

PT/569/0426-AS (April 2026)

**Assessment Schedule for the
Downstream Defender® Select as
manufactured by Hydro International UK
Ltd**



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1. SCOPE

This schedule specifies the requirements for the Downstream Defender® Select as manufactured by Hydro International UK Ltd for the treatment of urban surface water runoff.

2. PRODUCT DESCRIPTION

2.1 Introduction

The Downstream Defender® Select is a manufactured treatment device for the treatment of urban surface water runoff. It is a hydrodynamic vortex separator designed to facilitate the gravity separation of sediments combined with separation of hydrocarbons and litter by floatation.

Three models are available; Vortex (sediment removal and retention up to two times the treatment flow); Vortex Plus, (sediments, litter and hydrocarbon (oil) removal, with sediments retention up to two times the treatment flow rate); and Advanced Vortex, (sediments, litter and hydrocarbon (oil) removal with enhanced sediment retention up to four times the treatment flow rate).

Hydrocarbon and litter retention is outside the scope of this approval.

The system comprises polyethylene inlet and outlet chute units, installed in either thermoplastic or concrete circular manhole chambers.

Operation is initiated when stormwater enters the chamber via an inlet chute and this directs the flow around the side of the circular chamber creating a vortex. This promotes settlement of sediment and oil and floating debris to rise to the surface. Exit of flow from the chamber is via an orifice at the bottom of the outlet chute

located on the opposite side of the chamber to the inlet.

The device is available in a range of sizes to fit standard chamber sizes between 1.0m diameter and 3.0m diameter.

The treatment flow rate applicable to the different size units and sand blends is specified in Table 1.

**Table 1 Treatment flow rates
applicable to different size units and
test sands**

Unit Diameter (mm)	Flow Rate for 57% removal of sand with d50 = 63 microns (l/s)	Flow Rate for 80% Removal of F-60 (l/s)
1000	21	33
1200	30	47
1500	48	74
1800	69	107
2100	94	145
2400	123	189
3000	192	296

Enhancement options, 'Hydro-Logic® Smart Monitoring' and hydrocarbon absorbing 'Enhanced Media' are also outside the scope of this approval.

2.2 Applicable standards

There are no current applicable British, European or International Standards.

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2.3 Approval History

This is the first WRc Approved certification for the Downstream Defender® Select.

3. REQUIREMENTS AND TESTING

3.1 Materials and components

Materials used shall conform to:

Polyethylene shall conform to BS EN 13598-1:2020 ⁽¹⁾ Clause 5.1.

Fasteners shall conform to BS EN ISO 3506-1:2020 ⁽²⁾.

Elastomeric seals shall conform to BS EN 681-2:2000 ⁽³⁾.

3.2 Type Testing

- The Downstream Defender® Select shall conform to the requirements of the British Water Code of Practice: Assessment of Manufactured Treatment Devices Designed to Treat Surface Water Runoff⁽⁴⁾.
- The Downstream Defender® Select internal components when tested in accordance with BS EN ISO 13263: 2010⁽⁵⁾ the components shall meet the requirements of the impact resistance test.
- When tested in accordance with BS EN 12814-2:2021⁽⁶⁾, PE welding shall be carried out to meet the requirements of the tensile strength test.

3.3 Manufacture

To ensure the quality and performance of the Downstream Defender® Select

components, 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; and
- Fabrication and quality control of workmanship.

The production of the Downstream Defender® Select and related quality control procedures shall be in accordance with ISO 9001 and specify requirements to ensure the stated performance of the product is reliably achieved.

3.4 Assembly

To ensure the quality and performance of the Downstream Defender® Select, the Assembly process (fitting of components to chambers) shall include appropriate:

- Detailed drawing / schedule for assembly; and
- Detailed instructions for the assembly of the Downstream Defender® Select.

Chambers into which the Downstream Defender® Select components are installed shall conform to:

- BS EN 13598-2:2020 Plastics piping systems for non-pressure underground drainage and sewerage — Unplasticized polyvinyl chloride (PVC-U), polypropylene (PP) and polyethylene (PE) ⁽⁷⁾.

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- BS EN 1917:2002 Concrete manholes and inspection chambers, unreinforced, steel fibre and reinforced⁽⁸⁾ and BS 5911-3:2022⁽⁹⁾.

3.5 Installation

Chambers shall be installed in accordance with installation documentation⁽¹⁰⁾, and BS EN 1610:2015, clauses 7 & 8⁽¹¹⁾.

4. APPROVAL

The Downstream Defender® Select has been audited and successfully met all the requirements stated within this assessment schedule.

Signed:

A handwritten signature in black ink, appearing to be 'G.L.' with a horizontal line extending to the right.

Valid until 8th April 2031

5. REFERENCES

1. BS EN 13598-1:2020 Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) Specifications for ancillary fittings and shallow chambers.
2. 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.
3. BS EN 681-2:2000, Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Thermoplastic elastomers.
4. British Water Code of Practice: Assessment of Manufactured Treatment Devices Designed to Treat Surface Water Runoff, British Water, 2016.
5. ISO 13263:2010, Thermoplastics piping systems for non-pressure underground drainage and sewerage — Thermoplastics fittings — Test method for impact strength.
6. BS EN 12814-2:2021 Testing of welded joints of thermoplastics semi-finished products. Tensile test
7. BS EN 13598-2:2020 Plastics piping systems for non-pressure underground drainage and sewerage — Unplasticized poly (vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE)⁽⁷⁾.
8. BS EN 1917:2002 Concrete manholes and inspection chambers, unreinforced, steel fibre and reinforced (incorporating corrigenda December 2003, December 2006 and April 2008)
9. BS 5911-3:2022 Concrete pipes and ancillary concrete products. Concrete manholes, inspection chambers and soakaways (complementary to BS EN 1917:2002).

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10. Downstream Defender® Select
Installation Instructions.
11. BS EN 1610:2015 Construction and
testing of drains and sewers.