Bar Screen KUR
Screen cleaning	Water sparges	None - screenings needs to be manually washed on regular basis	Water sparges	None - screenings needs to be manually washed on regular basis
Screenings handling - typical method	Launder / Spiral Conveyor / Wash Press	Spiral Conveyor / Wash Press	Spiral Conveyor or Launder	Spiral Conveyor / Wash Press
Organics washing and recycling	Excellent	Poor	Excellent	Poor
Integral bypass	Yes (optional) - built in overflow or penstock, no need for dedicated bypass channel	No - separate bypass channel required	No - separate bypass channel required	No - separate bypass channel required
Plant layout/footprint	Compact civil works - short and narrow channels feasible	Wide and long channels necessary	Wide and long channels necessary	Wide channels necessary
Flow capacity	High with deep and narrow channels	Limited to channel width dimension	High with wide and low channels	Limited to channel width dimension
Headloss	Low and variable with longer band screen	Fixed with channel width and upstream level	Variable with longer drum but low upstream level	Fixed with channel width and upstream level

Agenda

1. Product Family Sieves
2. Product Family Screenings Handling
3. Product Family Compact Combi Unit
4. Product Family Grit Treatment and Sewer Grit Receiving

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Noggerath®

Product Family Screenings Handling

Noggerath® Product Family Screenings Handling

Product Overview

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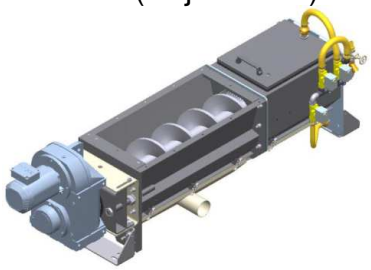
Screenings Handling

Wash Press convey + press + wash	Spiral Press convey + press	Spiral Conveyors convey

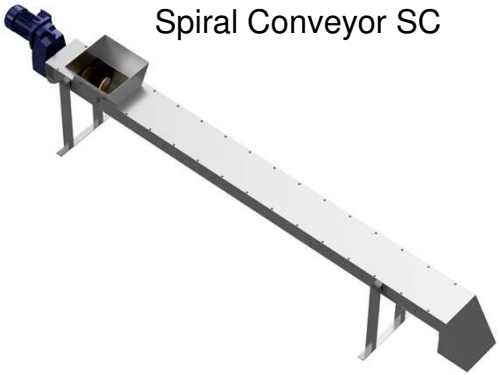
Wash Press
NWP / NSP

Wash Press
NWP-A
(Adjustment)



Spiral Press SCD

Spiral Conveyor SC



Spiral Conveyor Tubular
SCT

This products are typically connected to Noggerath®, Passavant® or Geiger® wastewater screening machines

Noggerath® Product Family Screenings Handling

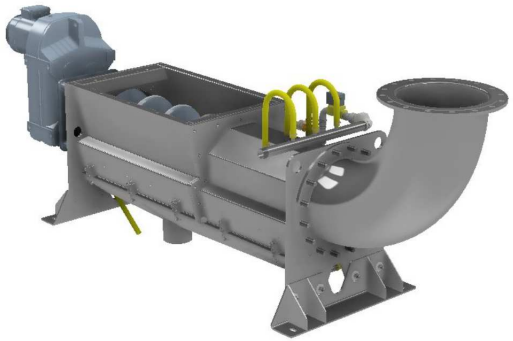
Product Overview

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

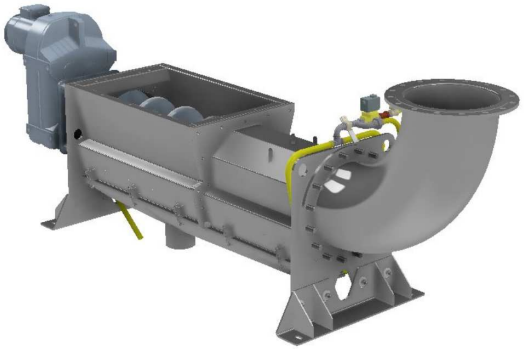
Our **Noggerath® Wash Press NWP & Screenings Press NSP** operates with a conveying - press screw.

- The material is caught at the infeed area by the screw and conveyed towards the washing and compaction zone
- Slotted or optionally perforated bottom of the conveying area allows for the static dewatering of the conveyed fluid
- In the area of the compaction zone the Materials is washed and/or compressed, further dewatered and pressed to the discharge via a friction pipe

Wash Press NWP

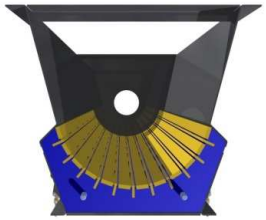


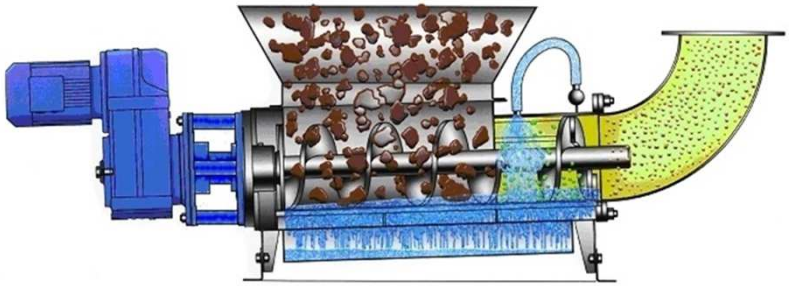
Wash Press NSP



Slotted bottom (USP)

- Very high drainage capacity
- No „shearing forces“ on basket, as no wear rails





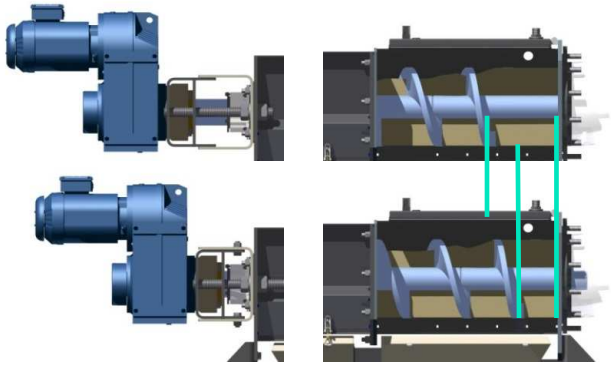
Noggerath® Product Family Screenings Handling

Product Overview

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

Additional: Adjustable version

- **Stepless volume adjustment of the press plug**
  - Axial screw adjustment
  - Adaptation to varying screenings
  - Easy optimization of DS content
  - Improvement of washing
- **Modular design of**
  - Flanged wash and press module
  - Reduction of wear costs
  - Hinged cover



Volume adjustable for variable pressure

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

Sizes & Technical Data

Model designation based on screw diameter - infeed length
NWP 300-900

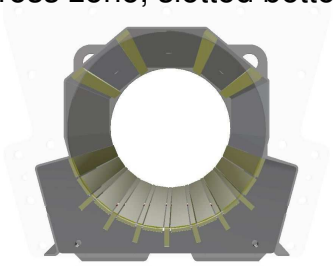
Size NWP NSP	Raw Material [m³/h]	Max. capacity Continuous Operating [m³/h]	Washing capacity [m³/h]	Water consumption [l/s at 4 bar]
200	2.5	1.4	0.9	2
250	3.8	2.2	1.5	2
300	6.0	3.5	2.5	2
400	9.5	5.3	3.5	3
500	14.0	7.5	5.0	3

