

**AquaLimit**

**Vortex shaft with stainless steel throttle valve for stormwater retention systems**



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**DRAINAGE SYSTEMS**  
ELECTRICAL SYSTEMS  
BUILDING TECHNOLOGY  
INDUSTRIAL PRODUCTS

# AquaLimit vortex shaft



AquaLimit is a D<sub>o</sub> 600 polypropylene (PP) ready-to-connect vortex shaft that is suitable for many applications and features an integrated stainless steel throttle valve produced by **UFT Umwelt- und Fluid-Technik Dr. Brombach GmbH**. AquaLimit combines a strong discharge performance with highest operational reliability. No movable parts are required when using throttle valves which guarantees minimised maintenance requirements. The removable throttle valve can be maintained and subsequently adjusted in the vortex outlet. Stormwater retention systems discharge quickly but at the same time in a controlled manner that does not harm the point of discharge. Therefore, the

entire retention volume is quickly available for the next rainfall event.

### Note

**AquaLimit is manufactured and dimensioned according to each project's needs.**

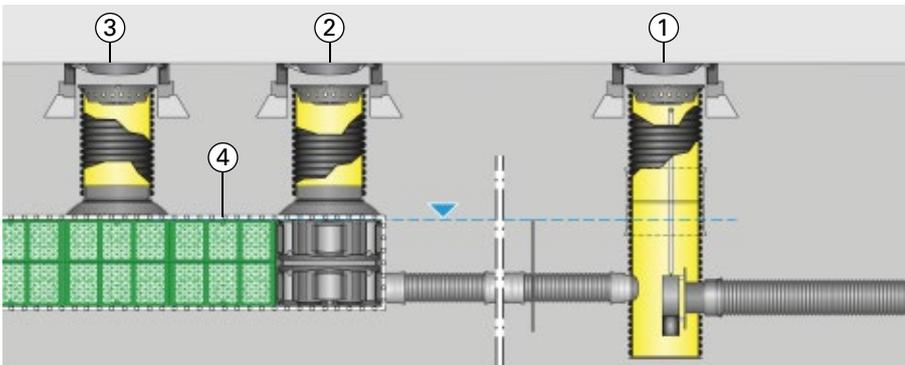
**The range of the throttle outflow depends on the height of the water level in the basin/tank. For instance, a filling height of approx. 0,80 m allows a throttle discharge of max. 40 l/s.**

## Application in stormwater retention systems

Stormwater runoff from paved surfaces that cannot infiltrate naturally leads to peak loads in sewer system. Stormwater retention systems (e. g. swales or

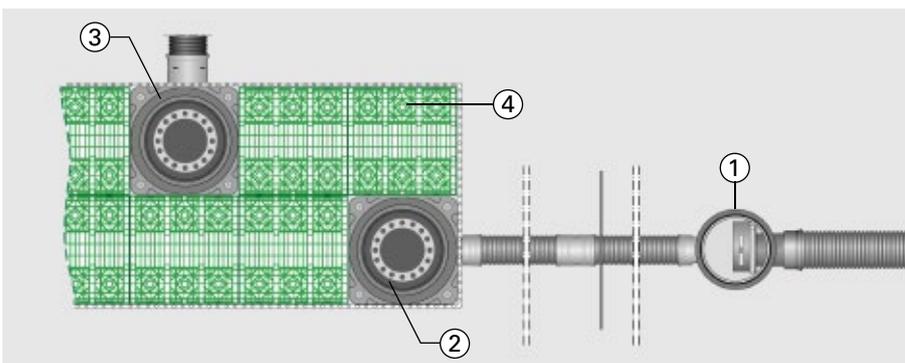
storage tanks) are used to prevent impulsive loads and flooding. They collect stormwater in a storage tank and discharge it later but continuously.

### Storage/retention unit with AquaLimit



Example, cross section

Storage/infiltration units store stormwater and discharge it later. For storage/infiltration systems where no or only incomplete infiltration is possible, discharge is usually controlled by a throttle element.



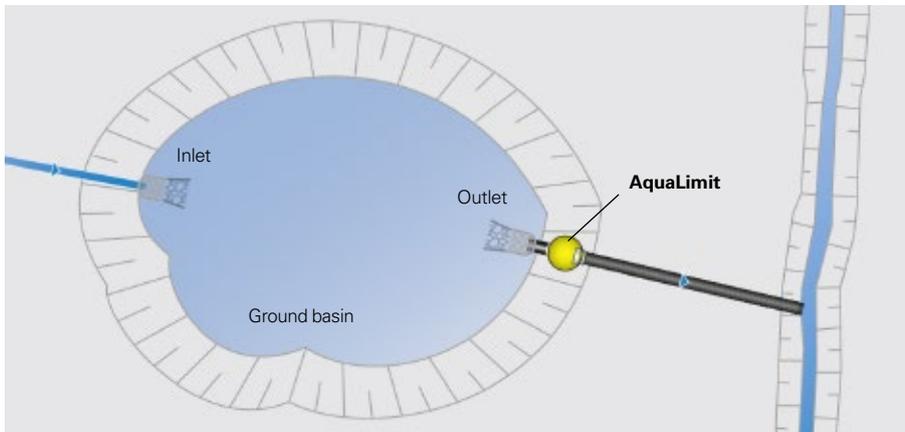
Example, top view

### Caption

- ① **AquaLimit** throttle shaft D<sub>o</sub> = 600
- ② **QuadroControl** with outlet at the bottom of the shaft
- ③ optional **QuadroOverflow** emergency overflow shaft
- ④ **Rigofill inspect** – storage/infiltration unit Example: 1-layer

# Application in stormwater retention systems

## Storage tank with AquaLimit



Ground basins can discharge in a controlled way using the AquaLimit vortex shaft.

