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HAPAS Certificate

07/H126

Product Sheet 1

JOINTMASTER CRACK SEALING SYSTEMS FOR HIGHWAYS

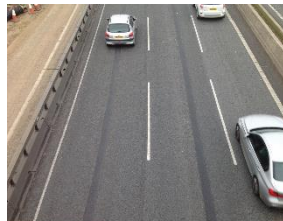
JOINTMASTER JMB FLEXIBLE INLAID CRACK SEALING SYSTEM FOR HIGHWAYS

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 Assembly Government and the Department for Regional Development, 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 the Jointmaster JMB Flexible Inlaid Crack Sealing System for Highways.

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

Performance — the system meets the requirements for flexible (Type F) inlaid crack-sealing systems of the *Guidelines Document for the Assessment and Certification of Crack Sealing Systems for Highways* (see section 6).

Durability — the results of tests and an assessment of the system's use indicate that it can be used to repair cracks in both longitudinal and transverse directions of the carriageway, with a minimum expected life of five years (see section 8).



The BBA has awarded this Certificate to the company named above for the system described herein. The system 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 Second issue: 26 June 2017

Originally certificated on 12 July 2007

Simon Wroe
Head of Approvals – Engineering

Claire Curtis-Thomas
Chief Executive

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 are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.*

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Requirements

In the opinion of the BBA, the Jointmaster JMB Flexible Inlaid Crack Sealing System for Highways, when assessed in accordance with the *Guidelines Document for the Assessment and Certification of Crack Sealing Systems for Highways*, and applied to a suitable non-porous bituminous or concrete highway in accordance with the provisions of this Certificate, will meet the relevant performance requirements.

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 to 3.3 and 3.5) of this Certificate.

Technical Specification

1 Description

1.1 The Jointmaster JMB Flexible Inlaid Crack Sealing System for Highways comprises graded aggregates coated with a polymer-modified bituminous compound, broadcast with a 2 to 5 mm high PSV (≥ 60) aggregate to meet skid resistance requirements. Approved aggregates include granite, basalt and calcined bauxite.

1.2 The system must be used in conjunction with Cariphalte CP primer when applied to very porous or dusty concrete surfaces.

1.3 The production process is controlled in accordance with a Quality Plan agreed by the BBA. Quality control checks are carried out on the incoming materials, during production and on the finished product.

2 Manufacture

2.1 The system is manufactured by a batch-blending process.

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.

3 Delivery and site handling

3.1 The Jointmaster JMB compound is supplied in nominal 25 kg silicone-coated paper bags, stamped with the name of the product and batch number.

3.2 Each bag is stamped with the Certificate holder's name, product name, batch number and manufacture date.

3.3 The aggregates are delivered to site in 25 kg bags.

3.4 Cariphalte CP primer is supplied in 5 litre cans.

3.5 The products must be stored in cool dry conditions and protected from contamination.

3.6 The Certificate holder has taken the responsibility of classifying and labelling the system components under the *CLP Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures*. Users must refer to the relevant Safety Data Sheet(s).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Jointmaster JMB Flexible Inlaid Crack Sealing System for Highways.

Design Considerations

4 Use

4.1 The Jointmaster JMB Flexible Inlaid Crack Sealing System for Highways is satisfactory for use as a flexible inlaid crack-sealing system for repairing cracks, typically in excess of 20 mm wide, or multiple adjacent cracks, in non-porous bituminous⁽¹⁾ highway surfaces with texture depths not exceeding 2 mm, or concrete highway surfaces.

(1) For the purposes of this Certificate, non-porous bituminous highway surfaces are impermeable and include hot-rolled asphalt, mastic asphalt and thin surfacing systems.

4.2 The system is laid at a nominal depth of 20 mm. Should the depth of repair exceed 20 mm, a suitable infill material should be applied, like Jointmaster IMP (BBA Certificate 09/H149).

5 Practicability of Installation

Installation of the system must be conducted by approved specialist contractors with experience of this type of system.

6 Performance

The results of laboratory performance tests carried out on the binder and on the system complied with the requirements of the Guidelines Document for a flexible (Type F) inlaid system (see section 13 of this Certificate, Table 1). This includes the minimum initial and investigatory skid resistance values of 60 and 50 respectively.

7 Maintenance

Installations should be periodically inspected as part of a planned maintenance programme and, if necessary, repaired as described in section 12.

8 Durability

8.1 The results of tests and an assessment of the system's use in service indicate that the system can be used to seal and repair cracks in both longitudinal and transverse directions of the carriageway, with a minimum expected life of five years.

8.2 Where cracks have penetrated substantially through the pavement depth owing to structural failure resulting in significant movement under traffic, an expectation of life cannot be predicted. Where pavements are structurally sound with cracking confined to the surfacing layer or layers, not subject to further movement and remain bonded to the road-base, the five-year minimum life should be achieved.

