

# HUBER Tipping Buckets

Optimal cleaning of stormwater tanks



- For optimal cleaning results
- For flushing lane lengths up to 75 m
- Sturdy bucket design
- Low-noise tipping
- For any flushing medium
- Optimized slide bearing for an easy tipping motion
- Well proven low-cost cleaning system

**HUBER... The specialist for solids / liquid separation**

## The situation:

Central wastewater discharge systems can be either combined or separated sewer systems. In combined sewer systems the dry weather and combined water flow are discharged both in one channel, whereas separate sewer systems have two channels, one for the dry weather flow and one for stormwater. Due to the limited storage capacity of drainage systems, additional storage facilities are installed at exposed positions, such as stormwater overflow, retention or clarification tanks.

During intermediate storage of the wastewater in the tanks, the coarse material settles on the tank bottom. Dewatering of the sediments results in a consolidated

layer covering the tank bottom. The biological activity of such mainly organic sediments may lead to odour annoyance caused by biogas generation and to health risks caused by the increased germ load. It is therefore necessary to remove the consolidated layer of sediments after every impoundage event, either manually or by means of automatic removal systems.

For safety and health reasons manual cleaning has to be carried out by a team with adequate self-containing breathing apparatus, especially in covered tanks, due to the special ambient conditions. There are however low-cost alternative mechanical systems available to perform such expensive manual work.



*Sediments in tanks without automatic cleaning*



## The solution:

Systems which generate a flush are suitable to clean storage tanks with a rectangular basal surface. An especially reliable and cost-effective solution to remove the settled material are tipping buckets as they neither have moveable parts submerged in wastewater nor do they require any special flushing medium. Tipping buckets are arranged on the tank side opposite to the



*Tipping buckets with flushing medium supply*

sump. They consist of a trough that takes up the medium and is supported outside the axis of rotation. During the filling process a torque is generated as the filling level in the trough increases, which effects automatic tipping of the bucket when the trough is completely filled.

During the tipping action the flush water is diverted by a concrete radius at the tank bottom from the vertical into horizontal direction. The medium used can be potable water, used water or wastewater, the necessary amount depending on tipping height, base slope and flushing lane length to be cleaned. The tipping buckets can be suspended on the side wall, ceiling or front wall.



*Stormwater holding sewer with integrated chamber for installation of tipping buckets*



*Tipping buckets suspended on side walls in a rectangular storage tank*



*Tipping action in a covered structure*

## The product:

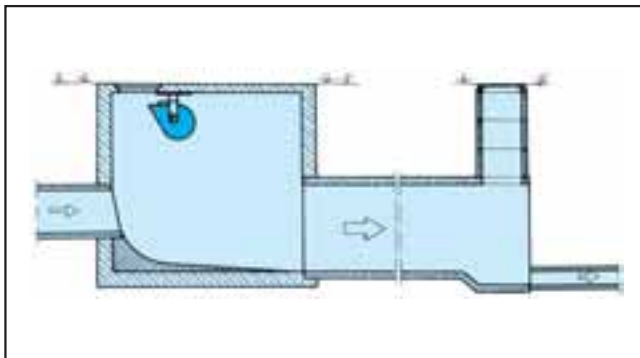
To ensure efficient and cost-effective cleaning of different tank shapes, the SK Tipping Buckets are available for 8 different specific flush water amounts from 350 to 2,000 l/m and for tanks with up to 75 m flushing lane length. The bucket including all attaching parts is manufactured from 1.4301, or upon customer's request 1.4571 stainless steel, and acid-treated in a pickling bath. The bucket bearings are slide bearings designed especially for the static and dynamic loads. The special bucket design effects a low-noise tipping operation so that additional sound insulation is unnecessary, and ensures that the flush water is optimally poured out so that the full kinetic energy of the flushing medium can be used for the cleaning process.

The special design of the buffers ensures gentle introduction of the forces into the structure during tipping of the buckets. Due to their wide spectrum of sizes ranging from 350 to 2,000 l/m, the tipping buckets can be used to clean storage tanks with a square or rectangular basal surface and a flushing lane width of up to 6 m.

## Characteristic data of available tipping bucket systems

System size	Specific capacity	Drop height	Maximum flushing lengths
1	28 gal / ft	15 ft	approx. 72 ft
2	40 gal / ft	15 ft	approx . 85 ft
3	56 gal / ft	15 ft	approx . 108 ft
4	72 gal / ft	15 ft	approx . 128 ft
5	85 gal / ft	15 ft	approx . 151 ft
6	97 gal / ft	15 ft	approx . 174 ft
7	113 gal / ft	15 ft	approx . 190 ft
8	161 gal / ft	15 ft	approx . 230 ft

Bottom slope 2 %



*Stormwater retention tank with separate chambers which are cleaned by tipping buckets*

Another application is cleaning of sewers with storage capacity and overflow. For integration of the tipping buckets into such structures, a centrally or laterally arranged chamber is necessary to integrate the diverting radius and for connection to the channel bottom. Multiple flushing of stormwater holding sewers with a dry weather channel is realizable at a relatively small expenditure.

Different support constructions are available for installation of the tipping buckets in the structure. To obtain the optimal cleaning result, the sump design must be adjusted to suit the cleaning capacity of the tipping buckets. An optional electric impulse counter counts the impoundage events and transfers the results to a central station by telemetry and remote control. Counting of impulses also allows for a operating costs calculation.

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All data, diagrams or photos included in this brochure are subject to further technical development.

### Advantages:

- **Stainless steel design**
- **Low maintenance**
- **High efficiency**
- **Low energy demand**
- **Low-noise tipping**

## HUBER TECHNOLOGY, Inc.

9805 NorthCross Center Ct.  
Suite H  
Huntersville, NC 28078

Phone: (704) 949 - 1010  
Fax: (704) 949 - 1020  
usainfo@huber-technology.com  
http://www.huber-technology.com

Subject to modification	<b>SK</b>
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