

HAPAS

Naylor Drainage Ltd

Clough Green
Cawthorne
Barnsley
South Yorkshire S75 4AD



Tel: 0330 056 3355
e-mail: sales@naylor.co.uk
website: www.naylor.co.uk

HAPAS Certificate
08/H131
Product Sheet 1 Issue 4

NAYLOR DUCTING SYSTEM

NAYLOR METRO-DUCT

This Product Sheet⁽¹⁾ is issued by the British Board of Agrément (BBA). The Highways Authorities Product Approval Scheme (HAPAS) is supported by National Highways (NH) (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.

(1) Hereinafter referred to as 'Certificate'.

This Certificate relates to Naylor Metro-Duct, ranging from 50 to 150 mm nominal diameter, for use in highways as underground ducting for electricity, gas and water supply services, and for street lighting cables and fibre-optic cabling for communications, in accordance with the *Manual of Contract Documents for Highway Works* (MCHW), Volumes 1 and 2.



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 complying with the requirements of the BBA HAPAS Certification Scheme according to the assessments set out in this Certificate.

On behalf of the British Board of Agrément

Date of Fourth issue: 6 August 2024

Originally certificated on 27 March 2003

A handwritten signature in black ink, appearing to read 'Hardy Giesler'.

Hardy Giesler
Chief Executive Officer

This BBA HAPAS Certificate is issued under the BBA's accreditation to ISO/IEC 17065 (UKAS accredited Certification Body Number 0113).

Clauses marked † are additional information outside the scope of accreditation.

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

The Certificate should be read in full as it may be misleading to read clauses in isolation.

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

British Board of Agrément

1st Floor, Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

©2024

1 Product Description

1.1 The Certificate holder specifies the product under assessment, Naylor Metro-Duct, ranging from 50 to 150 mm nominal diameter, for use in highways as underground ducting for electricity, gas and water supply services, and for street lighting cables and fibre-optic cabling for communications, in accordance with the MCHW, Volumes 1 and 2.

1.2 Naylor Metro-Duct (see Table 1) comprises twinwall high-density polyethylene (HDPE) ducts and black polypropylene (PP) couplers. The outer wall is corrugated and the inner wall is smooth finished.

Table 1 Ducts and couplers range

Nominal size DN ⁽¹⁾ (ID/OD – mm)	Duct Product codes						Duct Length (m)	Coupler Product code
50/63	29086	29087					6	29104
94/110	29042	29043	29045	29046	29084	29085	6	29225
	29110	29170	29238	29281	29450	29450		
100/120	29347						2	29101
	29208						3	
	29052	29082	29083	29200	29278	29349	6	
	29350	29351	29364	29451				
125/145	29199						2	29100
	29273						3	
	29111	29452					6	
137/160	29119	29189	29197	29198	29241	29244	6	29099
	29249	29250	29453					
150/178	29209						2	29098
	29275						3	
	29059	20961	29112	29355	29356	29357	6	
	29358	29359	29396	29420	29454			

(1) Nominal size DN, inside diameter ID, outside diameter OD.

1.3 The ducts are available in a colour range of black, purple, orange, green, blue, yellow, red, grey, and brown (see Table 2). The colour coding is in accordance with National Joint Utilities Group (NJUG) guidelines. The ducts are marked in accordance with BS EN 61386-24 : 2010 specifications.

Table 2 Duct types and colours⁽¹⁾

Product type	Description	Nominal diameter (mm)					
		50	94	100	125	137	150
Utilities	NJUG classification colours	B/R, O, P, Y, BL, G, GR					
Lighting	Street lighting and traffic signal	O	O	O	O	O	O
Comms Duct	Telecommunications industry and BS EN 61386-24 : 2010	GR	GR	GR	GR	GR	GR
Motorway Comms	Motorway communications	P	P	P	P	P	P

(1) B – black, R – Red, O – orange, P – purple, Y – yellow, BL – blue, G – green, GR – grey.

