

HUBER Grit Treatment RoSF3 / RoSF4



Grams Dominick

HUBER SE

Product Manager Grit Treatment

09/10/2016



Why grit removal from wastewater?

To avoid wear on

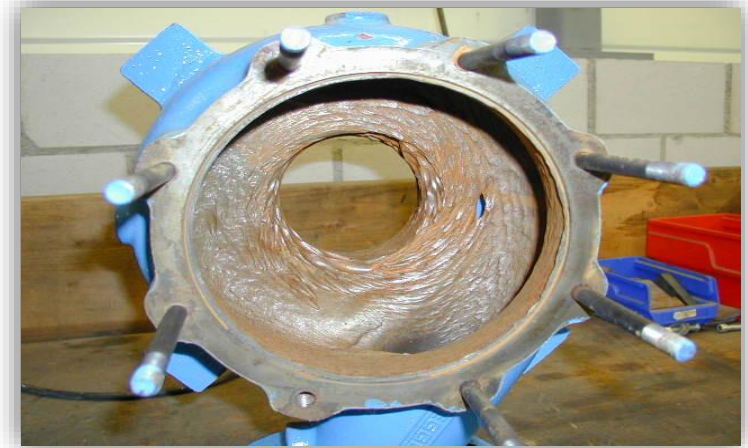
- pumps
- scrapers
- pipelines
- sludge dewatering systems

To avoid sedimentation in

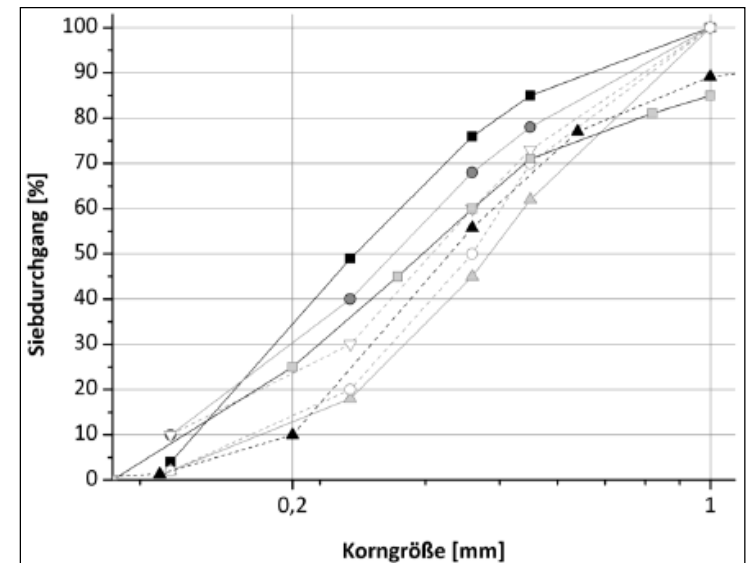
- the biological system
- pipelines and pump sumps
- the digester

Summary

- Prevents operating problems
- Avoids costs (maintenance and spare parts)



Wear on pump due to high grit amounts



Grain size distribution in grit contained within wastewater

Problems with the use of a classifier

Problems with the use of a classifier:

- According to region grit traps can separate a high rate of organic material.
- This leads to high disposal costs
- Due to the organic content also static dewatering is insufficient.
- Furthermore, the high organic content leads to problems with bad odours and vermin.
- The grit classifier removes degradable organic substances.

