Hydro-Brake® Agile Flow Control

Hydro-Brake® Agile flow control is a float activated flow control device that is designed to maintain a constant discharge rate without the use of external energy sources.

Ideally suited to sites where there are considerable constraints on the available space for on-site attenuation and stringent discharge consents, the Hydro-Brake® Agile flow control delivers precise flow control over a range of heads.

1. Float arm.
2. Precision engineered control mechanism (beneath guards).
3. Mounting plate.
4. Sliding gate.
5. Outlet orifice.
6. Integral benching guide.
7. Pull cords for manual gate operation (omitted for clarity).

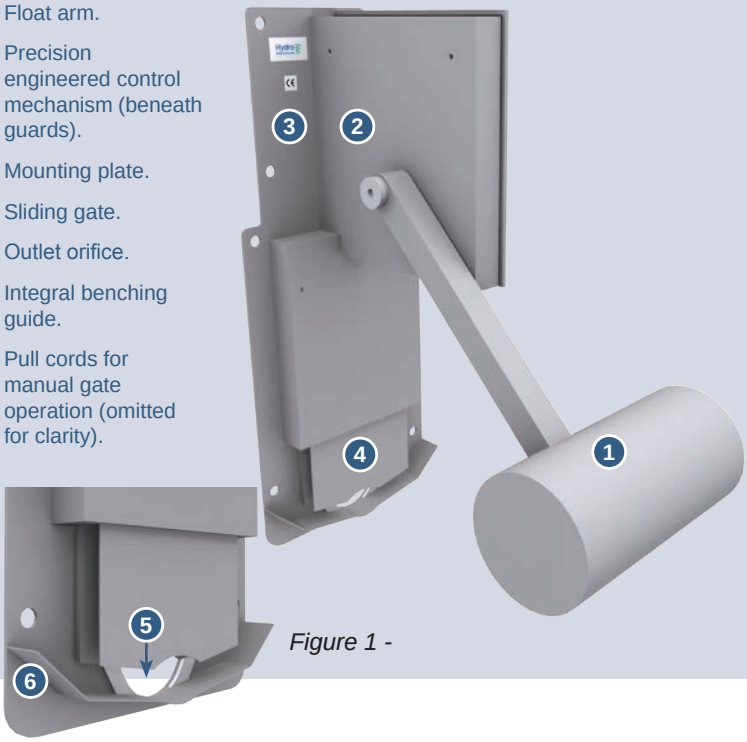

Figure 1 -

Precision Engineered Float Control

The Hydro-Brake® Agile flow control consists of a float arm that is connected via a series of custom configured components to a sliding gate, placed over an outlet orifice.

Manufactured from high grade stainless steel (typically 304L or 316 as appropriate) with durable internal components under our comprehensive Quality Assurance procedures, the Hydro-Brake® Agile Flow control will deliver reliable, repeatable and precise flow rate regulation.

The Hydro-Brake® Agile Flow control has been assessed in accordance with all relevant essential Health & Safety requirements and standards and is CE marked under the EU Machinery Directive (2006/42/EC).

Benefits

- Constant discharge over a wide range of heads.
- Discharge matched to the carrying capacity of the downstream infrastructure.
- Precision engineered components.
- Large cross sectional outlet area during critical dry weather and first flush flow periods.
- CE marked in accordance with the EU Machinery Directive (2006/42/EC).
- Rapid drain down, providing system resilience for subsequent rainfall events.
- Self-activating.
- No external power or control circuits.
- Future-proof – simple adjustment possible for future changes in operating conditions.

Applications

- Surface water management and SuDS.
- Combined drainage systems and CSOs.
- Sewer network optimisation.
- Flood alleviation and prevention.

Hydro-Brake® Flow Control Series
Hydro-Brake® Hotline: 01275 337937
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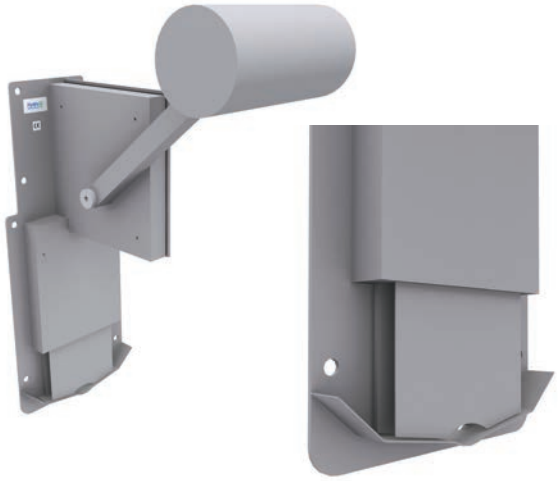
Operating Principles

a) Low Flow / Dry Weather Flow

During low flows, the water level remains below the float arm and the gate is in its fully open position. The discharge flow rate is controlled by the outlet orifice.

Under these conditions, the unit remains fully open, allowing any waterborne debris to pass forward almost unimpeded.



b) Attenuating Flows

As the flows increase, the outlet orifice starts to restrict the flows and the water level in the flow control chamber will begin to rise. This will, in turn, cause the float to rise. A precisely configured set of internal components transmits this upward motion of the float to the gate that is positioned in front of and above the outlet orifice and begins to close the gate. As the gate closes, the cross-sectional area of the outlet available for water flow is reduced and a constant discharge rate is maintained even as the water level continues to rise.

The discharge rate will generally be set to the maximum rate that can be accepted without compromising the capacity of the downstream infrastructure.

c) Extreme Flows

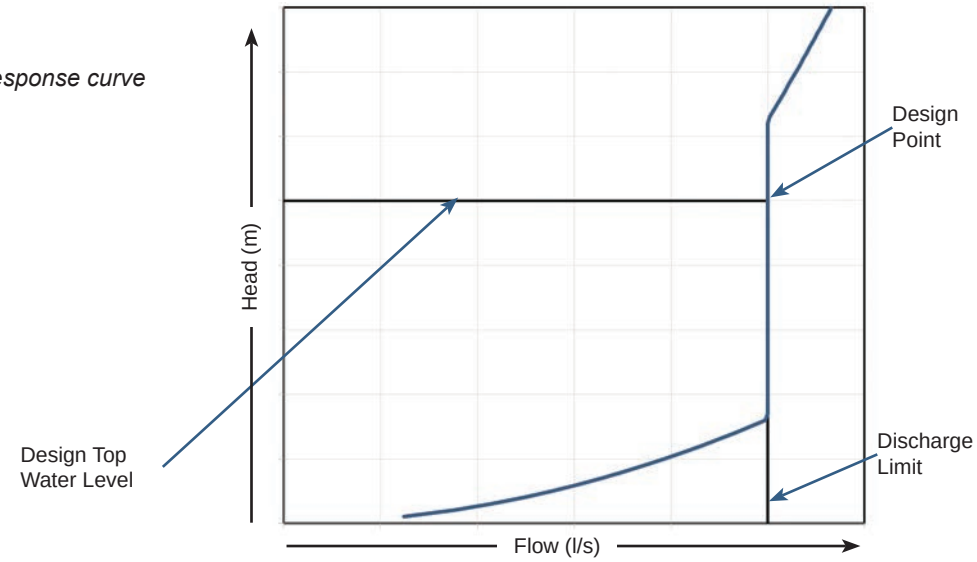
If the upstream water level reaches a pre-determined top water level associated with the design storm event, the internal controls will prevent the gate from closing any further. For further increases in head, the discharge will be limited by the outlet orifice at its closed position.

d) Drain Down

As the water level subsides, the float will return to its resting position and the gate will return to its fully open position.

A high discharge rate will be maintained as the water levels subside, rapidly draining the upstream system in readiness for subsequent rainfall events.

Typical head / flow response curve



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Design Data

Hydro-Brake® Agile Flow Control

Expert Design Support Services

Hydro International's professional engineers work with you to provide expert technical and aftersales support to ensure your projects meet exacting design requirements and deliver the very best hydraulic controls for your site.

With over 35 years' experience of flow control knowledge and experience, Hydro International's design support team is available to advise on any aspect of water flow management, including detailed modelling of active flow controls.

Easy to Install

The Hydro-Brake® Agile flow control is supplied complete with all mechanical fixings for a quick and easy installation. Units can also be supplied pre-fitted within a pre-cast concrete manhole chamber base to allow for simple plug-and-play installation on site.

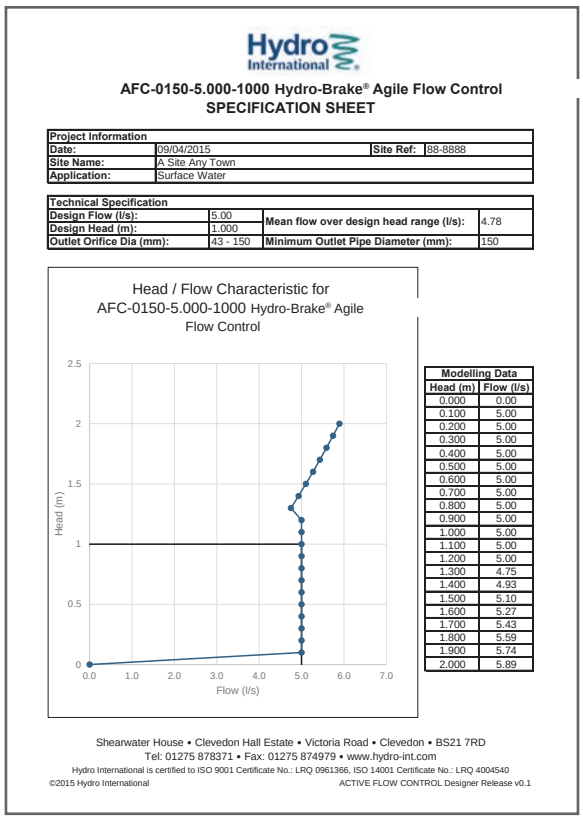
No commissioning or in-situ testing or adjustment is required.

Easy to Maintain

The Hydro-Brake® Agile flow control is manufactured from high-grade stainless steel, with long-life, durable components. In the event of a blockage, an integrated release mechanism enables the gate to be fully opened and returned to its operating position from surface level. The precision components are protected from fouling or damage by robust, stainless steel guards, enabling jetting equipment to be used if required.

Technical Details and Further Information

Hydro International will supply detailed hydraulic data and dimensioned installation drawings for each unit. Example details are shown below.



Hydro International

AFC-0150-5.000-1000 Hydro-Brake® Agile Flow Control
SPECIFICATION SHEET

Project Information			
Date:	09/04/2015	Site Ref:	88-8888
Site Name:	A Site Any Town		
Application:	Surface Water		

Technical Specification			
Design Flow (l/s):	5.00	Mean flow over design head range (l/s):	4.78
Design Head (m):	1.000		
Outlet Orifice Dia (mm):	43 - 150	Minimum Outlet Pipe Diameter (mm):	150

Head / Flow Characteristic for AFC-0150-5.000-1000 Hydro-Brake® Agile Flow Control

Modelling Data	
Head (m)	Flow (l/s)
0.000	0.00
0.100	5.00
0.200	5.00
0.300	5.00
0.400	5.00
0.500	5.00
0.600	5.00
0.700	5.00
0.800	5.00
0.900	5.00
1.000	5.00
1.100	5.00
1.200	5.00
1.300	4.75
1.400	4.93
1.500	5.10
1.600	5.27
1.700	5.43
1.800	5.59
1.900	5.74
2.000	5.89

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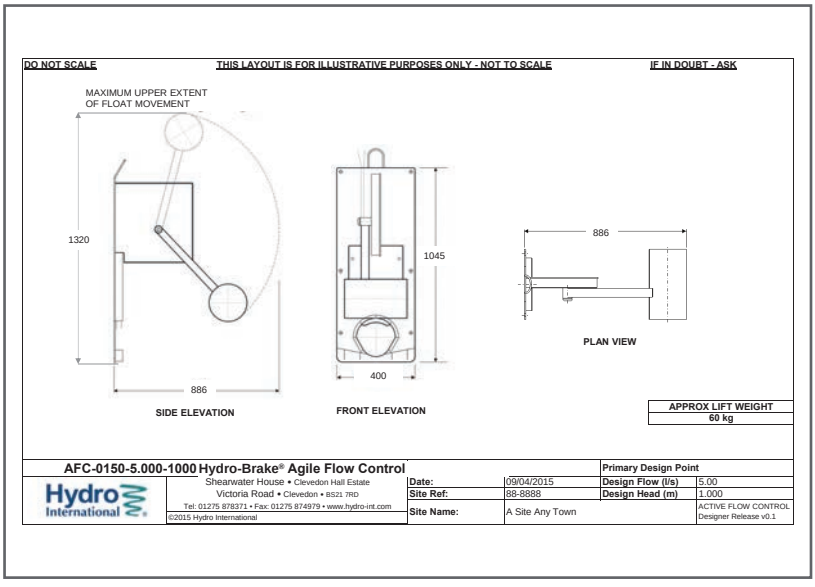
Hydro International is certified to ISO 9001 Certificate No.: LRQ 0961366, ISO 14001 Certificate No.: LRQ 4004540

ACTIVE FLOW CONTROL Designer Release v0.1



Hydro-Brake® Agile Flow Control

The Hydro-Brake® Flow Control Series

As a brand leader for vortex flow controls for more than 30 years, Hydro International continues to set the standard in flow control management technologies.

At Hydro International, we pride ourselves on our engineering excellence and in developing a range of flow control solutions, we have invested in significant research & development to validate their performance.

Hydro-Brake® Orifice

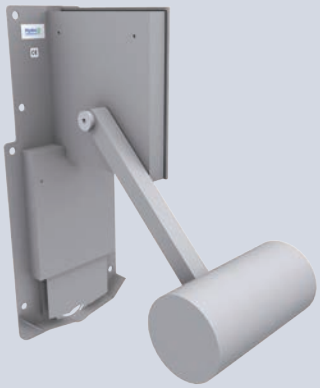
The low-cost option for unconstrainted sites (shown with optional screen).

Hydro-Brake® Optimum

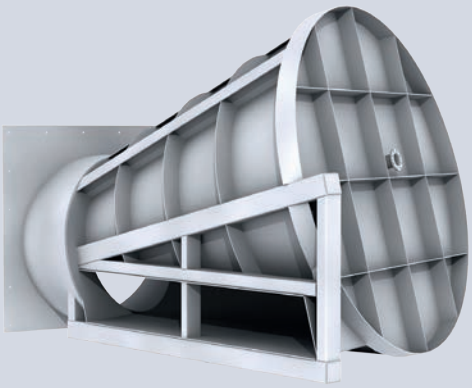
The vortex flow control with no equvalent, delivering Nature's Perfect Cuve with no moving parts and independently verified by the BBA and WRc.

Hydro-Brake® Agile

Precision engineered flow control for highly constrained applications.



Hydro-Brake® Flood



The vortex controlled solution to watercourse flooding.

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Shearwater House, Clevedon Hall Estate, Victoria Road, Clevedon, BS21 7RD

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