

HUBER Solutions for Slaughterhouses / Meat Processing Industry



- Customized solutions from one source
- Longtime experience in industrial wastewater treatment
- Well-proven products
- A worldwide presence

►► The Situation

High COD, BOD₅, grease and solids loads are typical for slaughterhouse effluents and wastewater from meat processing factories. These parameters are decisive for the payable amount of effluent charges or surcharges for heavy pollution which are anticipated to further rise in the coming years. It is therefore necessary to reduce the amount of wastewater produced and minimize the loads discharged into the local municipal sewage treatment plant.

►► The Requirements

Requirements vary dependent on factory size and wastewater amount. Whereas a small factory only needs to eliminate its grease and solids loads, slaughterhouses are bound to additionally reduce their very high BOD₅/COD loads, caused by blood for instance.

Consideration of the individual case is the pre-requisite for a customized solution.

►► The Solutions

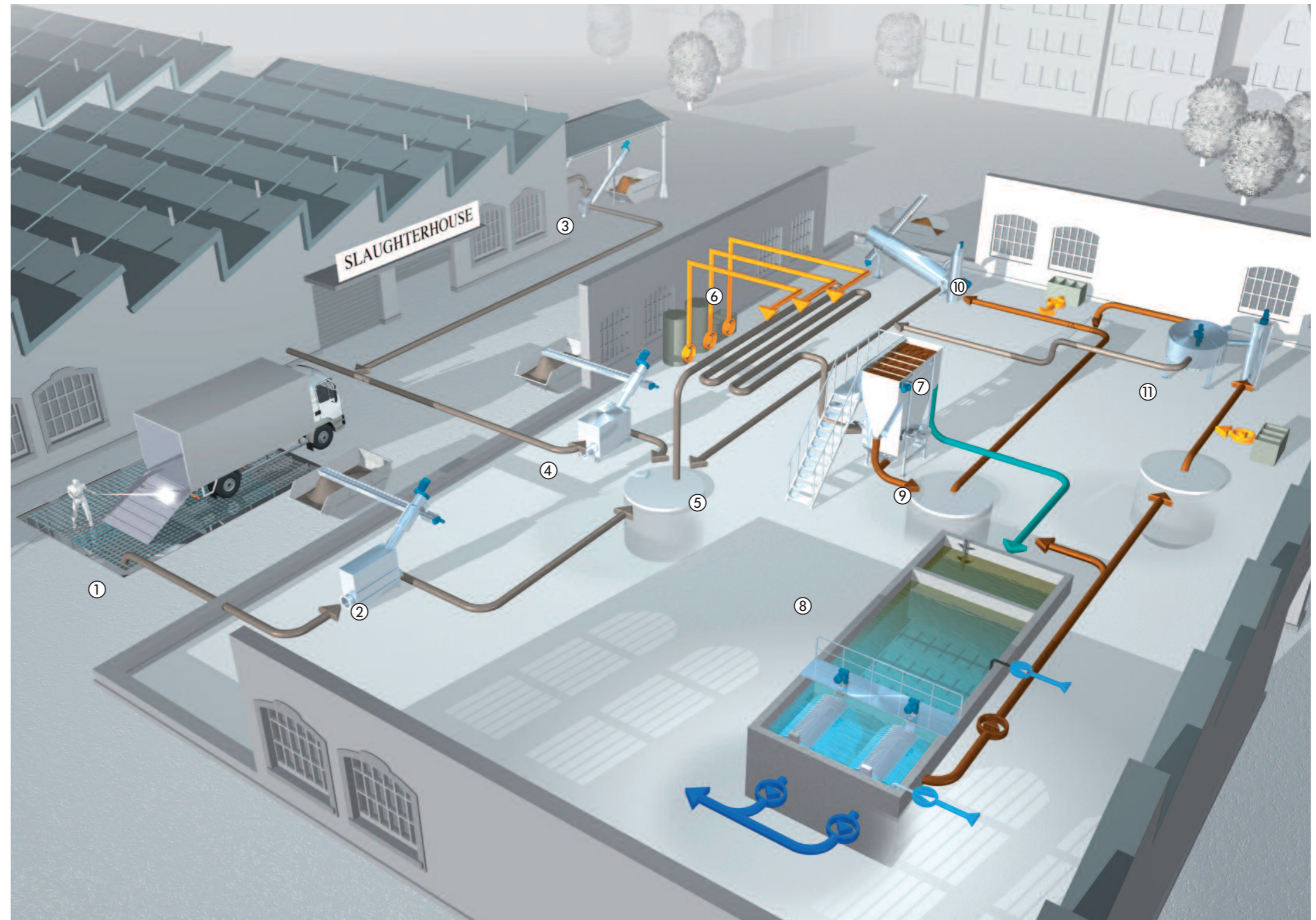
Small and middle-size slaughterhouses and butcheries

- Requirement: Reduction of grease and solids
- Concept: Screening followed by flotation without chemical treatment
- Reduction rates:
 - Grease: 80 - 90 %
 - Solids: 85 - 90 %
 - BOD₅/COD: 40 - 70 %

Big meat processing factories and slaughterhouses

- Requirement: Reduction of grease, solids and BOD₅/COD
- Concept: Screening followed by flotation with chemical treatment
- Reduction rates:
 - Grease: 90 - 98 %
 - Solids: 90 - 96 %
 - BOD₅/COD: 80 - 90 %
- Solids dewatering:
 - DS: 20 - 35 %

►► The System Concept



Various specific concepts have been developed and successfully realized in recent years by HUBER. Besides big slaughterhouses and meat processing factories, also small and middle-size slaughterhouses and butcheries are among HUBER customers. Their specific wastewater problems have been solved individually.

