Brymec Ltd
Redlands
Coulsdon
Surrey CR5 2HT

Tel: 0333 000 5555
e-mail: sales@brymec.com
website: www.brymec.com

Agrément Certificate
20/5795
Product Sheet 1

BRYMEC DRAINAGE SYSTEM

BRYMEC SML CAST IRON WASTE WATER AND RAIN DRAINAGE SYSTEM

This Agrément Certificate Product Sheet(1) relates to the Brymec SML Cast Iron Waste Water and Rain Drainage System (pipes, couplings and fittings), for above-ground applications, cast-iron products for use in the conveyance of surface water and sewage in domestic, commercial and public buildings.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information 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 system will have adequate resistance to site and service loadings (see section 6).

Performance of joints — the joints will remain watertight under pipeline movement and will not be adversely affected by thermal movement (see section 7).

Resistance to chemicals — the system will be unaffected by the types and quantities of chemicals likely to be found in effluent (see section 9).

Resistance to elevated temperatures — the system has adequate resistance to temperatures likely to occur in service (see section 10).

Durability — the system will have a service life equivalent to that of the building in which it is installed (see section 14).

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

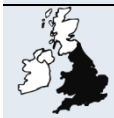
Date of First issue: 2 September 2020

Hardy Giesler
Chief Executive Officer

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA
©2020
tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, the Brymec SML Cast Iron Waste Water and Rain Drainage System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**B3(4)**	**Internal fire spread (structure)**
Comment:		The system, when designed in accordance with this Certificate, can satisfy this requirement, provided the installation stipulations are met. See section 11 of this Certificate.
Requirement:	**E1**	**Protection against sound from other parts of the building and adjoining buildings**
Comment:		The system, when used in accordance with this Certificate, can satisfy this Requirement. See section 12 of this Certificate.
Requirement:	**H1(1)**	**Foul water drainage**
Comment:		The system will convey the flow of foul or surface water and minimise the risk of blockages or leakage. See sections 4, 6, 7 and 8 of this Certificate.
Requirement:	**H3**	**Rainwater drainage**
Comment:		The system is acceptable. See sections 4, 6, 7 and 8 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The system is acceptable. See section 14 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The system satisfies the requirements of this Regulation. See sections 13 and 14 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.1	Compartmentation
Comment:		The system can satisfy the necessary requirements of this Standard provided the installation stipulations are met, with reference to clause 2.1.14(2). See section 11 of this Certificate.
Standard:	2.2	Separation
Comment:		The system can satisfy the necessary requirements of this Standard provided the installation stipulations are met, with reference to clauses 2.2.6(2) and 2.2.9(1). See section 11 of this Certificate.
Standard:	3.6	Surface water drainage
Standard:	3.7	Waste water drainage
Comment:		The system can contribute to a construction satisfying these Standards, with reference to clauses 3.6.4(1)(2) to 3.6.6(1)(2) and 3.7.1(1)(2). See sections 4, 6, 7 and 8 of this Certificate.
Standard:	5.1	Resisting sound transmission to dwellings
Comment:		The system, when designed in accordance with this Certificate, can satisfy this Standard, with reference to clauses 5.1.1(1)(2), 5.1.6(2) and 5.1.7(1). See section 12 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The system can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.

Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for the system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[(1)(2)] and Schedule 6[(1)(2)]. (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23**	**Fitness of materials and workmanship**
Comment:		The system is acceptable. See section 14 and the *Installation* part of this Certificate.
Regulation:	**35(4)**	**Internal fire spread — Structure**
Comment:		The system can satisfy the necessary requirements of this Regulation, provided the installation stipulations are met. See section 11 of this Certificate.
Regulation:	**49**	**Protection against sound from other parts of the building and from adjoining buildings**
Regulation:	**51**	**Reverberation in the common internal parts of a buildings containing flats or rooms for residential purposes**
Comment:		The system can satisfy these Regulations. See section 12 of this Certificate.
Regulation	**79**	**Drainage systems**
Comment:		The system is acceptable. See sections 4, 6, 7 and 8 of this Certificate.

