

**PT/500/0722 (July 2022)**

**Assessment Schedule for UltraGrip Wide Tolerance Restrained Couplings, Stepped/Reducing Couplings, and Flange Adaptors as manufactured by Viking Johnson**



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## 1. SCOPE

This schedule specifies the requirements for the UltraGrip DN700 & DN800 range of couplings, reducing couplings and flange adaptor pipe fittings as manufactured by Viking Johnson for use on pipes transporting potable or wastewater, with a nominal diameter of 700 mm and 800 mm.

UltraGrip pipe fittings are designed for use on pipes of the following materials:

- Ductile Iron.
- Steel.
- Polyethylene (PE).
- PVC.
- Cast Iron.
- Asbestos Cement (Flexible version only).

## 2. PRODUCT DESCRIPTION

### 2.1 Introduction

UltraGrip pipe fittings are designed for use on pipes carrying potable and wastewater, with a nominal diameter of 700 mm or 800 mm. The fittings have an operating pressure range from - 0.8 bar to 16 bar, with a maximum angularity of 4 degrees.

The UltraGrip range consists of flange adaptors, couplings and reducing/stepped couplings.

### 2.2 Applicable standards

The following standards are applicable to this product:

- BS EN 14525:2004<sup>(1)</sup>
- BS 8561:2021<sup>(2)</sup>
- BS 6920-1:2014<sup>(3)</sup>

### 2.3 Approval History

This is the first WRC Approved certification for the Viking Johnson UltraGrip Pipe Fittings.

## 3. REQUIREMENTS AND TESTING

### 3.1 General

The UltraGrip pipe fittings shall be designed with dimensions, tolerances and markings that comply with the requirements of BS EN 14525:2004.

### 3.2 Materials and components

The EPDM gasket shall comply with EN 681-1:1996<sup>(4)</sup>.

Bolts and nuts shall comply with minimum requirements of BS EN ISO 4016:2011<sup>(5)</sup> and BS EN ISO 4034:2012<sup>(6)</sup>.

Washers to comply with minimum requirements of BS EN ISO 7091:2000<sup>(7)</sup>.

Mild steel to comply with minimum requirements of BS EN 10025-2:2019<sup>(8)</sup>.

Stainless steel to comply with BS EN 10088-1<sup>(9)</sup> class PH17-4 H1025.

All fasteners shall be protected in accordance with BS EN 14901-1<sup>(10)</sup> or WIS 4-52-0<sup>(11)</sup> (as applicable).

**PT/500/0722 (July 2022)**

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### **3.3 Type Testing**

#### **Leak tightness under positive internal pressure**

When subjected to the hydrostatic pressure test for leak tightness under positive internal pressure in accordance with BS EN ISO 1167-1<sup>(12)</sup>, the UltraGrip fittings shall meet the requirements of BS 8561 clause 7.3.1, 7.3.2 and 7.3.3.

When tested in accordance with BS EN 14525 clause 7.1, the UltraGrip fittings shall meet the requirements of BS 8561 clause 10.4.1.

#### **Leak tightness under negative internal pressure**

When subjected to the test for leak tightness of joints under negative internal pressure in accordance with BS EN ISO 3459<sup>(13)</sup>, the UltraGrip fittings shall meet the requirements of BS 8561 clause 7.4.

When tested in accordance with BS EN 14525 clause 7.2, the UltraGrip fittings shall meet the requirements of BS 8561 clause 10.4.2.

#### **Leak tightness under dynamic internal pressure**

When tested in accordance with BS EN 14525 clause 7.3, the UltraGrip fittings shall meet the requirements of BS 8561 clause 10.4.3.

#### **Pull out performance**

When subjected to the test method described in BS EN 3501<sup>(14)</sup>, the UltraGrip fittings shall meet the requirements of BS 8561 clause 7.5.

When used on polyethylene pipe the fittings shall achieve an axial end load equivalent of a Type 2 performance as defined by IGN 4-01-02:2017<sup>(15)</sup>.

#### **Strength and resistance to distortion**

When tested in accordance with BS 8561 annex A, the UltraGrip fittings shall meet the requirements of BS 8561 clause 10.4.4.

### **3.4 Manufacture**

To ensure the quality and performance of the UltraGrip fittings, 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 UltraGrip fittings;
- Fabrication and quality control of workmanship.

The production of the UltraGrip fittings 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<sup>(16)</sup>, the UltraGrip fittings shall be reasonably expected to perform as described.

PT/500/0722 (July 2022)

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**4. APPROVAL**

The UltraGrip fittings have been audited and successfully met all the requirements stated within this assessment schedule .

**Signed:**

**Valid until <date>**

5. BS EN ISO 4016:2011 Hexagon head bolts. Product grade C.

6. BS EN ISO 4034:2012 Hexagon regular nuts (style 1). Product grade C.

7. BS EN ISO 7091:2000 Plain washers. Normal series. Product grade C.

8. BS EN 10025-2:2019 Hot rolled products of structural steels - Technical delivery conditions for non-alloy structural steels.

9. BS EN 10088-1 Stainless steels - List of stainless steels: 2014

10. BS EN 14901-1:2014+A1:2019 Ductile iron pipes, fittings and accessories. Requirements and test methods for organic coatings of ductile iron fittings and accessories - Epoxy coating (heavy duty).

11. Water Industry Specification No. 4-52-01A, 1992.

12. BS EN ISO 1167-1:2006 Thermoplastics pipes, fittings and assemblies for the conveyance of fluids. Determination of the resistance to internal pressure - General method.

13. BS EN ISO 3459:2015 Plastic piping systems. Mechanical joints between fittings and pressure pipes. Test method for leaktightness under negative pressure.

**5. REFERENCES**

1. BS EN 14525:2004 Ductile iron wide tolerance couplings and flange adaptors for use with pipes of different materials: ductile iron, grey iron, steel, PVC-U, PE, fibre-cement.

2. BS 8561:2021 Specification for mechanical fittings for use in the repair, connection and renovation of pressurized water supply pipelines. Requirements and test methods.

3. BS 6920-1:2014 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 the water – Specification.

4. BS EN 681-1:1996 Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications - Vulcanized rubber.

**PT/500/0722 (July 2022)**

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14. 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.
15. IGN 4-01-02:2017 The determination of end-loads for the performance testing of fittings for polyethylene pipe.
16. Reference UltraGrip fitting installation documentation.