

Product Certificate

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This is to certify that the following product or service has met the requirements detailed below

Paladex Reinforced Corrugated PE Pipe System

For the manufacture of Paladex corrugated reinforced PE pipe system for gravity drains and sewers. Diameter range of 400mm to 1600mm and pipe stiffness range of SN4 to SN16.

Avrot Industries Ltd
Kibbutz Beerot –Yitzhak
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This product meets the requirements set out in WRc Assessment Schedule PT/380/0316-AS.

K. A Adams

assessor

[Signature]

director

1st March 2016

issue date

1st March 2021

expiry date



PT/380/0316

certificate number

Assessment Schedule for the Paladex reinforced corrugated PE Pipe system for gravity drains and sewers as manufactured by Avrot Industries



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1. SCOPE

This schedule specifies requirements for the Paladex reinforced corrugated PE Pipe system as manufactured by Avrot Industries Ltd. for gravity sewer and drainage pipes.

2. PRODUCT DESCRIPTION

2.1 Introduction

The Paladex PE pipe system is a structured wall pipe manufactured from polyethylene. The pipe includes steel reinforcement encapsulated within the pipe wall to achieve pipe stiffness values. The outer wall is corrugated and the internal bore is smooth.

The Paladex PE Pipe system is supplied in diameters between 400 mm and 1600 mm and pipe stiffness ranges between 4 kN/m² (SN-4) and 16 kN/m² (SN-16).

The pipes are connected on site using a push-fit elastomeric sealing ring for spigot and socket connection.

Section can be fabricated to include a bend or a change in diameter.

2.2 Applicable standards

At present there is no European standard for PE steel reinforced pipes.

The following relevant standards were identified that meet the requirements of the UK sewerage undertakers:

- BS EN 13476 Part 1:2007⁽¹⁾
- BS EN 13476 Part 3 + A1:2009⁽²⁾
- BS EN 10346:2015⁽³⁾
- BS EN 681-1:1996⁽⁴⁾
- BS EN 1277:2003⁽⁵⁾

- WIS 4-35-01⁽⁶⁾
- Sewers for Adoption 7th ed⁽⁷⁾
- ASTM-F2435-12⁽⁸⁾

2.3 Approval History

This is the first WRC certification of the Paladex Pipe systems approval of the system.

3. REQUIREMENTS & TESTING

3.1 Type testing

The Paladex PE pipe system shall comply with the following test requirements:

Materials: The polyethylene shall meet the following requirements in accordance with BS EN 13476-3, 4.4.3 (Table 3):

- Melt mass-flowrate (MFR)
- Reference density

Steel shall meet the requirements BS EN 10346:2015.

Elastomeric seals shall meet the requirements of BS EN 681-1:1996.

Appearance and colour: The Paladex PE pipes and fittings shall meet the requirements of BS EN 13476-1 Clause 6.

Geometric Characteristics: The pipes dimensions shall conform to the requirements of BS EN 13476-3 Clause 7.

Physical Characteristics: The Paladex PE pipes and fittings shall meet the following requirements in accordance with BS EN 13476-3, 8.3 (Tables 12 & 13):

- Resistance to heating;
- Effect of heating.

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The Paladex PE pipe shall meet the requirement in accordance BS EN 13476-1 Clause 8 (Table 12):

- Longitudinal reversion

Mechanical resistance: The Paladex PE pipe shall meet the following requirements in accordance BS EN 13476-3 Clause 9 (Table 14):

- Ring stiffness
- Impact strength
- Creep ratio
- Tensile strength of seam

The Paladex PE pipe shall meet the requirements of WIS-4-35-01: Appendix D (Longitudinal bending).

The Bonding of steel to PE shall meet the requirements of ASTM F2435-12, 6.5.

Serviceability: Resistance to high pressure water jetting; shall meet the requirements of WIS-4-35-01: Appendix C.

Performance requirements: The Paladex PE system shall meet the following requirements of BS EN 13476-3 Clause 10 Table 17:

- Leak tightness of elastomeric seal joint BS EN 1277:2003 Test Condition C.

Marking: Marking of pipe shall conform to the requirements of BS EN 13476 Part 1 Clause 10.

3.2 Manufacture

To ensure the quality and performance of Paladex, the manufacturing process shall include appropriate systems for:

- Verification of component materials received are to specification;
- Handling and storage of all component materials and finished units;
- Detailed drawings for pipes and bespoke fabricated sections;
- Fabrication of bespoke sections and quality of workmanship.

The production of Paladex PE and related Quality Control procedures shall comply with requirements to ensure the stated performance of the product is reliably achieved.

3.3 Installation

When installed in accordance with the installation documentation, the installation shall be practicable and suitable for conditions that could reasonably be expected on site.

4. APPROVAL

The Paladex corrugated reinforced PE Pipe system has been audited and has successfully met all of the requirements stated within this assessment schedule.

A handwritten signature in black ink, appearing to read 'K.A. Adams'.

Signed:

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5. REFERENCES

1. EN 13476 Part 1 (2007): Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of Unplasticised poly (vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 1: General requirements and performance characteristics. Includes a National Annex with additional guidance for UK users.
2. BS EN 13476 Part 3 + A1 (2009): Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B.
3. EN 10346:2015 Continuously hot-dip coated steel flat products. Technical delivery conditions.
4. BS EN 681-1:1996 Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Vulcanized rubber.
5. BS EN 1277:2003 Plastics piping systems. Thermoplastics piping systems for buried non-pressure applications. Test methods for leak tightness of elastomeric sealing ring type joints.
6. WIS 4-35-01 in order to form the complete UK requirements.
7. Sewer for Adoption 7th edition.
8. ASTM F2435-12 Standard Specification Steel Reinforced Polyethylene (PE) Corrugated Pipe.
9. Paladex installation guide.