- DS-content (dewatering performance) up to 47%
- Screenings volume reduction 70 - 85 %

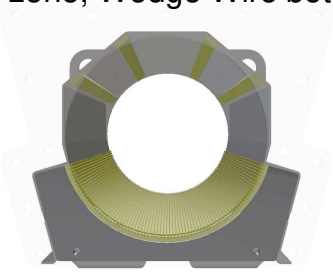
For Centre-Flo applications: drainage opening must be selected depending on the Band Screen Centre-Flo sieve opening

Machine	Components							
Band Screen Centre-Flo	Sieve opening		2	3	4	5	6	8	10
Wash Press	Infeed zone	Perforated bottom	2	3	3	5	5	5	5
	Compacting zone	Slotted bottom		2.8					
		Wedge Wire bottom	1.6						

Press zone, slotted bottom



Press zone, Wedge Wire bottom



Noggerath® Product Family Screenings Handling

Product Overview

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

Advantages / Features

- Weight reduction of raw screenings up to 80 %
- DS content of washed screenings up to 47 %
- Return of organics to support denitrification
- Flite thickness of screw 20/15 mm, at the last flite 40/35 mm
- Low speed results into smooth intensive washing
- Brushless self-cleaning effect
- Screw supported in screenings plug → thus less forces on slotted bottom
- No shredding of screenings

Noggerath® Product Family Screenings Handling

Product Overview

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

How loadable / strong is our Wash Press

Video

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

The **Noggerath® Spiral Compactor SCD** is made for transport, pressing and dewatering of screenings in wastewater treatment plants, and waste, residue and recyclable matter in industrial processes.

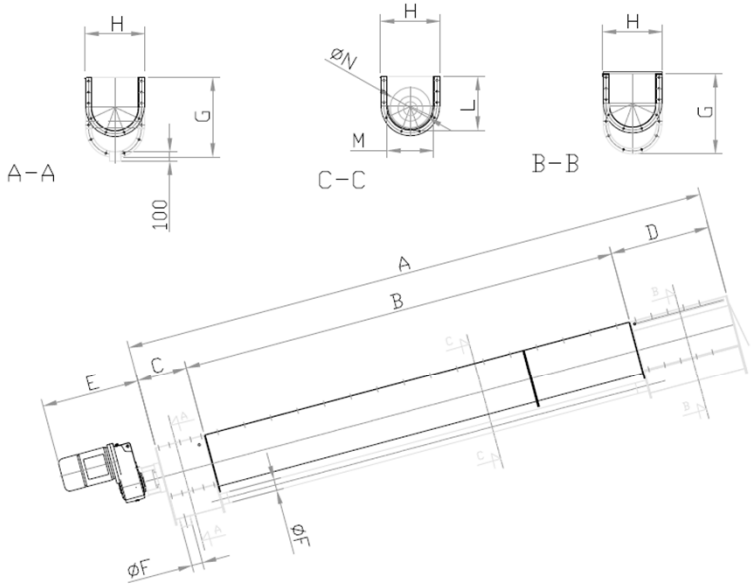
Function

- The **Noggerath® Spiral Compactor SCD** operates with a conveying - press screw
- The Materials is caught at the infeed area by the screw and conveyed to the compaction zone
- Initial perforated bottom zone permit the static drainage of screening
- In the area of the compaction zone the Materials is compressed, further dewatered and pressed to the discharge via a spring loaded flap

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

Sizes & Technical Data

Size SCD	Raw Material [m³/h]	Water consumption [l/s at 4 bar]
200	2	1.5
250	3	1.5
300	5	1.5
400	8	1.5
500	12	1.5



- DS-content (dewatering performance) up to 35%
- Screenings volume reduction 40 - 60 %

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

Advantages / Features

- Economic and compact: conveyance, dewatering and pressing in one system
- Simple, fast maintenance due to single conveying element
- Fully encapsulated system
- No internal bearings to prevent blockages
- Flexible installation and ease of integration into existing plants
- Non-clogging even with fibrous Materials

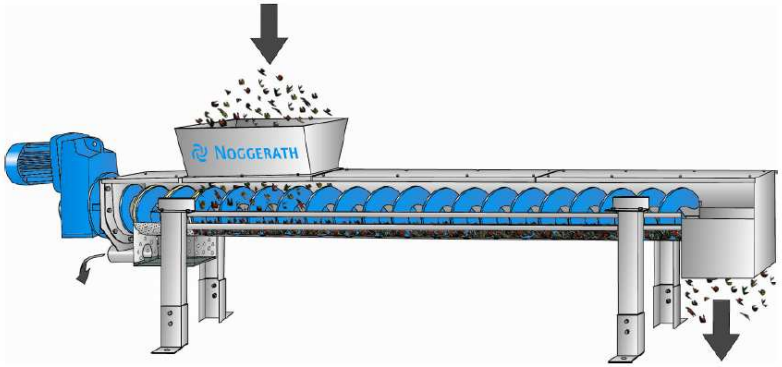
Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

The **Noggerath® Spiral Conveyor SC / SCT** has been applied worldwide with great success, as a transport device in municipal wastewater treatment plants and in a wide range of industrial applications for many years

Thanks to the shaftless spiral without any intermediate bearings, the units can be supplied up to 35 meters length (in 3 meter length sections) and convey several types of waste without any blockage

Function

- The Noggerath® Screw Conveyor is used for the transport of solids in wastewater treatment plants or industrial applications
- The solids, usually fed via one or multiple inlet hoppers into the trough, are conveyed by a heavy-duty shaftless spiral that rotates within wear resistant liners without any intermediate bearings
- Subsequently the materials can be discharged out of the trough either vertically or axially



Noggerath® Product Family Screenings Handling

Product Overview

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

Sizes & Technical Data

Size SC	Spiral Diameter [mm]	Screenings Materials [m³/h @ 0-15°]	Screenings Materials [m³/h @ 15-30°]	Sludge Materials [m³/h @ 0-15°]	Sludge Materials [m³/h @ 15-30°]
200	180	1	0.6	3	1.7
250	240	2.4	1.1	7	3.9
300	280	3.8	1.8	11	6
400	360	8	3.8	23	13
500	460	17	8	45	26

- SC-T version (tubular trough) for vertical application
- Capacities [m³/h] are equivalent to the 15° - 30° inclination range

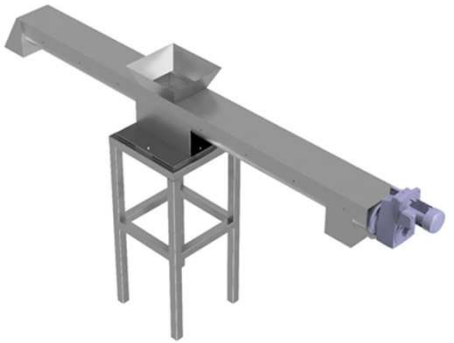
Noggerath® Product Family Screenings Handling

