

HAPAS

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HAPAS Certificate

13/H205

Product Sheet 2

POLYPIPE DUCTING SYSTEMS

COMTITE DUCTING PLUG

This HAPAS Certificate Product Sheet⁽¹⁾ is issued by the British Board of Agrément (BBA), supported by Highways England (HE) (acting on behalf of the Overseeing Organisations of the Department for Transport; Transport Scotland; the Welsh Government and the Department for Infrastructure, Northern Ireland), the Association of Directors of Environment, Economy, Planning and Transport (ADEPT), the Local Government Technical Advisers Group and industry bodies. HAPAS Certificates are normally each subject to a review every three years.

(1) Hereinafter referred to as 'Certificate'.

This Certificate relates to Comtite Ducting Plug, for use in highways for underground ducting for electricity, traffic signal and fibre-optic cabling for telecommunications.

CERTIFICATION INCLUDES:

- factors relating to compliance with HAPAS requirements
- factors relating to compliance with Regulations where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Strength — the product has adequate strength for the intended application (see section 6).

Resistance to elevated temperatures — cables with a surface temperature of up to 60°C will not affect the integrity of the product (see section 7).

Resistance to chemicals — the product is expected to have adequate resistance to attack from chemicals likely to occur in soils and groundwater (see section 8).

Durability — the material from which the product is manufactured will have an anticipated service life in excess of 50 years (see section 10).



The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Third issue: 3 June 2021

Originally certificated on 14 November 2013

Hardy Giesler
Chief Executive Officer

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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Requirements

In the opinion of the BBA, Comtite Ducting Plug, when used in accordance with the provisions of this Certificate, will meet or contribute to meeting the requirements of the *Manual of Contract Documents for Highways Works (MCHW)*⁽¹⁾, Volume 1 *Specification for Highways Works (SHW)* and Volume 2 *Notes for Guidance on the Specification for Highway Works*.

Further requirements are contained in Volume 3, and additional site requirements may be included on particular contracts.

(1) The MCHW is operated by the Overseeing Organisations: Highways England (HE), Transport Scotland, the Welsh Government and the Department for Infrastructure (Northern Ireland).

Regulations

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.1) of this Certificate.

Technical Specification

1 Description

1.1 Comtite Ducting Plug is for use with Ridgiduct Twin-Walled High Density Polyethylene Ducting (see Product Sheet 1 of this Certificate), and provides a suitable method for securing internal cables and pipes within the ducting system. One plug is used at each end of a run of ducting.

1.2 The plug (see Figure 1) comprises a two-part interlocking ethylene propylene diene monomer (EPDM) body held together with a centre bolt. The bolt incorporates a valve to release any pressure which may build up in the ducting during installation. The valve is also used for carrying out the air pressure test with the core valve part removed. The plug incorporates eight compression plates, four on each face, connected by bolts, provide additional support and, when tightened, seal the EPDM body against the walls of the duct.

Figure 1 Comtite Ducting Plug



1.3 The plug is available in two sizes to suit the RB 94 and RB 100 Ridgiduct pipes. It is constructed with four holes in which a selection of grommets (supplied) can be inserted. The range of plugs and grommets is given in Table 1.

Table 1 Range of plugs and grommets

| Product code | Description |
|---------------------|---------------------|
| DP 94 | 94 mm ducting plug |
| DP 100 | 100 mm ducting plug |
| DPG 0 | Blanking grommet |
| DPG 9 | 9 mm grommet |
| DPG 12 | 12 mm grommet |
| DPG 14 | 14 mm grommet |
| DPG 16 | 16 mm grommet |
| DPG 18 | 18 mm grommet |
| DPG 21 | 21 mm grommet |
| DPG 24 | 24 mm grommet |
| DPG 27 | 27 mm grommet |
| DPG 4 x 9 | 4 x 9 mm grommet |
| DPG 7 x 9 | 7 x 9 mm grommet |

1.4 The plug is available in two sizes to suit the RB 94 and RB 100 Ridgiduct pipes.

1.5 Beginning and ending the ducting system with Comtite Ducting Plug, and incorporating optional sealed couplings, produces a system with protection against penetration by solid foreign objects of 1 mm diameter or greater and against ingress of water at 1 m depth, ie an IP rating of IP47 to BS EN 60529 : 1992.