1.4 Sealing of the joints requires rubber sealing rings supplied by the Certificate holder. The seals are manufactured from EPDM to BS EN 681-1 : 1996, Type WC.

2 Requirements

Requirements for the product are outlined in the BBA HAPAS Certification Scheme and Technical Specifications Documents, and have been established from the following specification documents:

- the MCHW⁽¹⁾, Volume 1, Series 500 and 1500 and specifically Clauses 518 and 1530
- the MCHW, Volume 2, Series NG 500 and NG 1500 and specifically Clauses NG 518 and NG 1530.

(1) The MCHW is operated by National Highways (NH) (acting on behalf of the Overseeing Organisations of the Department for Transport; Transport Scotland; the Welsh Government; and the Department for Infrastructure, Northern Ireland).

3 Summary of Product Assessment

The product was assessed on the basis of the following characteristics in accordance with HAPAS requirements.

3.1 Mechanical resistance and stability

3.1.1 Mechanical properties

Table 3 Characteristics for mechanical properties

Product assessed	Assessment method	Requirement	Outcome
Ducts ('normal duty' – N)	Impact resistance at -5°C to BS EN 50086-2.4 : 1994	Passage of a ball through the duct after the test	Pass
Ducts	Resistance to sharp objects (point loads) to the MCHW sub-Clause 518.13	No perforation at 10% rod travel	Pass

3.1.1.1 The assessment showed that the product complies with HAPAS requirements for this characteristic.

3.1.1.2 The product is sufficiently robust to withstand impact loads (requirements defined as 'normal duty') normally encountered during handling, transport, storage and installation.

3.1.2 Performance of joints

Table 4 Characteristics for performance of joints

Product assessed	Assessment method	Requirement	Outcome
Ducts and couplers	Dimensions to BS EN 50086-2.4 : 1994	BS EN 63186-24 : 2010	Pass
System (ducts and couplers)	Degree of protection by enclosure against solid foreign objects to BS EN 60529 : 1992, sub-Clause 13.2 (first characteristic numeral)	IP3 or IP4	IP4
	Degree of protection by enclosure against ingress of water to BS EN 60529 : 1992, sub-Clause 14.2 (second characteristic numeral)	No ingress of water. \geq IPX7 Declared value	IPX7

The assessment showed that the product complies with HAPAS requirements for this characteristic.

3.1.3 Strength and stability

Table 5 Characteristics for strength and stability

Product assessed	Assessment method	Requirement	Outcome
Ducts Type 450: Power Class 3	Resistance to compression BS EN 50086-2.4 : 1994	Applied minimum force of 450 N at deflection of 5% at 23 °C. No crack allowing ingress of light or water	Pass

3.1.3.1 The assessment showed that the product complies with HAPAS requirements for this characteristic.

3.1.3.2 The product has adequate robustness to resist the loads associated with handling and installation and with subsequent use in the situations described in this Certificate.

3.2 Safety and accessibility in use

3.2.1 Safety in use

Table 6 Characteristics for safety in use

Product assessed	Assessment method	Requirement	Outcome
Ducts	Static friction coefficient to ESI 12-24, TT3	< 0.27	Pass

The ducts and their joints do not present any internal projection or impedance to the installation or withdrawal of cables through the duct run.

3.3 Sustainable use of natural resources

The product is manufactured from polyethylene and polypropylene, which can be recycled.

3.4 Durability

Table 7 Characteristics for durability

Product assessed	Assessment method	Requirement	Outcome
Ducts	Resistance to long-term deformation (creep ratio) at 45°C to BS EN ISO 9967 : 1995	< 8	Pass
Ducts and couplers material	Resistance chemicals to the MCHW, Vol 1, Sub-Clauses 518.2 and 1530.10. For guidance see PD ISO/TR 10358 : 2021	Product conforming to the MCHW, Vol 1, Clauses 518 and 1530	Pass
Seals material	Resistance chemicals to the MCHW, Vol 1, Clause sub-518.2. For guidance see PD ISO/TR 7620 : 2005		Pass

3.4.1 The assessment showed that the product complies with HAPAS requirements for this characteristic.

3.4.2 The maximum temperature to which the product will be subjected in service as an electrical cable duct is dependent on the ground thermal conductivity, depth of burial, ground temperature and the heat load imposed by the electrical cable. In general, cables with a surface temperature of up to 60°C will not affect the integrity of the ducts. 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.