Product Overview

Wash Press / Screening Press		Spiral Press	Spiral Conveyors	
NWP / NSP	NWP-A (Adjustment)	SCD	SC	SC-T

Advantages / Features

- Easy operation and maintenance: main parts of the machine are in bolted section to allow good access for inspection and maintenance
- Small operating costs due to low energy consumption
- High operational reliability: low tendency of blockage
- Long service life for spirals and wear lining due to shaftless, flexible spiral with weight evenly distributed over the entire length
- Quick and easy installation
- No need of intermediate end supports for the spiral, that may cause clogging during the conveying process



Agenda

1. Product Family Sieves
2. Product Family Screenings Handling
3. Product Family Compact Combi Unit
4. Product Family Grit Treatment and Sewer Grit Receiving

Aqseptence Group

Noggerath®

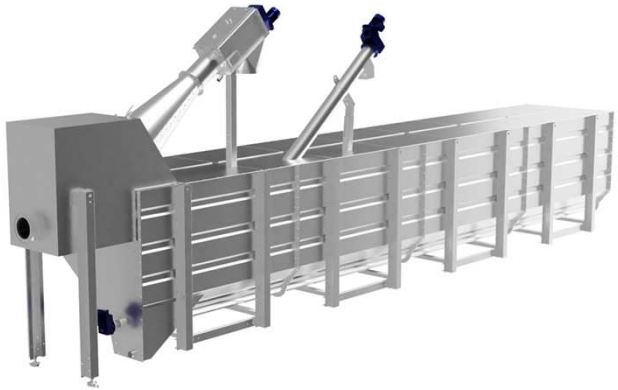
Product Family
Compact Combi Unit

Noggerath® - Combi-Units

Noggerath® - Compact Combi Units

Compact Combi Unit

Compact Combi Unit TOP



Noggerath® - Compact ECO-Combi Units

Compact Combi Unit ECO

Compact Combi Unit ECO-TOP

Compact Combi Unit MiniTOP

Noggerath® Product Family Compact Combi Unit

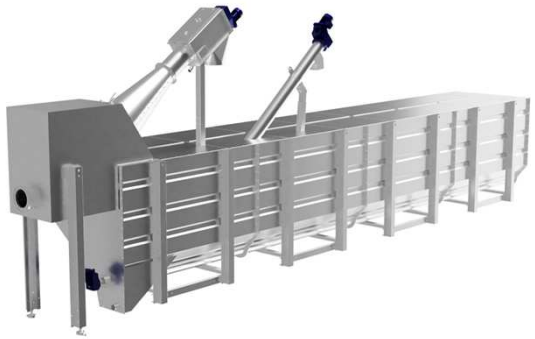
Product Overview

Compact Combi Unit		Compact Eco Combi Unit		
Compact Combi Unit	Compact Combi Unit TOP	Combi Unit Eco	Combi Unit Eco-TOP	Combi Unit Mini-TOP

The **Noggerath® Compact Combi Units** stand for a solid complete headwork solution required for the pre-treatment of wastewater within one machine:

- Waste water fine screening
- Screenings dewatering
- Aerated grit chamber
- Sand separator
- Grease trap
- Screenings washing
- Grit washing

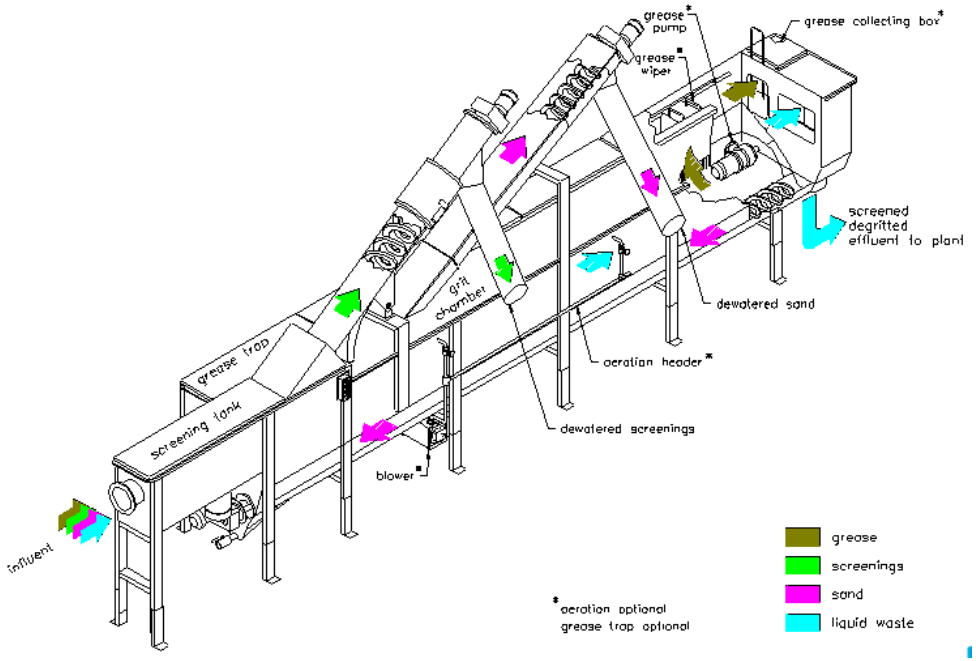
In case of limited space, vertical sand discharge by conveyor or with a directly flanged grit washer Type GW 80 is possible



Compact Combi Unit		Compact Eco Combi Unit		
Compact Combi Unit	Compact Combi Unit TOP	Combi Unit Eco	Combi Unit Eco-TOP	Combi Unit Mini-TOP

Function

- Wastewater flows into the inlet tank
- Solids are retained by the Noggerath® Spiral Sieve NSI
- The Noggerath® Spiral Sieve is automatically triggered and conveys the screenings to the compaction zone where they are dewatered, compacted and discharged into an outlet container typically
- Pre-screened wastewater flows to the grit chamber
- Sedimentable solids sink to the grit spiral → collection of solids along the bottom of the grit separator
- Grit separator conveys and dewaters the solids to the discharge zone
- Mechanically treated liquid flows across the overflow weir to the outlet
- Aeration system forms a „water roller“ lengthwise to the tank
- The „water roller“ causes the organic substances are being separated from the sedimentable solids
- Lamellar curtain (open at the bottom) splits the grit chamber from the grease trap tank.
- A float-type skimmer removes the grease from the grease trap into a tank with a connected grease pump



Flow Scheme

Noggerath® Product Family Compact Combi Unit

Product Overview

Aqseptence Group

Compact Combi Unit		Compact Eco Combi Unit		
Compact Combi Unit	Compact Combi Unit TOP	Combi Unit Eco	Combi Unit Eco-TOP	Combi Unit Mini-TOP

Sizes & Technical Data

- Aperture / opening
  Perforation 2 - 10 mm
  Wedge Wire 0.25 - 6 mm
  Slot 3 - 25 mm
- Throughput capacity (Flow rate)
  up to 300 l/s (1080 m³/h)
- Separation efficiency (grade of degritting)
  up to 95%
  respective particle size 0.16 mm