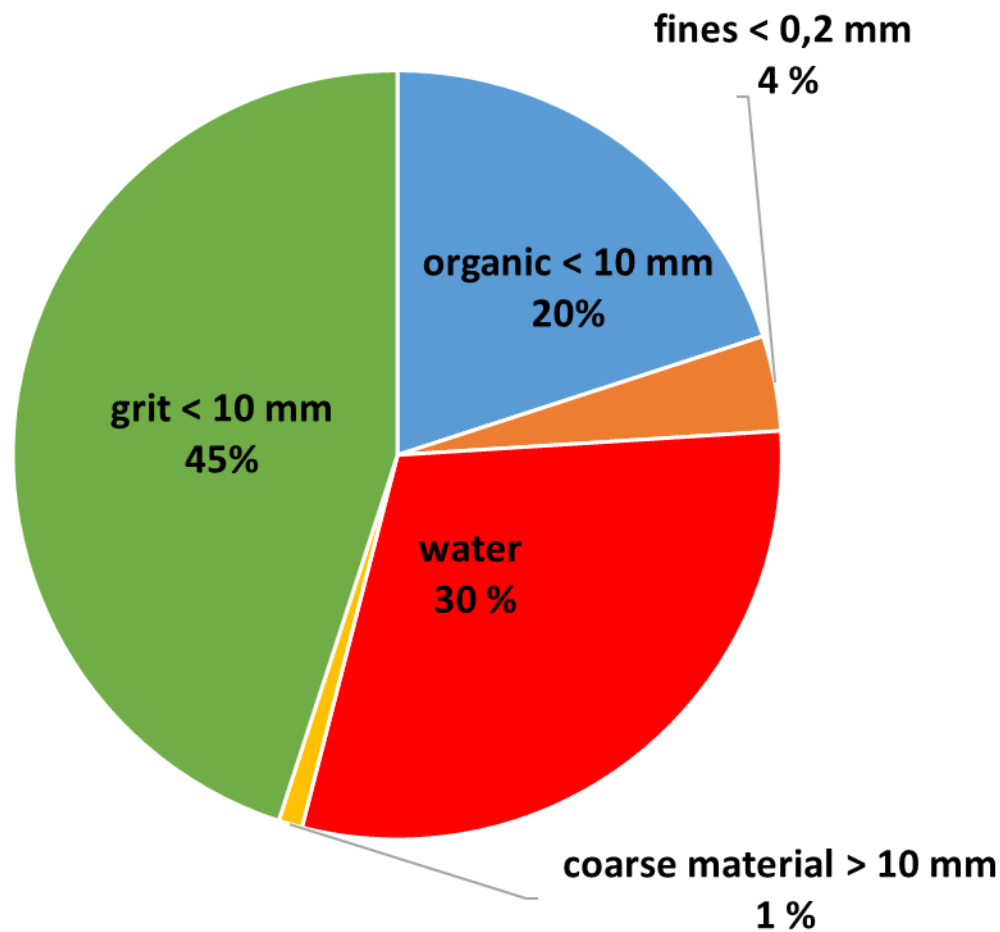


Grit trap on WWTP Mannheim



Typical unwashed grit trap material

Typical composition of grit trap material



Composition:

grit/ gravel /split /organic (grapes, feces etc.) water /fines /

Organic content: > 30 %

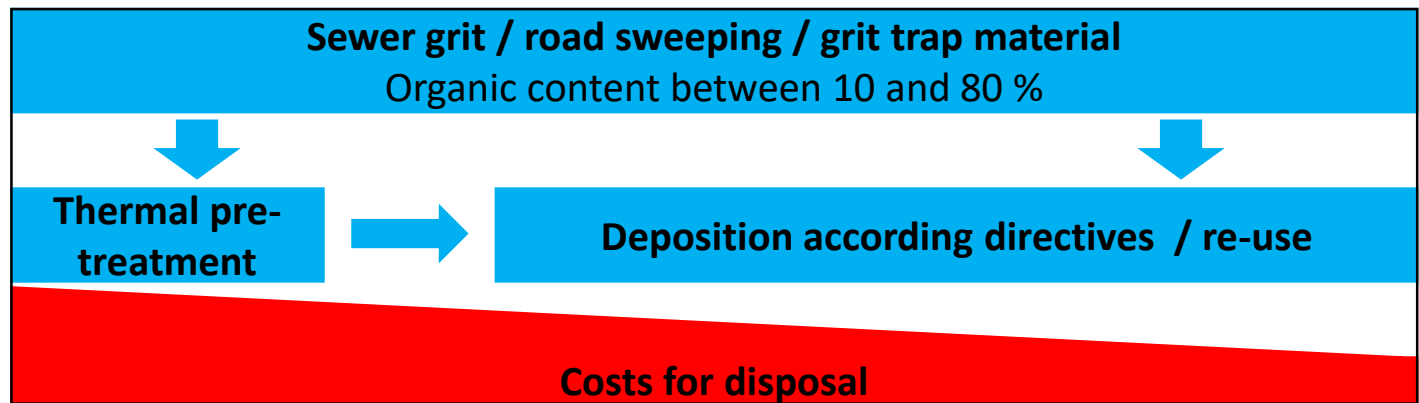
Dry solids: < 70 %

Massive odor problems

Direct deposition to Landfill – Directives in Europe?