3.4.3 The product has adequate resistance to long-term deformation at an elevated temperature of 45°C.

3.4.4 The product will not be adversely affected by the heat dissipation from cables installed within it.

3.4.4 Material used in the manufacture of the product is expected to have an adequate resistance to the types and levels of chemicals likely to occur in soils and groundwater in civil engineering applications.

3.4.5 Under normal service conditions, the product will have a life of at least 60 years, provided it is designed, installed, and maintained in accordance with this Certificate and the Certificate holder's instructions.

4 Summary of Process Assessment

Manufacturing process and quality control	Complies with HAPAS requirements
Delivery and site handling	Complies with HAPAS requirements
[Application / Installation]	Complies with HAPAS requirements

4.1 Manufacture

4.1.1 The BBA has undertaken the following tasks for the assessment of product manufacture and has established that the manufacture complies with BBA HAPAS Certification Scheme requirements:

- the BBA has recorded and evaluated the manufacturer's documentation of the methods adopted for quality control procedures and product testing against HAPAS requirements
- the BBA has assessed the quality control operated over batches of incoming materials and formulations against HAPAS Requirements
- the BBA has evaluated the process for management of non-conforming work
- the BBA has audited the production process and verified that it is in accordance with the documented process
- the BBA has checked that equipment has been properly tested and calibrated.

4.1.2 The BBA has undertaken to review the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

† 4.1.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of ISO/IEC 9001 : 2015 by BSI (Certificate FM 01420).

4.2 Delivery and site handling

† 4.2.1 The Certificate holder states that the product is delivered to site as follows:

- packed in timber U-frames then strap banded. Couplings may be attached to the end of the pipes for despatch or separately packed in polyethylene bags
- when used for electrical cables, the ducts are printed with 'Electric Cable Duct'. For other services the marking/colour coding must comply with the requirements of the relevant authority concerned.

4.2.2 To achieve the performance described in this Certificate, delivery and site handling must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

- compliance with the requirements of the MCHW 1, Vol 1, Series 500, Clause 518
- care must be taken not to drop product on its ends, particularly during cold weather conditions
- frames must be unloaded using a forklift with adequate lifting capacity. Unloaded frames are designed to be stored on even, stable ground and must not be stacked more than two units high
- protection of the products from direct sunlight when long-term storage is envisaged. If protection cannot be provided, consideration must be given to the effects of daily exposure to direct sunlight:
 - up to 3 months — negligible UV degradation but possible extreme surface temperatures of up to 80°C may cause some localised distortion
 - 3 to 12 months — may have significant effect on the impact resistance and physical properties
 - over 12 months — damage will occur unless protection provided.

4.3 Design

4.3.1 To meet the requirements for motorway communications, the colour of the outer duct must be purple (black for Scotland), see the MCHW, Volume 1, Series 1500, sub-Clause 1530.9.

4.3.2 The product must be designed so that in normal use its performance is reliable and without danger to the user or surroundings.

4.4 Installation

4.4.1 The Certificate holder's instructions for installation of the product were confirmed as meeting the BBA HAPAS Certification Scheme requirements.

4.4.2 To achieve the performance described in this Certificate, the product must be protected against damage from site construction traffic.

4.4.3 To achieve the performance described in this Certificate, the product must be installed and tested in accordance with:

- the Certificate holder's instructions
- MCHW Volume 1, Series 500 and 1500; Volume 2, Series NG 500 and NG 1500 and Volume 3, Drawings F1 (Type T and S) and I
- BS 7671 : 2018 and BS EN 50174-3 : 2013 for fibre optic cabling.