Compact Combi Unit (GER)				Compact Combi Unit TOP (IT)			
Size	**Sand trap width [mm]**	**Sand trap length [m]**	**Capacity** sieve ø6mm	**Size**	**Sand trap width [mm]**	**Sand trap length [m]**	**Capacity** sieve ø6mm **[l/s]**
Non-aerated							
NSI 300 Combi	600	up to 12	up to 200	**TOP 2-15/-30/-45**	600	up to 9	15 / 30 / 45
NSI 400 Combi	800			**TOP 2-60/-80**	950		60 / 80
NSI 500 Combi	1200						
Aerated							
Combi 1000	1000	up to 20	up to 300	**TOP 2-100/-150**	1350	up to 12	100 / 150
Combi 1200	1200			**TOP 2-200**	1500		200
Combi 1400	1400			**TOP 2-250**	1850		250
Aerated with Grease Trap (Grease Trap width = 400mm)							
Combi 1000FF	1000	up to 20	up to 300	**TOP 3-15/-30/-45**	600	up to 9	15 / 30 / 45
Combi 1200FF	1200			**TOP 3-60 /-80**	950		60 / 80
Combi 1400FF	1400			**TOP 3-100/-150/-200**	1100	up to 12	100 / 150/ 200
				TOP 3-250	1450		250

Noggerath® Product Family Compact Combi Unit

Product Overview

Compact Combi Unit		Compact Eco Combi Unit		
Compact Combi Unit	Compact Combi Unit TOP	Combi Unit Eco	Combi Unit Eco-TOP	Combi Unit Mini-TOP

Advantages / Features

- Variety of mechanical accessories according to customer requirements
- Pumped or gravity-flow feed possible
- Grit trap sized according to common regulations or industry standards
- After separation of screenings and sediments, residuals are removed, collected and stored separately
- Integration of different screen types
- Depending on the disposal or re-use requirements, a combination with our Noggerath® - screenings-/grit washers, presses and conveyors can be provided
- Low requirements for civil engineering, small footprint
- Compact design

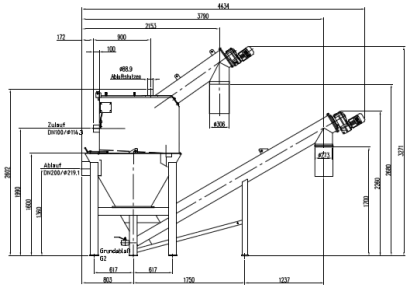
Noggerath® Product Family Compact Combi Unit

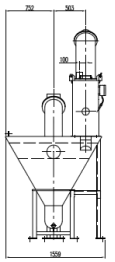
Product Overview

Compact Combi Unit		Compact Eco Combi Unit		
Compact Combi Unit	Compact Combi Unit TOP	Combi Unit Eco	Combi Unit Eco-TOP	Combi Unit Mini-TOP

Noggerath® Compact ECO Combi

- Designed for small and compact sewage plants
- Screening is effected by a Noggerath® Spiral Sieve NSI-T 300 or 500
- Very compact unit due to its modular tank design
- Non-aerated
- Combination with step screens and drum screens is also possible





Noggerath® Product Family Compact Combi Unit

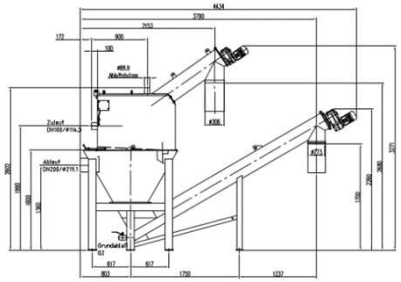
Product Overview

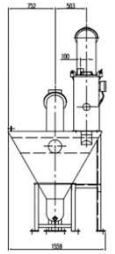
Aqseptence Group

Compact Combi Unit		Compact Eco Combi Unit		
Compact Combi Unit	Compact Combi Unit TOP	Combi Unit Eco	Combi Unit Eco-TOP	Combi Unit Mini-TOP

Sizes & Technical Data

Size	Eco-Combi 25	Eco-Combi 30	Eco-Combi 50
Surface	900 x 3400	900 x 4000	1200 x 5250
Screen	NSI-B 300/S		NSI-B 500/S
Throughput capacity [l/s]	**Separation efficiency (grade of degritting) respective particle size**		
20	95 % at 0.20 mm	90 % at 0.16 mm	
25	90 % at 0.20 mm	95 % at 0.20 mm	98 % at 0,16 mm
30	85 % at 0.20 mm	90 % at 0.20 mm	93 % at 0,16 mm
40		83 % at 0.20 mm	96 % at 0,20 mm
50		78 % at 0.20 mm	90 % at 0,20 mm
60			87 % at 0,20 mm
70			83 % at 0,20 mm
80			80 % at 0,20 mm





Special Version
ECO-Combi 20
NSI-T200 on GS270

Compact Combi Unit		Compact Eco Combi Unit		
Compact Combi Unit	Compact Combi Unit TOP	Combi Unit Eco	Combi Unit Eco-TOP	Combi Unit Mini-TOP

Noggerath® Combi Unit ECO-TOP

- Designed for small and compact sewage plants
- Screening is effected by a Noggerath® Spiral Sieve NSI-T
- Very compact unit due to its modular tank design
- Non-aerated

Combi Unit Eco-TOP	30	80	100	130
Flow rate max. [l/s]	8	22	28	36

Function

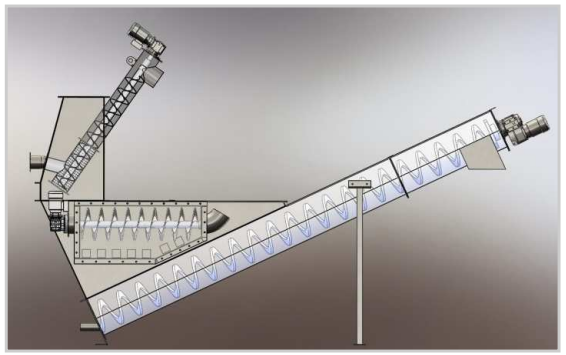
- Waste water enters the screen section where solids are removed, compacted, and dewatered prior to being discharged into a container.
- The screened effluent then discharges into a hopper section where grit and sand sedimentation are included.
- The grit is conveyed by a spiral screw and can be further washed prior to disposal into a container

Compact Combi Unit		Compact Eco Combi Unit		
Compact Combi Unit	Compact Combi Unit TOP	Combi Unit Eco	Combi Unit Eco-TOP	Combi Unit Mini-TOP

Noggerath® Combi Unit Mini-TOP

- Designed for small and compact sewage plants
- Screening is effected by a Noggerath® Spiral Sieve Minyscreen
- Very compact unit due to its modular tank design
- Fat, oil & grease (FOG) removal

Combi Unit Mini-TOP	2				3			
Screen perforation	2	3	5	6	2	3	5	6
Flow rate max. [l/s]	5	8	20	23	8	15	35	50



Function

- Waste water enters the screen section where solids are removed, compacted, and dewatered prior to being discharged into a container
- The screened effluent then discharges into a hopper section where grit and sand sedimentation are included
- The grit is conveyed by a spiral screw and can be further washed prior to disposal into a container
- Grease is being removed with air diffusers for flotation and disposed into a separate container

Agenda

1. Product Family Sieves
2. Product Family Screenings Handling
3. Product Family Compact Combi Unit
4. Product Family Grit Treatment and Sewer Grit Receiving