AquaLimit in ground basins

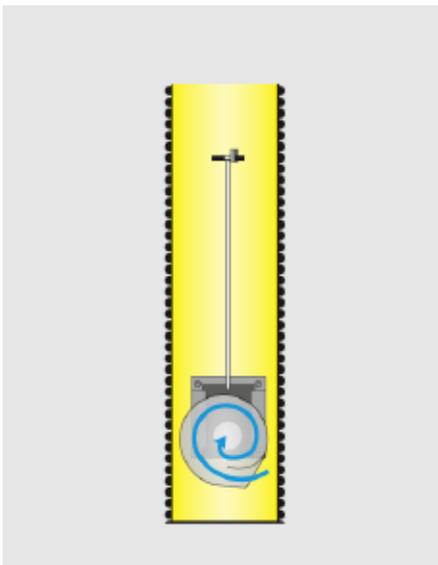
## AquaLimit system benefits

### Easy installation:

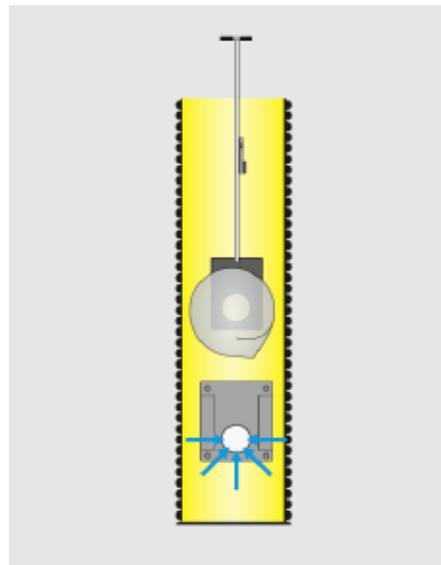
- delivered ready-to-connect
- integrate vortex shaft into the drainage system – done!
- particularly efficient and convenient handling during installation as compared to conventional reinforced concrete shafts

### Operational requirements are fulfilled without requiring access to the shaft:

- valve can be removed and re-inserted
- emergency emptying of the tank possible
- cleaning of the valve surface without access being required
- subsequent adjustment of the vortex outlet possible



Control state: vortex effect



Valve removed: tank emptying, valve maintenance

Particularly efficient operation thanks to lifting bars for on-site assembly and dis-assembly. The vortex valve can be

removed and re-inserted at any time for maintenance or emergency emptying.

# Operating principle

## The throttle valve

The throttle valve works according to a simple, all hydraulic principle; it is self-activating and does not require external power supply. Compared to the orifice, a throttle valve

generates a relatively constant discharge, irrespective of the water level in the storage/infiltration system. This ensures that the storage/infiltration system empties within the shortest possible

time and is available again for the next rainfall event. Due to the relatively large cross-sectional discharge opening, blockages can practically be excluded.

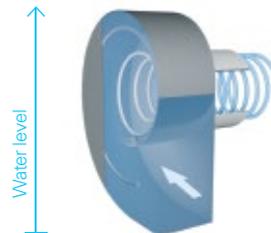


### A uncontrolled discharge



The large discharge cross-sectional opening ensures a quick depletion up to the design discharge

### B controlled discharge

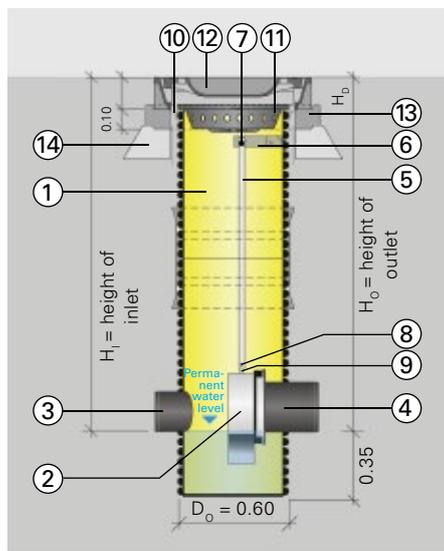


The vortex which starts in case of rising water levels ensures nearly constant discharge

## Advantages of throttle valves

- high drain efficiency through all operating stages
- high operating reliability thanks to large outlet opening – no risk of blockages
- reduces the discharge time – system volume is available for the next rainfall event
- self-cleaning thanks to flushing peak effect
- water jet cleaning possible
- minimises the required storage volume
- self-activating and solely hydraulically controlled – no external power supply
- no moveable parts – no wear and tear
- construction in stainless steel – robust, durable and chemically resistant
- bottom-aligned installation – no height loss
- easy installation

## Structure



- ① AquaLimit base shaft
- ② Vertical stainless steel throttle valve
- ③ Inlet DN 200 or DN 250
- ④ Outlet DN 250
- ⑤ Stainless steel lifting bar
- ⑥ Lifting bar fixture
- ⑦ Lifting bar handle
- ⑧ Connection of lifting bar with throttle valve (screw and self-locking nut)
- ⑨ Cuff at the valve crown
- ⑩ DOM sealing ring (optional accessory)
- ⑪ Sediment trap, large (optional accessory)
- ⑫ Shaft cover CW 610 (to be ordered separately)
- ⑬ Concrete support ring  $h = 100$  mm (to be ordered separately)
- ⑭ free of point loads support (has to be ensured on side)