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: 1 *Description* (1.1), 3 *Delivery and handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2020

In the opinion of the BBA, the Brymec SML Cast Iron Waste Water and Rain Drainage System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 8.1 *Internal services*.

CE marking

The Certificate holder has taken the responsibility of CE marking the system components in accordance with harmonised European Standard BS EN 877 : 1999.

Technical Specification

1 Description

1.1 The Brymec SML Cast Iron Waste Water and Rain Drainage System comprises cast-iron pipe, couplings and fittings. The dimensions given in Table 1 of this Certificate comply with those given in BS EN 877 : 1999. The pipe is spun-cast without sockets and is normally supplied in 3 m lengths. Stainless or chromium steel SML Couplings consist of EPDM elastomeric gasket to BS EN 681-1 : 1996 and are used with appropriate clamps.

Table 1 Dimensions of double spigot pipes

Nominal diameter (mm)	Outside diameter (mm)	Pipe: nominal wall thickness (mm)	Minimum wall thickness (mm)	Weight per 3 m lengths (kg)	Product code
50	57-60	3.5	3.0	13	52000
70	77-80	3.5	3.0	17.7	52001
100	109-112	3.5	3.0	25.4	52002
125	133-137	4.0	3.5	35.7	52003
150	158-162	4.0	3.5	42.5	52004
200	207.5-212.5	5.0	4.0	69.8	52005
250	271.5-276.5	5.5	4.5	100.5	52038
300	323.5-328.5	6.0	5.0	130.7	52039

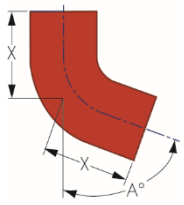
1.2 The pipe is coated externally with an average of 40 µm reddish brown paint and internally with an average of 120 µm ochre epoxy coating. The fittings are coated internally and externally with an average of 70 µm red-brown epoxy coating.

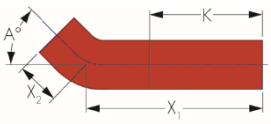
1.3 The types of couplings and clamps (see Table 3) to be used are:

- Rapid coupling with EPDM gasket — chromium steel 1.4520; special coating provides a high protection level against corrosion of all lockers and fittings; axial restraint up to 0.5 bar inner pressure; torque: 13 - 15 Nm
- Rapid INOX coupling with EPDM gasket — may be exposed to all weather conditions for aggressive environments; axial restraint up to 0.5 bar inner pressure; materials (coupling: stainless steel V4A 1.4571; locked by a screw M6 x 45 mm, 6 mm; hexagon socket: stainless steel A4-80; clamping bolt: stainless steel V4A 1.4404); torque: 13 - 15 Nm
- Konfix — for connecting pipes to other materials (steel or plastics) to SML; stainless steel band 1.4016; material EPDM; worm thread clamp
- Rollfix — for connecting cast iron pipes to heat resistant pipes or to PVC pipes with sockets or for connecting PVC-pipes to cast iron pipes with socket; material EPDM
- Rapid clamp – material: DD11 – galvanized; clip collar with axial restraint; for internal pressure loads up to 10 bar; two parts clip collar with claws and four Allen screws (up to DN 125); torque: 27 - 29 Nm applications: rainwater and wastewater pipelines in areas affected by backwater
- Universal clamp — applications: rainwater and wastewater pipelines in areas at risk from backwater; for high tensile loads with Rapid couplings for pressure loads up to 10 bar; torque: block tightening
- Universal couplings and joints are used for connecting pipes of different materials (SML, plastic pipes, etc). Made of high-quality, ozone-resistant EPDM-elastomer. The possibilities of use of these couplings differ in resistance to pressure and in resistance to shear strength:
  - Universal coupling low pressure (LP) 0.6 bar - max — internal pressure 0.6 bar without shear strength; recommended torque: up to 100mm - 3 Nm/from 100 mm - 6 Nm
  - Universal coupling high pressure (HP) 2.5 bar - max — internal pressure 2.5 bar, exposed to shear strength; recommended torque: 10 Nm
- Universal joint 0.6 bar for transitions — used for reliable transitions or changes of nominal width for all pipe materials in domestic buildings; max. internal pressure 0.6 bar without shear strength.

