Chris Faulkner Flow Controls

Declaration of Performance

This document demonstrates the compliance of our Turbillion Flow Controls in design, installation, maintenance and demolition with UK construction standards as required under the Construction Products Regulations 2021.

Turbillion Flow Controls

Type CY **Type CY-BP** **Type CY-BP AR**

Essential Charcteristics

Genuine vortex operation and independently tested.

Larger orifice area for lower flows on higher heads compared to other controls.

Chance of blockages reduced.

Simple push fit installation. No plinths, plates or bolting required. Safer and quicker to install.

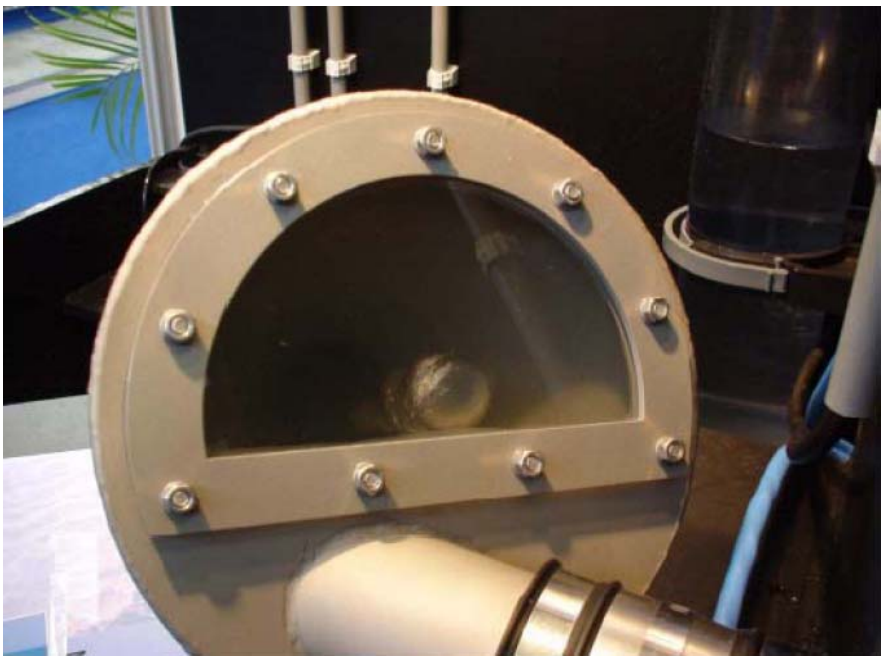
Can be installed in any MH design in SfA8 Code for Sewer Adoption with standard channels and benching.

Can be rodded from upstream and down.

No man entry required for clearing, cleaning, testing and inspecting.

Fitted with auto return by pass independent of the control. Allows full drain down even if the control is blocked.

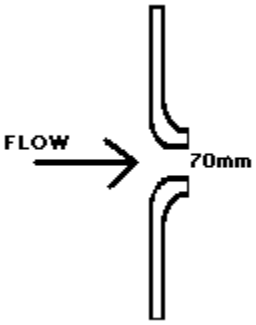
Bespoke design and manufactured in AISI 304 Stainless Steel for long maintenance free life and can be recycled at end of life.

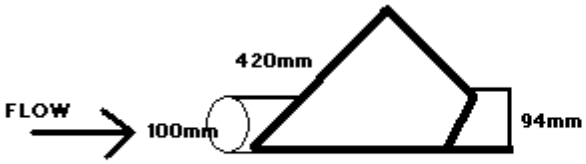


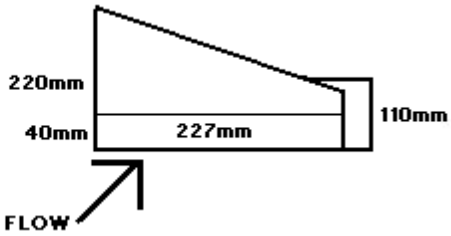
Genuine vortex operation

Independent Test 1

Dr Mike Green of WrC carried out flow to head to orifice tests on different types of flow control including our Turbillion Type CY control.







Nozzle **Turbillion TYPE CY** **Hydrobreak TYPE C**

Results Table

By re-arranging the General Flow Formula

$$Q = Cd \,.\, Ao \,.\sqrt{2gh} \quad \text{to} \quad Cd = \frac{Q}{Ao \,.\sqrt{2gh}}$$

the efficiencies of the three different controls are revealed.

FLOW CONTROL TYPE	CY VORTEX	HYDROBRAKE TYPE C	NOZZLE
AREA OF ORIFICE sqmm	7855	9080	3848
FLOW AT 1.00m HEAD l/s	6.5	11	15
FLOW AT 2.00m HEAD l/s	9	16	20
COEFFICIENT OF DISCHARGE Cd	**0.18**	0.28	0.88

Our Turbillion Type CY control proved to be the most efficient showing the lowest flow for the highest head to the largest orifice area.

Based on the above coefficients of the three controls, using the minimum pipe sizes or their equivalent, specified in Doc H of the Building Regulations 2010, the predicted flows would be as shown in the table below.

FLOW CONTROL TYPE	CY VORTEX	HYDROBRAKE TYPE C	NOZZLE
COEFFICIENT OF DISCHARGE Cd	0.18	0.28	0.88
FLOW AT 1.00m HEAD 75mm dia l/s	3.52	5.48	17.22
FLOW AT 2.00m HEAD 75mm dia l/s	4.99	7.75	24.35
FLOW AT 1.00m HEAD 100mm dia l/s	6.50	9.74	30.61
FLOW AT 2.00m HEAD 100mm dia l/s	9.00	13.78	43.3

Independent Test 2

Testing carried out by Professor David Balmforth at Sheffied Hallam University.

The tests showed that our Turbillion control had an orifice area at least three times larger than an equivalent orifice plate control.

Standards Compliance

Characteristic	Compliance
Declaration of Performance	Construction Products Regulations 2021
Independetly Tested	Cira SuDS Manual 753C Sec 28.5.7
Maximum openings for lower flows	Building Regs 2010 Doc H Sec 3.14, SfA8 Code for Sewer Adoption
Straight through low flow channel. Reduced blockage risk	Doc H Buiding Regs 2010. Confined Spaces Regs 1997, SfA8 Code for Sewer Adoption
Simple Push fit installation	Confined Spaces Regulations 1997
Can be cleaned, cleared, tested and inspected from upstream or down from cover level	Doc H Building Regs 2010 Confined Spaces Regs 1997
Auto return bypass operated from cover level.	Confined Spaces Regs 1997 Sec 3.14, 3.15 SfA8 Code for Sewer Adoption
Manufactured in AISI 304 Stainless Steel	Doc 7 Building Regs 2010. End of life recycling

Controls and Installations

The performance of the products identified above is in conformity with the set of declared performances. This declaration of performance is issued in accordance with Article 4 of Regulation (EU) No 305/2011 as amended by the Construction Products Regulations 2021, and is the sole responsibility of the manufacturer identified above.

C.D. Faulkner Eng Tech MIHE Managing Director. Date 23/01/23