Aqseptence Group

Noggerath®

Product Family Grit Treatment and Sewer Grit Receiving

Noggerath® Product Family Grit Treatment

Product Overview

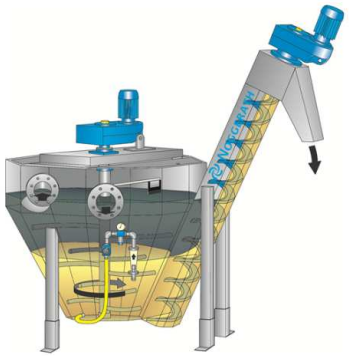
Aqseptence Group

Grit Treatment

Grit Washer	Circular Grit Chamber	Grit Classifier	Grit Receiving Station

Grit Washer
GW (dry-fed)

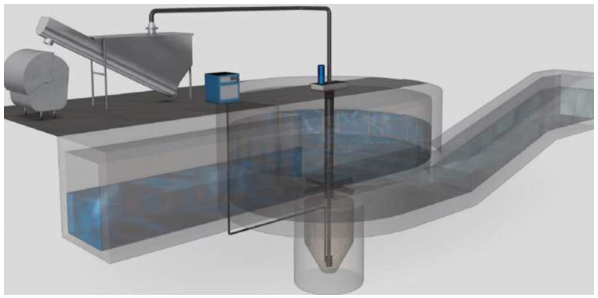
Grit Washer,
Circular Grit Chamber GWC



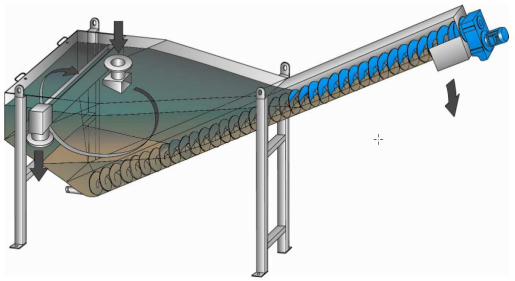
Grit Washer,
Longitudinal grit chamber GWL

Circular Grit Chamber GCC

Vortex Grit Removal System GCC-V



Sand Separator GS



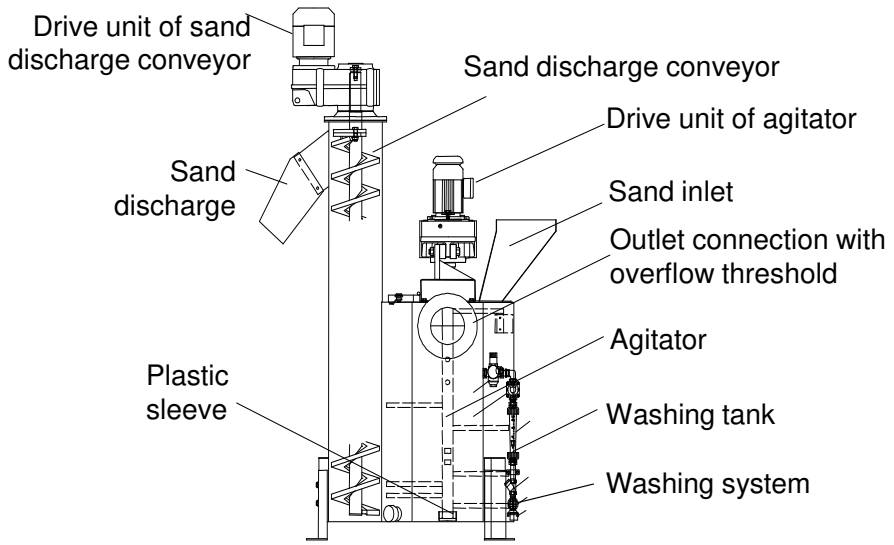
Sewer Grit Receiving Station

Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWL	GWC	GCC	GCC-V	GS

The Noggerath® Grit Washer, dry-fed GW feeding with dewatered, wet sand

Function

- Sand is supplied via a sand feeding hopper
- Rotating agitator separates the sand into light-weight and heavy-weight matter
- Bottom sand layer is conveyed into the feeding area of the discharge conveyor through the agitator elements
- Organic matter is separated and washed out through the washing water and flows through the outlet connection
- The washed sand accumulating on the bottom of the washing tank causes an increase in the torque by the agitator motor
- Via adjustable motor load control the torque of the agitator is recorded and the start-up signaled for the discharge conveyor
- The sand is conveyed by the discharge conveyor
- Only the bottom layer of the sand already washed reaches the feeding area of the discharge conveyor
- There is always a remaining amount of sand at the bottom to form a blocking layer against any discharging of unwashed sand



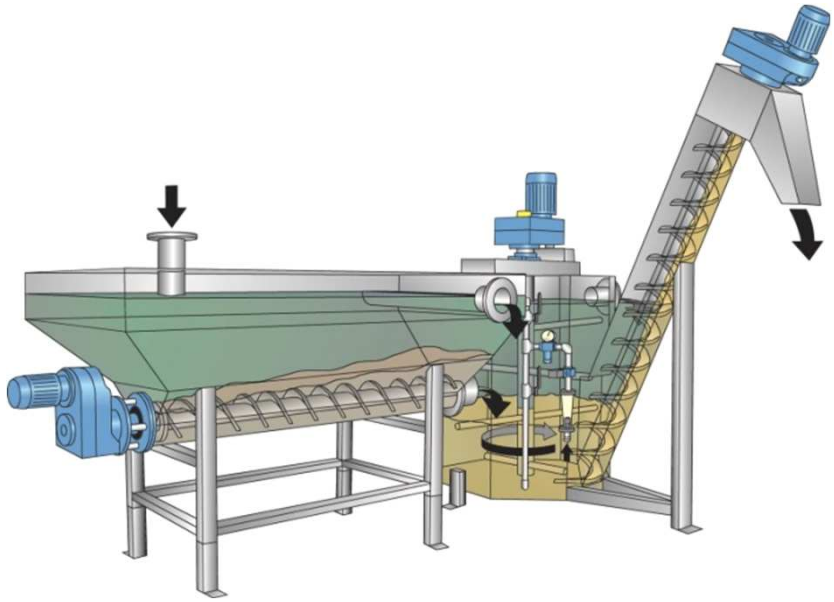
GW 100

Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWL	GWC	GCC	GCC-V	GS

The Noggerath® Grit Washer, longitudinal grit chamber GWL feeding with sand-water mixture

Function

- A long grit chamber may be added to a sand washer
- Sand-water mixture is supplied to the long grit chamber to reduce flow turbulences
- Sand settles directly into the feeding area of the sand collector accordingly to stoke is low
- The excess water flows out through the outlet connection
- After a determined settling time, the drive of the sand collector screw is activated intermittently
- Screw drive is queried for heavy duty by a motor load control.
- Sand is conveyed into the sand washer
- The sand washing process corresponds to the description for the Noggerath® GW Sand Washer

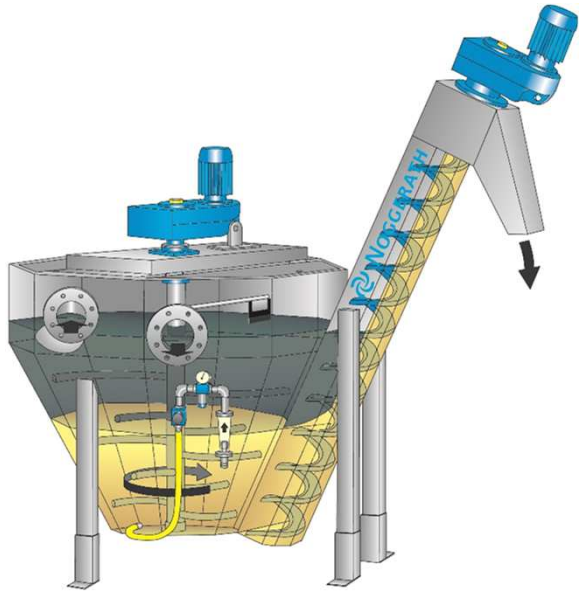


Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWL	GWC	GCC	GCC-V	GS

The **Noggerath® Grit Washer, circular grit chamber GWC** is used for flushing organic matter out of a sand-liquid mixture.