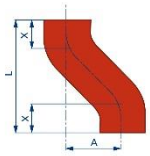
1.4 The range of fittings and couplings covered by this Certificate is given in Table 2.

Table 2 Range of fittings

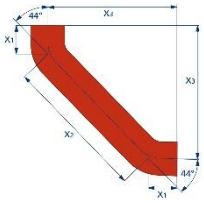
	Bend	15°	22°	30°	45°	68°	88°
	DN	Product code					
	50	52047	—	52053	52059	52065	52071
	70	52048	—	52054	52060	52066	52072
	100	52049	52042	52055	52061	52067	52073
	125	52050	—	52056	52062	52068	52074
	150	52051	—	52057	52063	52069	52075
	200	52052	—	52058	52064	52070	52076
	250	—	—	52043	52045	—	—
	300	—	—	52044	52046	—	—



	Bend with long leg	
	45°	88°
DN	Product code	
100	52218	52219

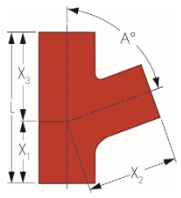


	S-bend	
	65 mm	130 mm
DN	Product code	
100	52084	52085

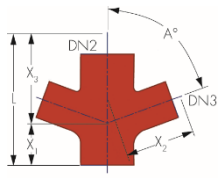


	Double bend	
	88°	88° with straight line
DN	Product code	
50	52079	—
70	52080	—
100	52081	52220
125	52082	52221
150	52083	52222

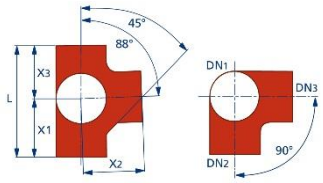
Table 2 Range of fittings (continued)



Single branch		45°	68°	88°
DN		Product code		
50 x	50	52087	52106	52118
70 x	50	52093	52110	52123
	70	52088	52107	52119
100 x	50	52094	52111	52124
	70	52095	52112	52125
	100	52089	52108	52120
125 x	50	52096	—	52126
	70	52097	—	52127
	100	52098	52113	52128
	125	52090	—	52121
150 x	50	—	—	52117
	70	52099	—	—
	100	52100	—	52129
	125	52101	—	52130
	150	52091	—	52122
200 x	100	52103	—	—
	125	52104	—	—
	150	52105	—	—
	200	52092	—	—
250 x	100	52225	—	—
	125	52226	—	—
	200	52227	—	—
	250	52223	—	—
300 x	125	52228	—	—
	200	52229	—	—
	250	52230	—	—
	300	52224	—	—

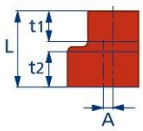


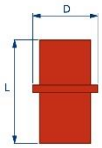
Double branch			45°	68°	88°
DN	dn1	dn2	Product code		
100 x	50 x	50	—	—	52134
	70 x	70	—	—	52135
	100 x	100	52131	52133	52136
125 x	100 x	100	—	—	52138
150 x	100 x	100	52132	—	52137



88° corner double branch			
DN	dn1	dn2	Product code
100 x	100 x	100	52139
150 x	100 x	100	52142

Table 2 Range of fittings (continued)