8.3 The most severe wear from trafficking (primarily by heavy goods vehicles) occurs within the wheel track zones, approximately between 0.5 and 1.1 m, and between 2.55 and 3.15 m from the centre of the nearside lane markings for each traffic lane. In the wheel track zones, the expected minimum life is unlikely to be exceeded. Conversely, for cracks outside the wheel track zones, provided the pavement surface is otherwise sound, the expected minimum life in terms of skid and deformation resistance is likely to be exceeded.

8.4 The most onerous conditions occur typically during the summer months on heavily-trafficked, exposed carriageways with significant gradients in cuttings and on the surface of pavements carried by elevated structures. In these situations, surface temperatures can approach or even exceed 50°C. Should surface temperatures exceed this

figure for prolonged periods (such as in an exceptionally hot summer), then the expected minimum life of the system in the wheel track zone may not be obtained.

Installation

9 General

9.1 Installation of the Jointmaster JMB Flexible Inlaid Crack Sealing System for Highways must be carried out by trained installers, in accordance with this Certificate, details are available from the Certificate holder.

9.2 Traffic Management should be in accordance with the latest issue of the *Department for Transport Traffic Signs Manual*, Chapter 8, or as agreed between the purchaser and installer.

9.3 The ambient and road surface temperatures are recorded at the start and, if the weather is variable, during the installation process. Installation must only be carried out if the road surface temperature is above 0°C.

9.4 The areas to which the system is to be applied must be clearly defined by the purchaser prior to commencement of work on-site.

10 Preparation of the road surface

10.1 The existing surface is mechanically planed-out centrally over the length of the cracks, to a depth of 20 mm. The width of the recess should be formed to extend at least 25 mm into the sound surface.

10.2 The excavated areas are mechanically swept, or for small areas hand swept, to remove all soil from the site.

10.3 Before application the recess must be cleaned and dried using hot compressed air.

10.4 Porous and/or dusty concrete surfaces should be primed with a Cariphalte CP primer to enhance adhesion. The primer should be applied and allowed to dry in accordance with the manufacturer's recommendations.

11 Application

11.1 The Jointmaster JMB compound is melted down in heated boilers that are agitated by a rotating shaft with paddles at a rate of >6 rpm to a laying temperature of between 180°C and 200°C.

11.2 The molten compound is transferred into the prepared recess, by screed box, to finish flush and to overlap by approximately 10 mm to the adjacent surface.

11.3 Whilst the compound is still in a molten state, a covering of 2 to 5 mm aggregate is applied to the surface. If the aggregate is not dry, it should be heated >50°C to dry before application.

11.4 Once the repair has cooled (after 30 to 60 minutes) the work area is mechanically swept to remove any excess aggregate.

11.5 The installer should conduct a visual check for uniform surface texture and any other discernible faults and carry out any remedial work as necessary.

12 Repair

Damage to the system can be repaired by mechanically planing out the defective area and re-applying the system to the original specification.

13 Tests

13.1 Laboratory performance tests were carried out on the Jointmaster JMB Flexible Inlaid Crack Sealing System for Highways in accordance with the requirements of the Guidelines Document. The results were satisfactory.

13.2 Characterisation tests were carried out on the binder, including cone penetration, resilience (control and heat aged), and flow resistance

13.3 The tests and requirements are given in Table 1.

Table 1 Laboratory performance tests on the system

Test	Requirement ⁽¹⁾	Method ⁽²⁾
Skid Resistance Value (SRV)		
initial	≥60	Appendix B, Method 1
after rut resistance test	≥50	Appendix B, Method 3
Rut resistance		
rate (mm·h ⁻¹)	<5	Appendix B, Method 4
rut depth	<10	
Tensile bond (N·mm ⁻²) ⁽³⁾		
control	≥0.5	TRL Report 176, Appendix J
heat aged ⁽⁴⁾	≥60% of control value	
Texture depth (mm)		
initial	≥1.5	Appendix B, Method 4
after rut resistance test	≥0.75	
Elongation		
load at 30% extension (N)	≤1000	Appendix B, Method 6

(1) Requirements for Type F, inlaid crack-sealing systems as defined in the *Guidelines Document for the Assessment and Certification of Crack Sealing Systems for Highways*.

(2) Test methods are defined in the Guidelines Document.

(3) Conducted on both asphalt and concrete substrates.

(4) Heat aged 28 days at (70±2)°C.

14 Investigations

14.1 An installation trial was carried out to assess the practicability of the installation in accordance with the agreed method statement.

14.2 A user/specifier survey and visits to existing sites were carried out to assess the system's performance and durability.

14.3 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

Guidelines Document for the Assessment and Certification of Crack Sealing Systems for Highways

Department for Transport Traffic Signs Manual

TRL Report 176 : 1997 *Laboratory tests on high-friction surfaces for highways*

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.