Function

- Sand/liquid mixture is fed tangentially into the circular grit chamber
- The liquid reaches the outlet via an overflow weir after a circular movement of 300°
- Sand settles on the bottom of the washing tank as a result of its dead weight
- Rotating agitator separates the sand into light-weight and heavy-weight matter
- Bottom sand layer is conveyed into the feeding area of the discharge conveyor through the agitator elements
- Organic matter is separated and washed out through the washing water and flows through the outlet connection
- The washed sand accumulating on the bottom of the washing tank causes an increase in the torque by the agitator motor
- Via adjustable motor load control the torque of the agitator is recorded and the start-up signaled for the discharge conveyor
- The sand is conveyed by the discharge conveyor
- Only the bottom layer of the sand already washed reaches the feeding area of the discharge conveyor
- There is always a remaining amount of sand at the bottom to form a blocking layer against any discharging of unwashed sand



Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWL	GWC	GCC	GCC-V	GS

Sizes & Technical Data

→ Conical (combined sedimentation and washing tank)

	Capacity, washed sand [m³/h]	Max infeed [l/sec]
GWC 300	0.3	8
GWC 750	0.75	12
GWC 900	0.9	16

→ Cylindrial (separate sedimentation and washing tank)

	Capacity, washed sand [m³/h]	Max infeed [l/sec]
GW(L)100	0.1	10 (standard)
GW(L) 400	0.4	30 (standard)
GW(L) 1000	1.0	up to 60 (standard)

Grit washer circular GWC, NEW split tank design for different positioning of in-outlet to the sand discharge

Noggerath® Product Family Grit Treatment

Product Overview

Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWC	GWL	GCC	GCC-V	GS

Advantages / Features

- Incineration losses 3 – 5 % in washed sand provided proper plant conditions
- Cost saving of up to 90 % depending on the way of disposal
- Re-use of washed sand possible
- Considerable reduction in quantity of sand to be disposed
- Significant reduction of transport costs
- Increase of organic nutrient supply in the waste water treatment plant due to refeeding washed-out organic content
- Possibly no nutrient addition required for denitrification
- Improved gas production in anaerobic sludge digestion

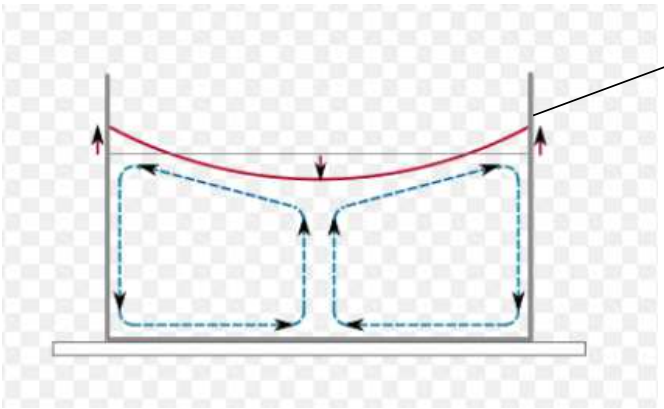
Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWC	GWL	GCC-V	GCC	GS

Noggerath® Vortex Grit Removal System GCC-V

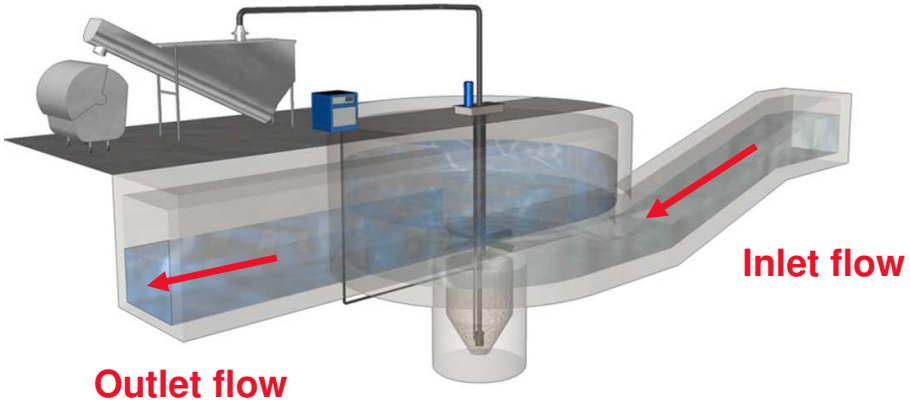
Separation and extraction of grit in municipal or industrial applications

Vortex Principle:

- The function is based on the physical principle of the centripetal force
- The centripetal force triggers solid particles to follow curved path towards the centre of curvature of the path
- This principle is also known as the tea cup effect
- Particles are being collected at the centre



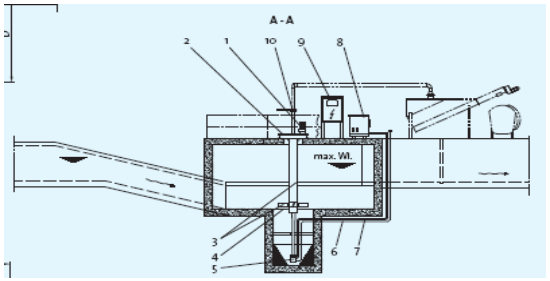
At the outer edge,
water level and pressure is highest



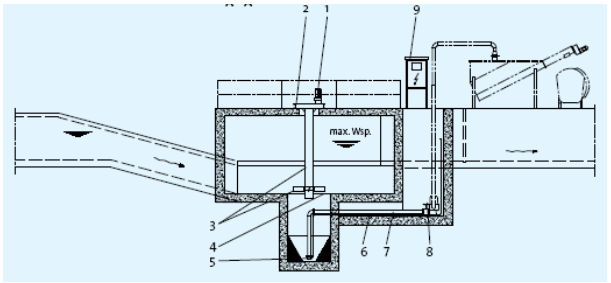
Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWC	GWL	GCC-V	GCC	GS