►► The System Concept

Truck Washing:

The wastewater from truck washing contains mainly straw and sawdust, which do not only increase the BOD₅/COD but are also an undesirable load in following sewer systems. It is therefore necessary to remove as many as possible of the solids from the wastewater flow. Since many years the ROTAMAT® Micro Strainer Ro 9 has successfully been used to achieve this. Dependent on the individual installation, the wash water is collected in an intermediate storage tank ① from where it is pumped into the Micro Strainer ② or fed directly into the screen via a channel.

In addition to the excellent clarification efficiency the Ro 9 Micro Strainer dewateres the screenings to min. 35% DS.

Its benefits are the reduced discharge amounts for disposal and minimized effluent loads, which result in significant cost savings.

Paunch Manure Press:

35 to 50 kg paunch manure with 90 % water content are produced per head of cattle. This involves serious disposal problems for every slaughterhouse. The HUBER Paunch Manure Press ③ achieves a

- Volume reduction of 50 - 60 %
- Weight reduction of 30 - 40 %
- Final solids content of 20 - 40 %

The available press sizes are for:

- Up to 40 head of cattle
- Up to 70 head of cattle

The press liquor is passed on to the red wastewater treatment line.

Its benefits are the reduced discharge amounts for disposal and minimized effluent loads, which result in significant cost savings.

Wastewater Treatment:

Process description of the HUBER concept (see drawing):

The wastewater from the red line is collected in a sump shaft, from where it is pumped into the ROTAMAT® Rotary Drum Fine Screen ④ with 1 mm bar spacing. The mechanically pre-clarified wastewater is stored in an intermediate storage tank with stirrer ⑤. Such an intermediate storage tank is necessary to compensate hydraulic peaks and peak loads.

The HUBER Dissolved Air Flotation Plant ⑦ is fed from the intermediary storage tank and can be operated without or with optional chemical treatment, as described above.

If a chemical treatment stage is used, the wastewater passes through the pipe flocculator ⑥. The chemical doses are added on different points of the flocculator. The chemicals storage tanks and polymer preparation stations are also available from HUBER.

The wastewater can be passed on either to the municipal or the company's own wastewater treatment plant, depending on the discharge requirements.

HUBER offers also for this purpose a compact and efficient solution, the HUBER Vacuum Rotation Membrane VRM® Bioreactor ⑧ for biological clarification of the wastewater by means of ultrafiltration membranes that separate the wastewater from the activated sludge achieving direct discharge quality.

Solids Treatment:

The removed flotote sludge falls into an intermediate storage tank with stirrer ⑨. Also the sediments from flotation, screenings, paunch manure and solids from cattle vehicle washing can be stored there and mixed with the flotote sludge.

The HUBER ROTAMAT® Screw Press RoS 3 ⑩ is able to dewater the flotote/sludge mixture to up to 35 % DS. Such a type of flotote sludge treatment significantly reduces the volume and weight of the flotote sludge and minimizes disposal costs.

The biological excess sludge from the membrane plant can be pre-thickened with the ROTAMAT® Disc Thickener RoS 2S ⑪ and then also dewatered with the RoS 3. The press liquor is passed on to the wastewater treatment system.



PEPSICO / Argentina: food processing
 ROTAMAT® Micro Strainer Ro 9,
 HUBER Dissolved Air Flotation Plant HDF-75 with chemical
 treatment, throughput: 70-80 m³/h



PEPSICO / Argentina: food processing, Discharging
 ROTAMAT® Screw RoS 3, Final DS: 25 - 30 %



PEPSICO / Argentina: food processing
 ROTAMAT® Screw Press RoS 3, throughput: 5 - 10 m³/h



Slaughterhouse Ingolstadt / Germany
 Top: ROTAMAT® Micro Strainer Ro 9, HUBER Dissolved Air
 Flotation Plant HDF-3 with chemical treatment,
 throughput: 30 m³/h
 Left: Truck washing with ROTAMAT® Micro Strainer
 Ro 9 in tank, final DS > 35 %



Slaughterhouse Hinwil / Switzerland ROTAMAT® Rotary Drum Fine Screen Ro 2, HUBER Dissolved Air Flotation Plant HDF-50 with chemical treatment, throughput: 50 - 60 m³/h, ROTAMAT® Screw Press RoS 3, throughput: 5 m³/h



Slaughterhouse Medinat Zaved, U.A.E. ROTAMAT® Micro Strainer Ro9, HUBER Dissolved Air Flotation Plant HDF-1, throughput: 10 m³/h



Butchery Walk / Germany: meat processing ROTAMAT® Micro Strainer Ro 9 in tank, HUBER Dissolved Air Flotation Plant HDF-1 without chemical treatment, throughput: up to 10 m³/h



Hans Kupfer & Sohn GmbH Co. KG / Germany HUBER Dissolved Air Flotation Plant HDF-10 with chemical treatment stage, throughput: 100 m³/h



Slaughterhouse Carnes Darc / Chile ROTAMAT® Paunch Manure Press Ro 7a, throughput: up to 90 head of cattle per hour

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