

1. SCOPE

This schedule specifies the requirements for the AquaShield Couplings and Flange Adaptors as manufactured by Viking Johnson for the use on barrier pipes with a nominal diameter 90 mm, 125 mm and 180 mm and on pipes with SDR 11 or SDR 17 rating.

AquaShield is approved for the use on the following barrier pipes:

- PE100 to BS 8561.
- GPS Protecta Line.
- Egeplast SLA.
- Radius Puriton.

2. PRODUCT DESCRIPTION

2.1 Introduction

The AquaShield Couplings and Flange Adaptors are designed for barrier pipes carrying waste and potable water through brownfield sites. AquaShield is approved to a working pressure of 16 Bar (water) and a vacuum pressure of -0.8 Bar.

AquaShield comprises of the liner body, manufactured from ductile iron, coated in black Rislun Nylon 11. The liner body features a tubular section, with an impermeable outer membrane to be inserted into the barrier pipe. Three clamp bands are placed on the exterior of the barrier pipe and tightened with stainless steel bolts to provide the necessary compression force to form a tight seal.

2.2 Applicable standards

The following standards are applicable to this product:

- BS 8588: 2017⁽¹⁾

- BS 8561: 2021⁽²⁾
- BS 6920-1: 2014⁽³⁾

2.3 Approval History

This is the first WRc Approved certification for the AquaShield Couplings and Flange Adaptors as manufactured by Viking Johnson.

3. REQUIREMENTS AND TESTING

3.1 General

The AquaShield Couplings shall be designed with such dimensions and within such tolerance as will permit their use with pipes conforming to BS 8588: 2017.

The AquaShield Flange Adaptors shall be designed such that they can be attached to flanges whose dimensions and tolerances are in accordance with BS EN 1092-1: 2018⁽⁴⁾.

The performance of AquaShield fittings shall comply to BS 8561 and shall be durably marked in accordance with BS 8561: 2021 Section 8.

3.2 Materials and components

The liner body and clamp bands shall be manufactured from ductile iron to BS EN 1563:2018⁽⁵⁾ grade EN-GJS-450-10.

Materials in contact with potable water shall comply with BS 6920-1.

3.3 Type Testing

Permeation

When subjected to the Resistance of Permeation of Contaminants test in accordance with BS 8588: 2017, clause number 7.7, the AquaShield shall meet the necessary requirements of Clause 7.7.1.

Mechanical Resistance

Long-term Leak Tightness: when tested in accordance with BS EN ISO 1167-1⁽⁶⁾ the AquaShield shall meet the requirements of BS 8561: 2021 clause 7.3.1 table 2.

Short-term Leak Tightness (Elevated Temperature): when tested in accordance with BS EN ISO 1167-1, the AquaShield shall meet the requirements of BS 8561: 2021 clause 7.3.2 table 3 and clause 7.3.3 table 4.

Leak Tightness: under negative internal pressure: when tested in accordance with BS EN ISO 3459⁽⁷⁾, the AquaShield shall meet the requirements of BS 8561: 2021 clause 7.4.

Pull Out Performance: When tested in accordance with the test procedure in BS EN ISO 3501⁽⁸⁾ and appropriate loading in IGN 4-01-02: 2017⁽⁹⁾, the AquaShield shall meet the requirements of BS 8561: 2021 clause 7.5.

3.4 Manufacture

To ensure the quality and performance of the AquaShield Couplings and Flange Adaptors, 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 the AquaShield;

- Fabrication and quality control of workmanship.

The production of the AquaShield Couplings and Flange Adaptors 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⁽¹⁰⁾, the AquaShield Couplings and Flange Adaptors shall be reasonably expected to perform as described.

4. APPROVAL

The AquaShield Couplings and Flange Adaptors have been audited and successfully met all the requirements stated within this assessment schedule

Signed:



Valid until 28th April 2027

5. REFERENCES

1. BS 8588:2017 Polyethylene pressure pipe with an aluminium barrier layer and associated fittings for potable water supply in contaminated land - size 20 mm to 630 mm.
2. BS 8561:2021 Specification for mechanical fittings for use in the repair, connection and renovation of pressurized water supply

PT/495/0422-AS (August 2023)

**Assessment Schedule for AquaShield
Couplings and Flange Adaptors as
manufactured by Viking Johnson**



independent certification of your products & services

- pipelines. Requirements and test methods.
3. BS 6920-1:2014 Specification for suitability of non-metallic materials and products for use in contact with water intended for human consumption with regard to their effect on the quality of water.
 4. BS EN 1092-1: 2018 Flanges and their joints - circular flanges for pipes, valves, fittings and accessories, PN designated. Steel flanges.
 5. BS EN 1563:2018 Founding. Spheroidal graphite cast irons.
 6. BS EN ISO 1167-1:2006 Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 1: General method.
 7. BS EN ISO 3459:2021 Plastic piping systems. Mechanical joints between fittings and pressure pipes. Test method for leak tightness under negative pressure.
 8. BS EN ISO 3501:2022 Plastics piping systems. Mechanical joints between fittings and pressure pipes. Test method for resistance to pull-out under constant longitudinal force.
 9. IGN 4-01-02: 2017 The determination of end-loads for the performance testing of fittings for polyethylene pipe.
 10. Viking Johnson Aquashield installation manual.