

JOINTMASTER CRACK SEALING SYSTEMS FOR HIGHWAYS

JOINTMASTER FLEXIBLE FILL AND OVERBAND SYSTEM

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 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 the Jointmaster Flexible Fill and Overband System, a polymer-modified bitumen compound incorporating fillers and aggregates, for use as a fill and overband system to seal and repair cracks in non-porous bituminous and concrete highways surfaces.

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 relevant requirements for fill and overband crack-sealing systems of the *Guidelines Document for the Assessment and Certification of Crack Sealing Systems for Highways* (see section 6).

Durability — the system can be used to repair cracks, fretted joints and reinstatement joints in both longitudinal and transverse directions of the carriageway and has a minimum life expectancy of three years (see section 8).



The BBA has awarded this Certificate to the company named above for the system described herein. This 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



Paul Valentine
Technical Excellence Director



Claire Curtis-Thomas
Chief Executive

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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 Flexible Fill and Overband System, 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 sections: 3 *Delivery and site handling* (3.1, 3.2 and 3.6) of this Certificate.

Technical Specification

1 Description

1.1 The Jointmaster Flexible Fill and Overband System comprises a single-pass, flexible grade, polymer-modified bitumen compound incorporating fillers, graded aggregates and other additives. The system is broadcast with a 2 to 4 mm graded aggregate.

1.2 Aggregates which can be broadcast include basalt, granite and calcined bauxite.

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 operated by the manufacturer are being maintained.

3 Delivery and site handling

3.1 Jointmaster Flexible Fill and Overband compound is supplied in 25 kg silicone-lined paper sacks. The bags are supplied to site on maximum 1 tonne pallets.

3.2 The broadcast aggregate is delivered to site in 25 kg bags. The bags are supplied to site on maximum 1 tonne pallets.

3.3 Bags are marked with the product name, date of manufacture and batch number.

3.4 Bags must be stored under cool and dry conditions and protected from contamination.

3.5 If stored correctly in unopened bags in accordance with the Certificate holder's instructions, the products will have a storage life of at least 12 months.

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 Flexible Fill and Overband System.

Design Considerations

4 Use

4.1 The Jointmaster Flexible Fill and Overband System is satisfactory for use as a fill and overband sealing system for the repair of any cracks, reinstatement joints and fretted joints between 5 and 40 mm wide in non-porous bituminous⁽¹⁾ and concrete highway surfaces with texture depths not exceeding 2 mm.

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

4.2 The system is applied in one pass to both fill the crack and produce a band up to 200 mm wide directly over the crack, before being blinded with a 2 to 4 mm graded aggregate.

5 Practicability of installation

The system must only be installed by contractors trained and approved by the Certificate holder.

6 Performance

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

7 Maintenance

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

8 Durability

8.1 The system can be used to seal and repair cracks in both longitudinal and transverse directions of the carriageway, and has a minimum life expectancy of three 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, and these remain bonded to the road-base, the three 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 the 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), the expected minimum life of the system in the wheel track zone may not be attained.

9 General

9.1 Installation of the Jointmaster Flexible Fill and Overband System must be conducted in accordance with the Certificate holder's Installation Method Statement and this Certificate.

9.2 Traffic management must 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. The system must not be installed during periods of continuous or heavy rain.

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 road surface to be treated is cleaned and dried using hot compressed air, taking care not to overheat and damage the existing road surface.

10.2 On very porous substrates such as concrete, Jointmaster Primer can be used to enhance adhesion. The primer must be applied in accordance with the Certificate holder's instructions.

11 Application

11.1 Jointmaster Flexible Fill and Overband compound is melted down in horizontal pre-heaters that are agitated (by a rotating shaft with paddles) at a rate of >6 rpm to a laying temperature of between 170°C and 200°C.

11.2 The compound is poured along the prepared crack by screed box centrally over the defect to fill the crack and produce an overband of between 40 and 200 mm.

11.3 Whilst the compound is still in a molten state (>75°C), a full covering of 2 to 4 mm graded aggregate, pre-heated to >50°C, is broadcast into the surface.

11.4 Once the repair has cooled, the work area is mechanically swept to remove the excess aggregate.

11.5 A visual inspection must be carried out by the installer to check for any discernible faults. These should be repaired before the site is open to traffic or as agreed with the purchaser (see section 12).

12 Repair

The damaged system can be repaired by reheating the faulty area using hot compressed air, removing the defective material from the road surface and then re-applying in accordance with section 11.

13 Tests

13.1 A series of tests, the results of which were found to be satisfactory, was carried out on the bitumen binder to establish:

- cone penetration (initial and after heat ageing)
- resilience (initial and after heat ageing)
- flow resistance.

13.2 Laboratory performance tests were carried out on the Jointmaster Flexible Fill and Overband System in accordance with the requirements of the Guidelines Document, and the results found to be satisfactory. 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 A, Method 1
retention	≥50	Appendix A, Method 3
Texture depth (mm)		
initial	≥1.5	Appendix A, Method 1
retention	≥0.75 ⁽³⁾	Appendix A, Method 3
Tensile bond (N·mm ⁻²) ⁽⁴⁾		
control	≥0.5	TRL Report 176,
heat aged ⁽⁵⁾	≥60% of control value	Appendix J
Wheel tracking		Appendix A, Method 2
spread after wheel tracking (mm) ⁽⁶⁾	Record	
deformation after wheel tracking (mm) ⁽⁶⁾	Record	
Elongation		Appendix A, Method 7
Load at 30% elongation	≤1000 N ⁽⁷⁾	

(1) Requirements as defined in the Guidelines Document.

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

(3) When required.

(4) Conducted on both asphalt and concrete substrates.

(5) Heat aged for 28 days at 70 ±2°C.

(6) Conducted after the wheel tracking at 50°C.

(7) Requirement for flexible grade materials.

14 Investigations

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

14.2 The results of skid resistance and texture depth tests carried out on the material laid during the installation trial were reviewed and were satisfactory.

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 Thin Surfacing Systems for Highways, July 2004

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

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

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.