Function

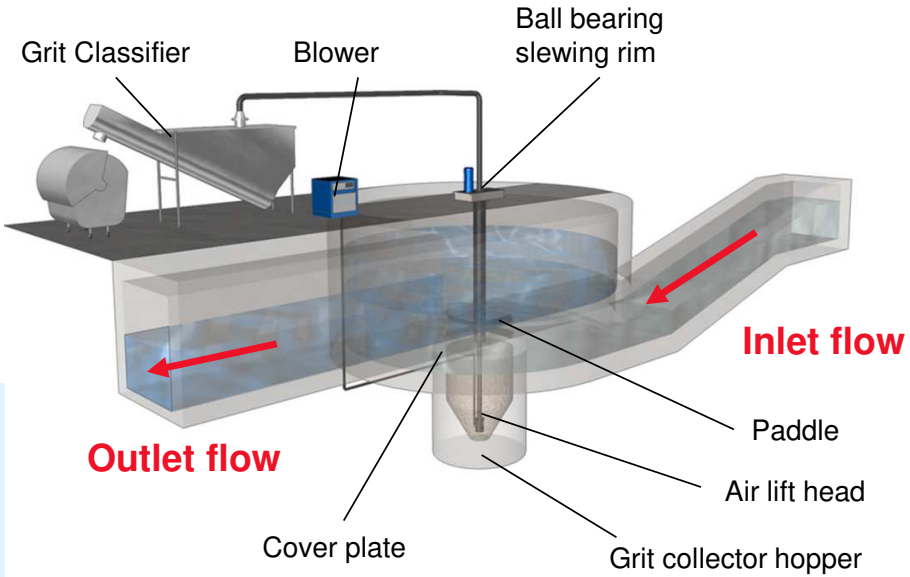
- Circulation mixer generates a high rotation velocity (Vortex) in the centre of the tank with a vertical component
- The lighter organic particles will be lifted and returned into the waste water flow
- Mineral solids are conveyed into the centre of the grit settling tank
- Grit particles removed from there by an ait lift or pump system



with Air lift pump



with Sand pump



Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWC	GWL	GCC-V	GCC	GS

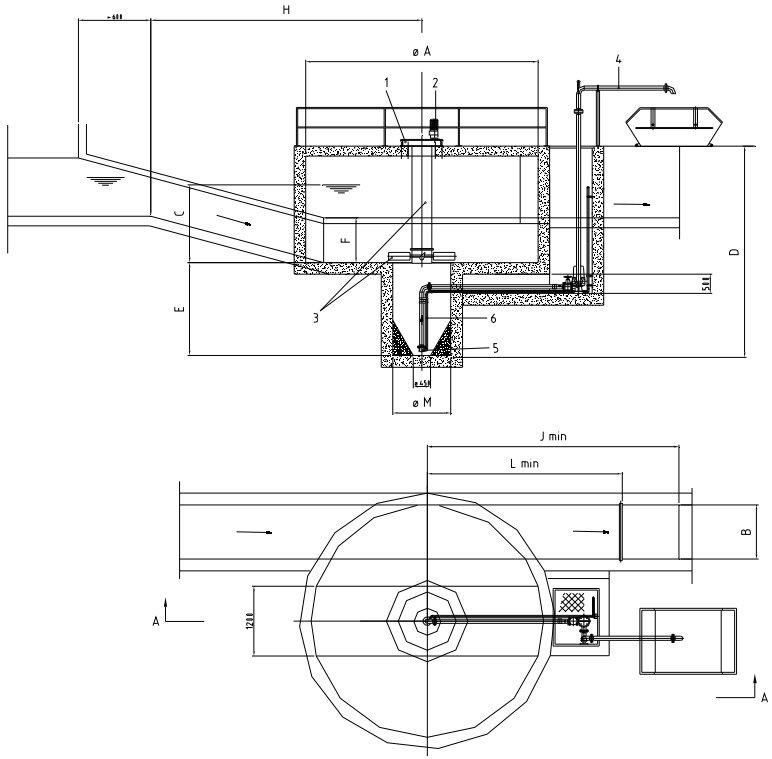
Sizes & Technical Data

Type	Diameter [m]	Flow rate [m³/h]
GCC-V 20	2.0	240
GCC-V 25	2.5	650
GCC-V 30	3.0	1050
GCC-V 35	3.5	1600
GCC-V 42	4.2	2400
GCC-V 50	5.0	3300
GCC-V 60	6.0	7200
GCC-V 73	7.3	11400

Separation efficiency
(grade of degritting)

Ø ≥ 0.30 mm => η = 95 %
0.30 mm ≥ Ø ≥ 0.21 mm => η = 85 %
0.21 mm ≥ Ø ≥ 0.15 mm => η = 65 %

Ø = diameter of sand particles
η = effectivity/capture-rate

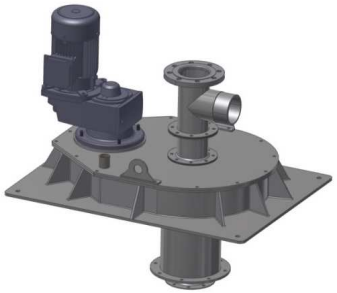


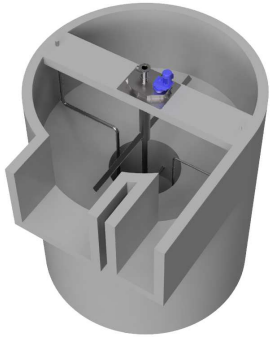
Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWC	GWL	GCC-V	GCC	GS

Noggerath® Circular Grit Chamber GCC
Separation and extraction of grit in municipal or industrial application

Function *The main difference to the GCC-V is in the design of the container (sloping walls - flat bottom), so here is no vortex principle used.*

- The Noggerath® Circular Grit Chamber GCC is installed within a circular tank
- The screened effluent enters into the tank by means of a suitable tangential inlet channel
- A rotary paddle creates a effect which settles the grit particles to the bottom of the grit trap
- Air is blown through a pipe into the base of the airlift system
- As this air rises through the central discharge pipe it carries the grit laden liquid to a grit classifier
- The effluent without grit exits via the outlet channel situated in the upper chamber





The Noggerath® Circular Grit Chamber GCC can be supplied also with grit extraction pump installed dry-feet instead of an air lift grit extractor.

Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWC	GWL	GCC-V	GCC	GS

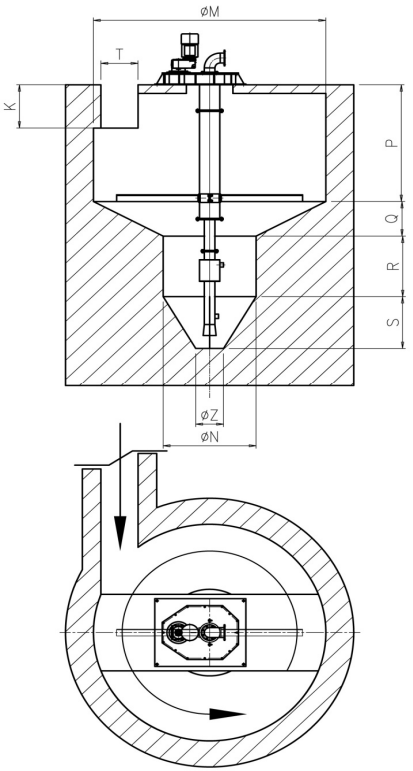
Sizes & Technical Data

Type	Diameter [m]	Flow rate [m³/h]
GCC 20	2.0	430
GCC 25	2.5	750
GCC 30	3.0	1400
GCC 35	3.5	1900
GCC 40	4.0	2800
GCC 50	5.0	5100
GCC 60	6.0	8200

