PT/553/0425-AS (April 2025)

Assessment Schedule for Hydro-Valve system for flow control as manufactured by JFC Manufacturing Limited

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1. SCOPE

This schedule specifies the requirements for the Hydro-Valve system for flow control as manufactured by JFC Manufacturing Limited for installation into an enclosed chamber.

It is applicable to surface water applications with design flows from 1 to 35 litres per second, with a hydrostatic head of up to 2.0m

2. PRODUCT DESCRIPTION

2.1 Introduction

The system is designed to control the rate of discharge of surface water from attenuation tanks or other storage, in the range 1 to 35 litres per second, with a hydrostatic head of up to 2.0m.

The system comprises:

- A HDPE vortex chamber that is fabricated to flow and dimensional specifications to meet client requirements;
- An orifice and bolted closure plate arrangement on the face of the device to allow clearance of blockages in the downstream pipe:
- A MDPE mounting adaptor with dimensions that vary, and which is used to connect the vortex chamber to flat walled or various diameters of circular manholes; and
- A neoprene seal between the mounting adaptor and manhole wall.
- An orifice and hinged closure plate arrangement on the side of the mounting adaptor for the chamber to be drained in case of blockage of the device inlet; and
- A wire cord to facilitate opening from the surface of the hinged closure plate.

2.2 Applicable standards

No British, European or International Standards have been identified that are applicable to this product.

2.3 Approval History

The Hydro-Valve system was originally awarded WRc Approved™ certification in April 2010 and this will be the third re-approval.

- PT/298/0410
- PT/369/0415
- PT/482/0420

3. REQUIREMENTS AND TESTING

3.1 General

Flow characteristics – the Hydro-Valve shall be designed using the manufacturer's design procedure to achieve the specified discharge (±5%) at the specified head.

Dimensional requirements – The vortex chamber of the Hydro-Valve shall be manufactured to dimensional tolerances of ±2%.

Product Finish – The internal and external surfaces of the vortex chamber and the mounting adaptor shall be smooth, clean, and free from scoring, cavities, and other surface defects.

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3.2 Materials and components

Materials used shall comply with:

- HDPE and MPDE shall meet material properties within Table 4 of BS EN 13476-3:2018+A1:2020(1).
- Mounting brackets shall be in accordance with BS EN ISO 898-1:2013(2).
- BS EN ISO 3506-1:2020(3). Mechanical properties of corrosion resistant stainless-steel fasteners. Bolts, screws and studs.
- Neoprene seal shall comply with the manufacturers specified requirements.
- Silicone sealant shall be in accordance with the manufacturer's specification.

MDPE shall have a density of 953kg/m^3 ±5kg/m^3 and a melt flow rate of 6.0g/10min ±1.5g/10min at 190°C & 2.16kgs.

HDPE shall have a density of 940kg/m^3 ±5kg/m^3 and a melt flow rate of 0.5g/10min ±0.15 g/10mins at 190°C.

Stainless steel fixings shall be manufactured from Grade 1.4529 steel complying with BS EN 10088-3(4).

Stainless steel plate shall be manufactured from steel complying with BS EN 10088-2(5).

3.3 Type Testing

Mechanical resistance – The top face of the Hydro-Valve shall withstand the impact of a 3kg test piece dropped directly onto its centre from a height of 2m, without cracking.

Flow characteristics – verification of a mathematical (CFD) design tool of the Hydro-Valve shall be by physical testing with flows from 1l/s to 35 l/s with a hydrostatic head of up to 2m to achieve the specified discharge (±5%) at the specified head.

3.4 Manufacture

To ensure the quality and performance of the Hydro-Valve system, the manufacturing process shall include appropriate systems for the:

- Specification of component materials;
- Verification component materials received are to specification;
- Handling and storage of all component materials and finished units;
- Detailed drawing / schedule for manufacture
- Manufacture / assembly of Hydro-Valve system and
- Fabrication and quality control of workmanship.

The production of the Hydro-Valve system and related quality control procedures shall comply with requirements to ensure the stated performance of the product is reliably achieved.

3.5 Installation

When installed in accordance with the installation documentation(5), the Hydro-Valve system shall be reasonably expected to perform as described.

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4. APPROVAL

The Hydro-Valve system has been audited and successfully met all the requirements stated within this assessment schedule

Signed:

Valid until 9th April 2030

5. REFERENCES

1. BS EN 13476-3:2018+A1:2020: Plastics piping systems for non-pressure underground drainage and sewerage. Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE). Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B

2. EN ISO 898-1:2013: Mechanical properties of fasteners made of carbon steel and alloy steel. Bolts, screws and studs with specified property classes. Coarse thread and fine pitch thread.

3. BS EN ISO 3506-1:2020: Fasteners. Mechanical properties of corrosion-resistant stainless steel fasteners. Bolts, screws and studs with specified grades and property classes

4. BS EN 10088-3: 2023: Stainless steels. Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resistant steels for general purposes.

5. BS EN 10088-2:2024: Stainless steels. Technical delivery conditions for sheet/plate and strip of corrosion resistant steels for general purpose

6. Hydro-Valve Installation Instructions, appropriate to the device and chamber type.

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