Germany	Landfill class 1 (inert)	Landfill class 2	Landfill class 3
LOI	< 3 %	< 5 %	< 10 %
TOC	< 1%	< 3 %	/

Rest of Europe	Landfill class for inert material	Landfill class for non hazardous material	Landfill class for hazardous waste
LOI	/	/	< 10 %
TOC	< 3 %	< 5 %	< 6 %



Less organic will lead to less costs for disposal!

Reduction of disposal costs – How much saving in Germany?

Disposal costs about
100 Euro each Ton



Unwashed classified
material

Disposal costs about 30
Euro each Ton



Washed and classified
material

HUBER Coanda Grit Washer RoSF4

- Dewatering, washing and classification in one machine
- 95% separation efficiency for grain size bigger than 0.2 mm
- Loss on ignition below 3%
- More than 2,000 reference installations worldwide
- Up to 25 l/s hydraulic throughput
- Up to 3 t/h solids throughput

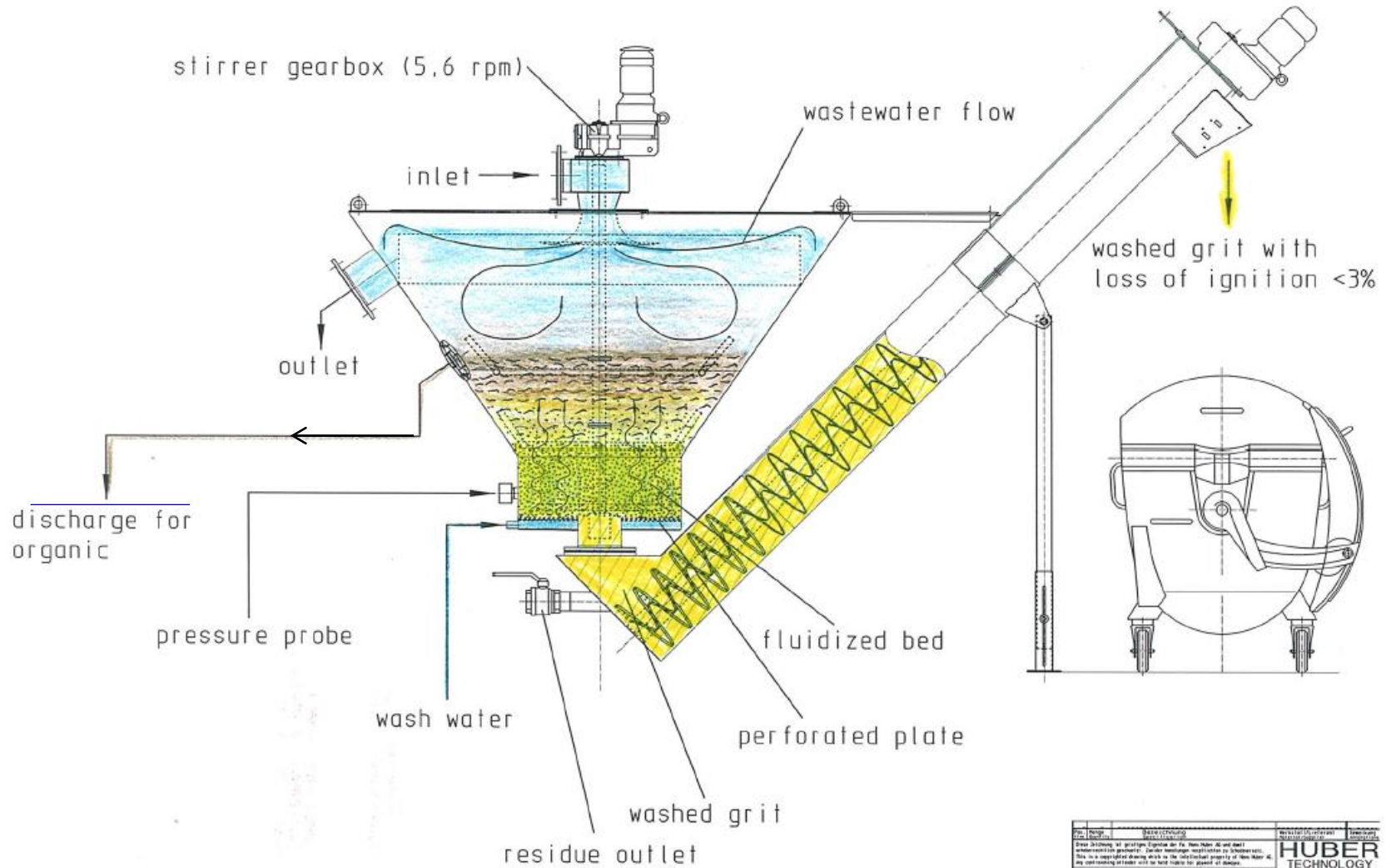


HUBER Coanda Grit Washer RoSF4 – clean and excellent



HUBER grit washing plant compared to competitive products

HUBER Coanda Grit Washer RoSF4 – function



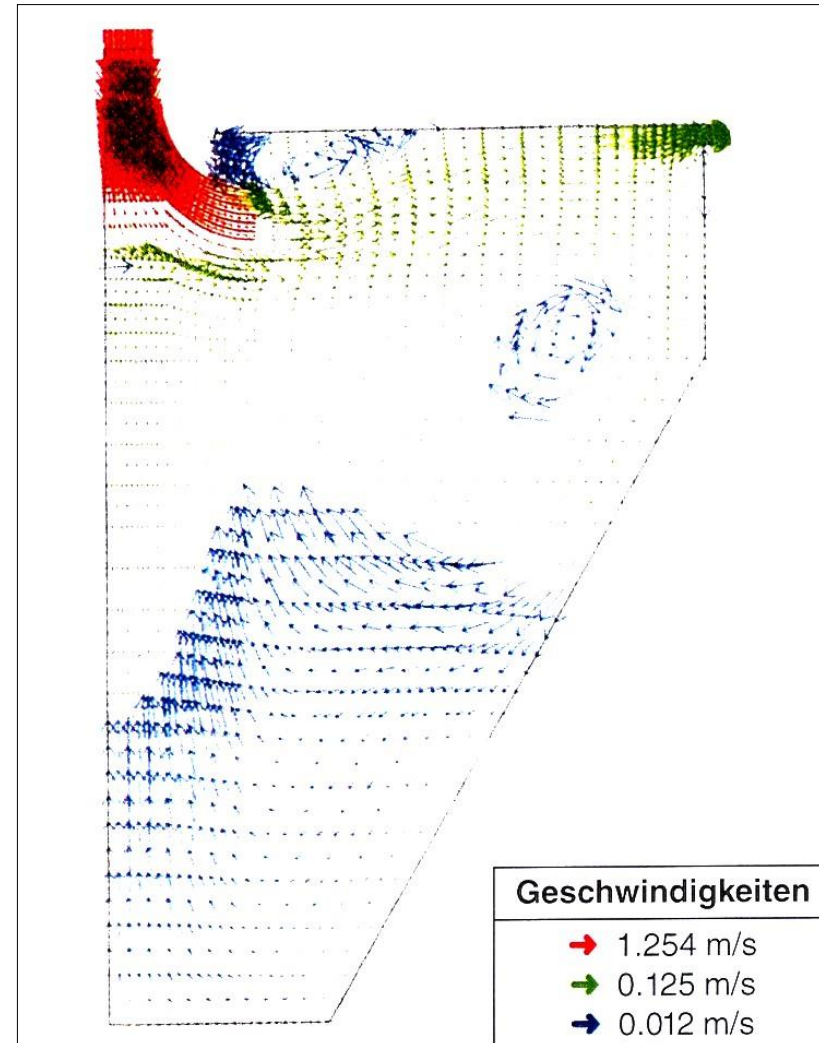
Proj. (Date)	Bezeichnung	Modell/Version	Modell/Version
	RoSF4	RoSF4	RoSF4
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Sedimentation due to particle size in the upper part of the tank

- Maximum separation efficiency through flow velocity reduction and optimised flow control
- The liquid phase is continuously removed over an overflow weir.
- The organic matter is regularly removed via a valve.



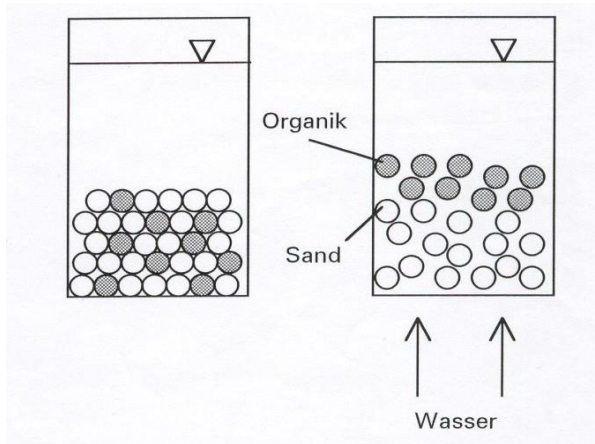
Overflow weir for the continuous discharge of the liquid phase



Velocity distribution in the tank, TU Munich

Washout of the sediments in the bottom part of the tank

- Due to the introduction of wash water in combination with a stirrer the grit in the lower part of the Coanda Grit Washer is fluidised within the flow enabling the lighter organic particles to be separated from the dense grit particles.



Fluidisation principle



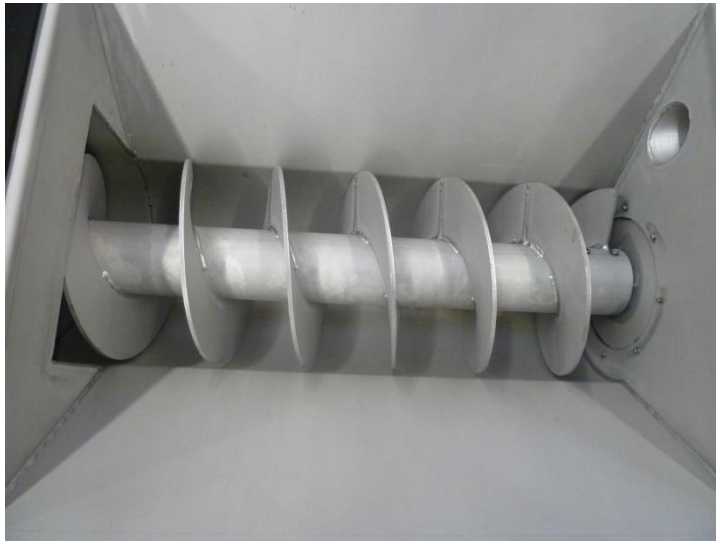
Stirrer and perforated plate bottom to fluidise the sediments

Washout of the sediments in the bottom part of the tank

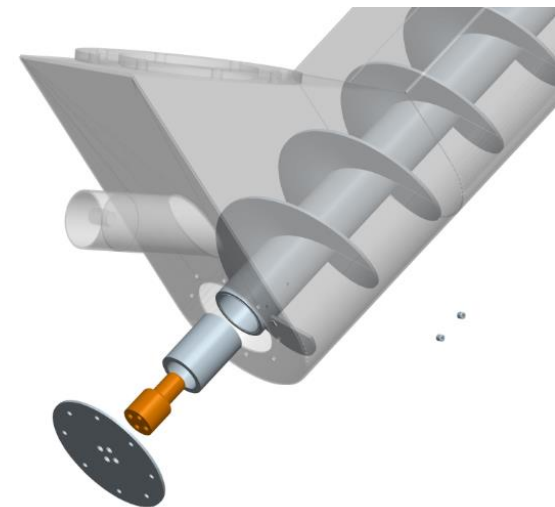
- Perforated plate bottom for optimal adjustment of the fluid bed
- Continuous discharge through pressure measurement and grit removal screw
- Wear-free grit discharge due to an optimised screw bearing



Capacitive pressure probe – real-time measurement



Wear-free screw design – no bearing shells



Screw design – robust bearing

Washout of the sediments in the bottom part of the tank



Washout of the sediments in the bottom part of the tank



Area of the pressure probe



Pressure probe Type Vegabar

Possibilities for feeding the grit washer?



Feeding by a pump system



Feeding by gravity

Possibilities for feeding the grit washer?



Degasing Tank after an airlift pump



Collection tank with feeding from several lines

Where to go with the organic phase?



In front of the rakes



Into the grit trap if aerated



Organic < 10 mm



Only organic phase into a wash press



Into the grit trap (not aerated)

Why should I buy a grit washer?

- ✓ Ignition Loss < 3 %
- ✓ Try substance > 90 %
- ✓ Less Odour
- ✓ Less costs for deposition
- ✓ In some cases the grit can be recycled



Thank you for your attention!