Separation efficiency
(grade of degritting)

Ø ≥ 0.30 mm => η = 95 %
0.30 mm ≥ Ø ≥ 0.21 mm => η = 85 %
0.21 mm ≥ Ø ≥ 0.15 mm => η = 65 %

Ø = diameter of sand particles
η = effectivity/capture-rate



Noggerath® Product Family Grit Treatment

Product Overview

Aqseptence Group

Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWC	GWL	GCC-V	GCC	GS

Advantages / Features

- Easy operation and maintenance: main parts of the machine are in bolted section to grant good access for inspection and maintenance
- High capture rate of solids
- Low maintenance due to simple and robust stainless steel construction
- Low operating costs due to direct drive with low power consumption
- Low requirements for civil engineering
- Quick and easy installation
- Retrofit capability in existing plant

Lamella curtain of oil separator or grease trap

Pre-manufactured tank in production

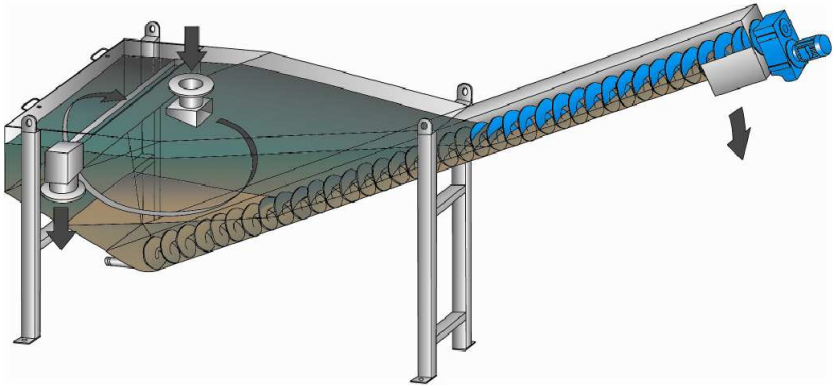
Noggerath® Product Family Grit Treatment

Product Overview

Aqseptence Group

Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWC	GWL	GCC-V	GCC	GS

Noggerath® Grit Classifier GS
Separation of grit, sand or other settleable solids from liquids
Contrary to the GW, the GS has no mechanical sand washing unit



Function

- Reject/water mixture is fed into the tank
- Turbulence is suppressed by the optimized inlet area
- Settling solids led to the conveyor spiral through
- Spiral starts rotating and the reject is conveyed to the discharge
- Liquid is led into the outlet connecting piece via overflow channel

Optional sand washing system FILWASH
- Removal of the organic matter due to the injection of air
- Washing system to reduce organic content in sand

Noggerath® Product Family Grit Treatment

Product Overview

Aqseptence Group

Grit Washer			Circular Grit Chamber		Grit Classifier
GW	GWC	GWL	GCC-V	GCC	GS

Advantages / Features

- Totally encapsulated sand separator
- Shaftless conveyor spiral with bearing at drive end only
- Low turbulent infeed of liquid-solid mixture
- Sedimentation of settleable solids at steep walls and guidance to conveying spiral
- Dewatering of materials by fixed cycle operation of conveyor

Sizes & Technical Data

Model designation based on flow rate - **GS 30**

Size	GS 30	GS 80	GS 100	GS 130
Flow rate [m³/h]	30	80	100	130
max. capacity grit separation [m³/h]	1.1			
Discharge height [mm]	1550	2000	2220	2600
Water surface [m³]	2.42	4.08		
Water volume [m³]	0.8	1.8	3.4	3.7
Grit removal efficiency [%] (sand particles Ø > 0.2 mm)	90			
Dewatering efficiency [%]	80			

Reduction of the suspended organic matter ≥50%
(with optional washing system FILWASH)

Noggerath® Sewer Grit Receiving Station

Reception of

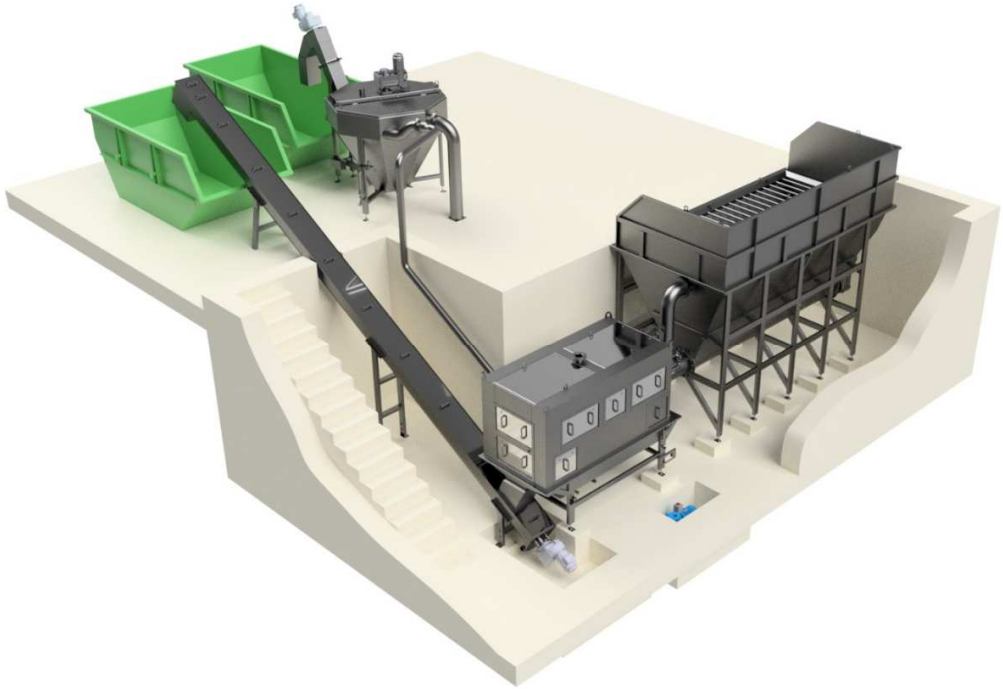
- Grit trap sediments, sewer grit or street rubble

Depending on

- Different media, catchment area and recycling process

Separation into

- Coarse Materials to ordinary landfill
- Washed sand to landfill class1, or re-use (depending on country standards)
- Organic-water mixture to wastewater treatment plant



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Grit Treatment

Grit Washer	Circular Grit Chamber	Grit Classifier	Sewer Grit Receiving Station

Example for installation

- Bunker
  - Optional with drainage sieve
- Bunker discharge conveyor
- Rotary Drum Screen RSH-I
- Coarse materials discharge conveyor
- Pump
- Grit Washer GWC

All Noggerath® Sewer Grit Receiving Stations are individual solutions, adapted to specific site conditions, materials and quantities

Aqseptence Group

Grit Treatment

Grit Washer	Circular Grit Chamber	Grit Classifier	Sewer Grit Receiving Station

Machine components:

- Stainless steel bunker

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Grit Treatment			
Grit Washer	Circular Grit Chamber	Grit Classifier	Sewer Grit Receiving Station

Rotary Drum Screen RSH-I

Passavant

Geiger

Johnson Screens

Noggerath

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