



patented

**new**

## HydroMaxx Discharge Flow Control

Energy-free flow control for FAS –  
space-saving control for large impounding heads

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## The Challenge

Our weather patterns are changing with localised extreme rain events becoming more common and generating large water volumes which must be kept under control to protect industry, towns and communities. In many places flood attenuation structures (FAS) are designed and constructed for this purpose. Currently, such structures are designed for a 1 in 100 year storm event. The controlling discharge system must be secure to guarantee reliable operation during intense storm conditions.

A study carried out by the Water Authorities found that during thunder storms motor-driven protection systems tend to unreliable service. Time-consuming 'on-site' maintenance is then required. Such faults mean that an FAS is not always able to fulfil its task in the time available. However, according to the same study, external energy-free, low-maintenance units are the answer to this problem.

## The Way

It makes sense to utilise the available stored water energy in the structure to drive the FAS flow control, thus rendering electrical equipment and expensive cabling unnecessary. This not just eases the maintaining authority's budget – it is also an energy-saving measure, reducing the impact on nature and lending the project an outstanding eco-balance.

## The Solution

The design of the innovative **HydroMaxx Discharge Flow Control** is based on the proven efficiency of the **Hydro-Slide® Regulators**. **HydroMaxx** is an active flow control unit, mounted on the upstream face of an attenuation structure wall. It takes the form of a movable plate controlled by a specially designed and patented regulator mechanism using a vertically moving float whose movement keeps the flow constant irrespective of water level. The float operates vertically within the unit and transmits the water level to a robust chain drive which, in turn, activates a separate control unit with two counter-rotating control plates. These control plates regulate the discharge automatically relative to the impounding head – without external energy.

Even during maximum impounding all plates and protective features can be manually adjusted safely from ground

### The Advantages

- constant discharges  $\pm 5\%$
- external energy-free
- no power supply costs
- low-maintenance
- vertically-moving float providing reduced footprint
- space-saving, vertically-operating shields and plates
- integrated bottom outlet
- emergency bulkhead operable from above ground
- on-site adjustment of discharge
- maximum hydrostatic head. 16 metres

### Flow curve HydroMaxx

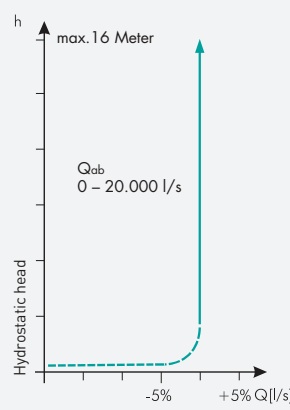


Illustration above: view into the tower construction with the vertically-operating float

level to increase or reduce the discharge rate if desired. The patented **HydroMaxx Discharge Flow Control** is housed within a high tower construction, integrated into the attenuation structure. The design of the inlet channel should incorporate a trash screen to protect the flow control unit from large debris such as tree trunks and boulders.