



Steinhardt  
**HYDR****GUARD**<sup>®</sup>

Inverted Siphon Flush

Powerful Inverted Siphon Flush  
prevents sediments



**Steinhardt**<sup>®</sup>  
Water Technology Systems

## Inverted Siphon Flush

### The challenge

Sewer networks have grown historically. They adapt to local conditions. Deep sewers are expensive and subject to more groundwater infiltration, which is why sewer networks with smaller ground cover are preferred. Inverted siphons of all kinds are used to pass under waters, buildings and roads. All inverted siphons require high maintenance, as they tend to sediments and clogging.

Up to now, inverted siphons have been cleaned with clearing blades, brushes and force pumps. Flushing from the siphon head (upsurge flush) is of limited success, as the flush takes place in the water cushion of the inverted siphon and the force is dissipated.

### The way

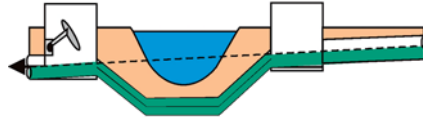
Inverted Siphons should be cleaned with the Steinhardt® Downsurge Flush (Drop Flush) so that the energy (shear stress) can be regulated by the height difference in levels and the increase in speed to remobilise the sediments.

### The product

The HydroGuard® Inverted Siphon Flush is installed down stream in the following manhole or following sewer. It consists of a flushing shield, an electro-hydraulic drive, water level sensors upstream and downstream as well as on-site controls with optional remote controls.

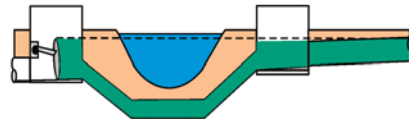
patents pending

### Basic position:



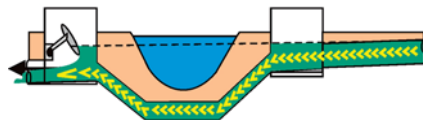
The HydroGuard® Inverted Siphon Flush is always open in the basic position and moves into the flow cross-section for automatic flushing of the inverted siphon. The wastewater is impounded through the inverted siphon into the sewer network for a short time.

### Impound:



The flushing shield moves out quickly and the impounded wastewater flows into the outlet sewer. The water level sinks rapidly, the flow velocity increases and remobilises the sediments in the inverted siphon. The water impounded in the sewer network pushes into the siphon and maintains a long and lasting flow velocity and rate in the inverted siphon.

### Inverted Siphon Flush:



Sediments are prevented with the continual use of the HydroGuard® Inverted Siphon Flush e.g. once a week.

### Flushing



Downsurge Flush leaving inverted siphon



### Areas of Application

- under passing waters
- under passing traffic routes
- under passing buildings

### Advantages

- robust stainless steel construction
- can be retrofitted, also through small openings
- hydraulic drive
- space saving
- automatic operation
- continuous flushing
- high operational safety
- large hydraulic flow
- high flow velocity
- high shear stress
- high degree of cleaning
- bio-oil if required
- no readjustment
- design support from Steinhardt