



## **Aqua-Flush Tipping Bucket**



**Aqua Technologies for the Water and Wastewater Industries**

# The Classic Flush Cleaning Device



Tipping buckets are mainly used for the cleaning of storm water/CSO tanks. During spread times solids settle at the bottom of these tanks due to the low hydraulic flow velocity inside the tank. These solids and contaminants have to be removed from the tanks after storm events for odor control, reasons of hygiene and to avoid vermin infestations. The filling and emptying of the storage/retention facility to be cleaned is monitored with ultrasonic water level sensors. The water level is monitored at the pump sumps. After the facility has been filled and emptied again, the Tipping Buckets are automatically filled. The centre of gravity of a tipping bucket shifts during filling. Just before completely being filled the bucket tips over and dumps the flush water into the storage/retention facility. In order to minimize hydraulic losses a radius at the bottom of the drop redirects the vertically falling water into the horizontal direction generating the desired strong flush wave. After emptying the bucket rotates automatically back into its resting position.

Parameters that need to be known for sizing and design of the tipping bucket, pump sump, filling system are floor slope, max water level - height of drop, flush lane lengths and the total widths of facility. The bucket volume is individually sized for each project in order to minimise material usage and flush water requirements. Multiple buckets can be connected with flex couplings to increase the flushable width.

A tipping bucket consists mainly of a rolled trough with a 30° triangle chute with inner bracing spaced according to structural requirements. The bearings of the buckets can be carried out with sidewall, headwall, top of wall or ceiling bearings. In order to utilise the material properties to the fullest, a design routine based on finite element analysis was developed. With this material usage could be minimised while meeting maximum structural requirements. Design has been automated to allow infinitely adjustable, step less bucket construction of any custom size to minimise material usage and flush water requirements. To stabilise the buckets intermediate bracing is used according to structural requirements.

## Features:

- Flush lengths up to 80m standard, longer length in special cases
- Lightweight design according to Finite Element
- Custom bucket volumes for lowest weight and flush water demand
- Easy for retrofitting
- Low energy requirement
- Complimentary sizing and technical consultation
- Silent tipping action through ideal stopper placement
- Frost safe, low maintenance
- Solar operation with Aqua-Control Solar

## Technical Data:

- Material:
  - Trough: Stainless Steel AISI 304 or 316
  - Damper: EPDM
  - Bearings: Stainless Steel AISI 304 or 316
- Drive: self-powered
- Standard sizes: 300 to 2000 l/m infinitely adjustable
- Max. Bucket Width: standard to 8 m, custom widths possible,
- Coupling of multiple buckets possible with Flex-Coupling
- Min. Floor Slope: 0.5 %
- Controls: PLC, 24V / 0.3 A DC, inductive end position sensor