† 4.4.4 The Certificate holder's instructions advise that:

- the seal should be placed on the third rib of the duct for smaller sizes and in the second valley for 160/137 and 178/150 sizes
- the Certificate holder's lubricant should be applied to the outside edge of the seal and the inside of the coupler.

4.4.5 To achieve the performance described in this Certificate, installation of the product must be carried out by a competent general builder, or a contractor, experienced with this type of product.

4.5 Maintenance

4.5.1 To achieve the performance described in this Certificate, any damage (e.g., accidental damage during subsequent excavations) must be repaired immediately to maintain integrity of the product and ensure continued protection to the services and cables therein.

4.5.2 As the product is buried and has suitable durability, maintenance is not required.

5 Fulfilment of Requirements

5.1 The conclusion of this BBA assessment is that Naylor Metro-Duct, when used in accordance with the provisions of this Certificate, complies with the BBA HAPAS Certification Scheme requirements.

5.2 In order for the product to continue to meet Scheme requirements, it must be installed, used and maintained as per the Certificate holder's instructions and as detailed in the Certificate.

6 Validity of Certificate

Continuing validity of this Certificate is dependent on the following factors:

- continuing compliance with product or process requirements, as described in the HAPAS Scheme document, and the specification documents referred to therein
- ongoing BBA surveillance of factory production control, to verify that the specifications and quality control being operated by the manufacturer are being maintained
- formal triennial Review of the Certificate, and Reissue for required technical or non-technical updates compliance with ongoing Certificate obligations by the Certificate holder and manufacturer(s).

†7 Additional 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.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 681-1 : 1996.

8 Bibliography

- BS 7671 : 2018 + A2 : 2022 *Requirements for Electrical Installations — IET Wiring Regulations*
- BS EN 681-1 : 1996 *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Vulcanized rubber*
- BS EN ISO 9967 : 1995 *Thermoplastics pipes — Determination of creep ratio*
- BS EN 50086-2.4 : 1994 *Conduit systems for cable management - Part 2-4: Particular requirements for conduit systems buried underground*
- BS EN 50174-3 : 2013 + A1 : 2017 *Information technology — Cabling installation — Part 3: Installation planning and practices outside buildings*
- BS EN 60529 : 1992 + A2 : 2013 *Specification for degrees of protection provided by enclosures (IP code)*
- BS EN 61386-24 : 2010 *Conduit systems for cable management — Particular requirements — Conduit systems buried underground*
- ISO/IEC 9001 : 2015 *Quality management systems — Requirements*
- ESI (Electricity Supply Industry) 12-24 *Plastic ducts for buried electric cables*
- PD ISO/TR 7620 : 2005 *Rubber materials — Chemical resistance*
- PD ISO/TR 10358 : 2021 *Plastics pipes and fittings for industrial applications — Collection of data on combined chemical-resistance*
- Manual of Contract Documents for Highway Works, Volume 1 *Specification for Highway Works, Series 0500, Drainage and Service Ducts (02/20)*
- Manual of Contract Documents for Highway Works, Volume 1 *Specification for Highway Works, Series 1500, Highway Communications (02/17)*
- Manual of Contract Documents for Highway Works, Volume 2 *Notes for Guidance on the Specification for Highway Works, Series NG 0500, Drainage and Service Ducts (02/20)*
- Manual of Contract Documents for Highway Works, Volume 2 *Notes for Guidance on the Specification for Highway Works, Series NG 1500, Highway Communications (02/17)*
- Manual of Contract Documents for Highway Works, Volume 3 *Highway Construction Details, F Series - Drainage (05/06)*
- Manual of Contract Documents for Highway Works, Volume 3 *Highway Construction Details, I Series - Underground Cable Ducts (05/04)*
- National Joint Utilities Group (NJUG) *Street works UK guidance on the positioning and colour coding of underground utilities' apparatus. Volume 1. Issue 9'.*

9 Conditions of Certification

9.1 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 or 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.

9.2 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.

9.3 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.

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

9.5 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 UKCA marking and CE marking.

9.6 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.

British Board of Agrément

1st Floor, Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG

©2024

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk