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## New grease separation and removal system in our Hydro Duct grit traps

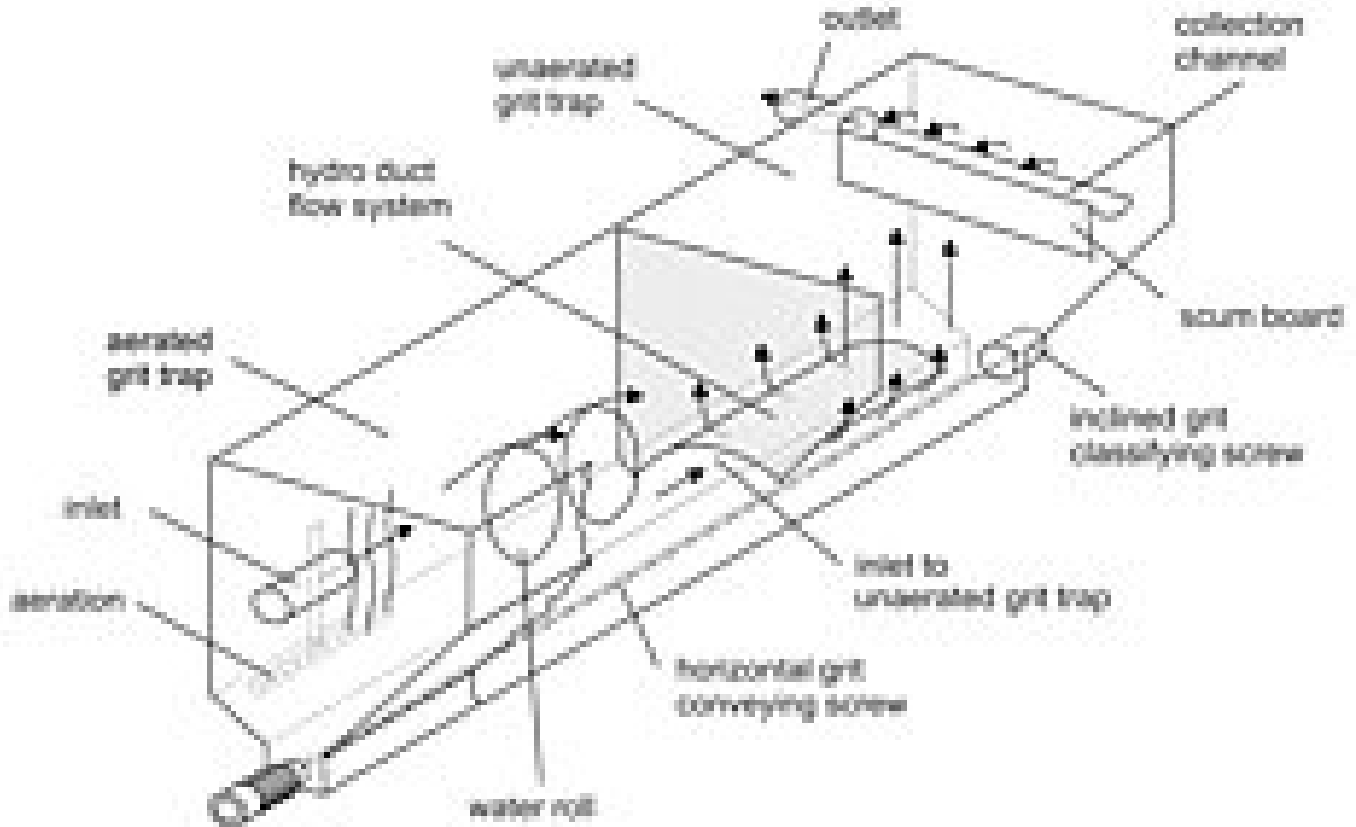


Fig. 1: Schematic drawing: Hydro Duct grit trap with grease chamber

### We help you to get rid of fat and grease!

Grease concentration in wastewater is usually measured by the content of lipophilic substances. A laborious extraction process is necessary to obtain this analytical value from a composite wastewater sample. Grease contained in wastewater is normally present as a dispersed (suspended) fraction. A small portion of the grease is contained as an emulsion, this can be explained by the use of solvents and rinsing liquors. Depending on the type of sewer (length, drop structures, number of pump stations, screens) it is differentiated between a coarse-particle phase (> 1 mm) and fine-particle phase of dispersed grease. Depending on their size and shape the particles can be separated easily, reasonably or only with difficulty in an aerated longitudinal grit trap with grease pocket. A definitive separation rate can however not be quantified, In contrast to the grit trap.

Large calm surfaces are positive for efficient grease separation. They permit dispersed particles to slowly rise towards the surface due to their density difference and accumulate without redispersing. This method is practised in conventional longitudinal grit traps with lateral grease pocket with more or less success. On the one hand, a certain flow roll is necessary as grease transport medium. On the other hand, the generated secondary flow roll in the grease trap must not be too strong.

With our patented Combi Grit Trap with Hydro Duct flow system we have managed to find a solution to this Sisyphean task. The innovative feature of the Hydro Duct grit trap system, which we presented at IFAT 2005, is the combination of an aerated and unaerated grit trap and thus provides the advantages of both aerated and unaerated grit traps in one plant. Fine bubbles of air are blown into the aerated area and induce a water roll. Organics are well kept floating and dispersed fine particles are floated up at the same time. The particles agglomerate and form a foam layer that moves slowly towards the outlet.

The aerated chamber is followed by an unaerated chamber in which laminar flow conditions prevail. Both chambers are separated by a scum board. A high separation rate of > 95% of the grit fraction size 0.20 – 0.25 mm is achieved without problems in this chamber through exactly defined velocities. The relative velocity is set to ensure that the majority of organic particles is still transported out of the grit trap plant along with the wastewater.

Due to the large surface in the unaerated chamber all dispersed coarse grease particles rise to the water surface in this chamber and mix with the foam of the aerated chamber. A scum board is installed in front of the outlet to prevent drifting off of the floating matter that



*Fig. 2: New grease chamber with grease paddle in action*

accumulates in front of the scum board. From time to time, an integrated automatic grease scraper carries the floating material into a grease chamber (see fig. 2). An eccentric screw pump is installed below the grease chamber and conveys the contents into a separation/grease tank or into a raw sludge chamber. Integrated grit conveying and grit classifying screws dewater the separated grit trap material and transport it towards the discharge where the material is dropped either into a container or an appropriate downstream grit washer.

Due to the new large grease trap system in our Hydro Duct type system the separation of dispersed coarse grease particles can be improved significantly. The grease trap system described above is implemented in all our HUBER Complete Plant ROTAMAT® Ro5 HD units.

**Come to where experience meets innovation!**

**HUBER CS spol. s r.o.**  
Sídlo společnosti  
Cihlářská 19  
602 00 Brno  
Česká Republika

Tel.: 532 191 545  
Fax: 532 191 575

Email: [info@hubercs.cz](mailto:info@hubercs.cz)  
Internet: [www.hubercs.cz](http://www.hubercs.cz)

Member of the HUBER group:  
[www.huber.de](http://www.huber.de)