1.6 When using Comtite Ducting Plug, Ridgiduct RB 94 and RB 100 are suitable for motorway communications applications as a sealed system to BS EN 61386-24 : 2010.

2 Manufacture

2.1 The EPDM components are manufactured using conventional injection moulding techniques. The compression plates are manufactured from acetal using conventional injection moulding techniques.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control being operated by the manufacturer are being maintained.

2.3 The management system of Polypipe Civils has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015, BS EN ISO 14001 : 2015 and BS ISO 45001 : 2018 by BSI (Certificates Q06225, EMS 535794 and OHS 73211 respectively).

3 Delivery and site handling

3.1 Comtite Ducting Plug is individually bagged, and the grommets are bagged in packs of five for each type of grommet.

3.2 Comtite Ducting Plug has good resistance to UV degradation. When long-term storage is envisaged, the product must be stored away from direct sunlight.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Comtite Ducting Plug.

Design Considerations

4 Use

Comtite Ducting Plug, when installed in accordance with the recommendations given in this Certificate, is suitable for use in highways for underground ducting for electricity services, and for street lighting cables and fibre optic cabling for cable television and telecommunications.

5 Practicability of installation

The plug is designed to be installed by a competent general builder, or by utility contractors, experienced with this type of product.

6 Strength

6.1 The plug has adequate robustness to resist the loads associated with installation and with subsequent use in situation described in this Certificate.

6.2 The plug has adequate resistance to the impact loads normally encountered during handling and installation.

7 Resistance to elevated temperatures

7.1 The maximum temperature to which the duct plug will be subject in service as part of an electrical cable ducting system is dependent on the ground thermal conductivity, depth of burial, ground temperature and the heat load imposed by the electrical cable.

7.2 In general, cables with a surface temperature of up to 60°C will not affect the integrity of the plug. For example, in a typical installation with a 300 mm² copper cable carrying a current of 600 amps imposing a heat load of 25 W·m⁻¹, the cable would have a surface temperature of 60°C; this would result in a mean internal duct temperature of 45°C.

8 Resistance to chemicals

The materials used to manufacture the plug are expected to have adequate resistance to the types and levels of chemicals likely to occur in soils and groundwater in civil engineering applications.

9 Maintenance

As the plug is buried and has suitable durability (see section 10), maintenance is not required.

10 Durability

The material from which the product is manufactured will not significantly deteriorate and will have an anticipated service life in excess of 50 years.

11 Reuse and Recyclability

The plug is manufactured from copolymers, which is recyclable.

12 General

12.1 Comtite Ducting Plug must be installed in accordance with the requirements of the Certificate holder's instructions, and any additional site requirements (see section 4).

12.2 The general requirements for a ducting system must be in accordance with Product Sheet 1 of this Certificate (see sections 13 and 14).

12.3 The grommets have a high friction surface which would impede the insertion or withdrawal of cables. To overcome this, the grommets are split along their length to allow them to be clipped over the cable once it has been pulled through and in place.

Technical Investigations

13 Tests

Tests were carried out to determine:

- dimensional accuracy
- watertightness of joints
- airtightness
- degree of protection against foreign objects.

14 Investigations

14.1 An examination was made of data relating to:

- chemical resistance
- heat dissipation
- effect of temperature
- practicability of installation
- material properties
- durability.

14.2 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

BS EN 60529 : 1992 + A2 : 2013 *Specification for degrees of protection by enclosures (IP code)*

BS EN 61386-24 : 2010 *Conduit systems for cable management — Particular requirements — Conduit systems buried underground*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

BS EN ISO 14001 : 2015 *Environmental management system — Requirements with guidance for use*

BS ISO 45001 : 2018 *Occupational health and safety management systems. Requirements with guidance for use*

Manual of Contract Documents for Highway Works, Volume 1 *Specification for Highway Works*

Manual of Contract Documents for Highway Works, Volume 2 *Notes for Guidance on the Specification for Highway Works*

Manual of Contract Documents for Highway Works, Volume 3 *Highway Construction Details*

15 Conditions

15.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

15.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

15.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

15.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

15.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

15.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.