Eccentric reducer

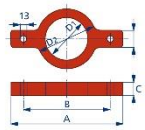
DN	dn	Product code	DN	dn	Product code
70	50	52161	150	70	52168
100	50	52162		100	52169
	70	52163		125	52170
125	50	52164	200	100	52171
	70	52165		125	52172
	100	52166		150	52173
			250	150	52237
				200	52238
			300	250	52239

Plug

DN	Product code
50	52174
70	52175
100	52176
125	52177
150	52178
200	52179
250	52240
300	52241

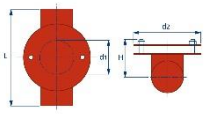
Downpipe bracket

DN	Product code
50	52201
70	52202
100	52203
125	52204
150	52205
200	52206
250	52208
300	—



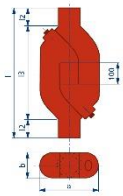
Bearing for downpipe bracket

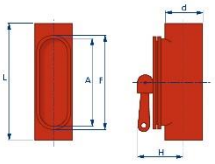
DN	Product code
50	52210
70	52211
100	52212
125	52213
150	52214
200	52215



Cleaning pipe with O cover

DN	Product code
50	52143
70	52144
100	52145



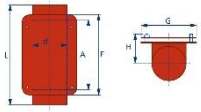


Cleaning pipe with toggle cover

DN	Product code
100	52233
125	52234
150	52235
200	52236

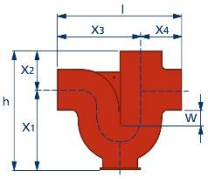
Rainwater siphon

DN	Product code
100	52187
125	52188



Cleaning pipe with square cover

DN	Product code
100	52146
125	52147
150	52148
200	52149
250	52231
300	52232



Siphon

DN	Product code
50	52189
70	52190
100	52191
125	52192
150	52193
200	52194

Table 3 Range of couplings and clamps

	Couplings				Clamps	
	Rapid[1]	Rapid INOX[1]	Konfix	Rollfix	Rapid clamp	Universal clamp
						
DN	Product code					
50	20903	52017	52197	52242	52023	—
70	20904	52018	52198	52243	52024	—
100	20906	52019	52199	52244	52025	—
125	20907	52020[2]	52200	52245	52026	—
150	20908	52021	—	52246	52027	—
200	27193	52022[2]	—	52247	—	52028
250	—	52040[2]	—	—	—	52029
300	—	52041[2]	—	—	—	52030

Universal couplings and connections for transitions (Span of 100-115 mm)	Coupling LP 0.6 bar	Coupling HP 2.5 bar	Joint for transition
			
	Product code		
	ALP115	AHP115	AUG1153

(1) Coupling with EPDM gasket.
(2) Normaconnect DCS Rapid Inox.

2 Manufacture

2.1 The pipe is manufactured using specified raw materials melted in an induction furnace, poured into permanent moulds and produced using centrifugal force. The fittings are manufactured using specified raw materials poured into flaskless moulds.

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.

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by TUV SUD (Certificate QUO1530047).

3 Delivery and site handling

3.1 Each pipe is marked with the Certificate holder's and/or manufacturer's mark, Standard EN 877, CE marking, DIN label, RAL quality label of the GEG, the nominal diameter and a code indicating date of manufacture. The fittings are marked with the same elements and in addition, where relevant, the angle of change in direction.

3.2 The system should be protected from impacts, for example, from heavy vehicles such as fork-lift trucks used on commercial premises.

3.3 The system components can either be moved manually or lifted into position with mechanical plant, depending on their weight.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Brymec SML Cast Iron Waste Water and Rain Drainage System

Design Considerations

4 Use

4.1 The system is satisfactory for use in domestic, commercial and public buildings in accordance with BS EN 12056-1 : 2000, BS EN 12056-2 : 2000 and BS EN 12056-3 : 2000 for the conveyance of surface water and domestic sewage as is permitted to be discharged into public sewers by the Water Industry Act 1991, and surface water and sewage as is permitted and defined by the Sewerage (Scotland) Act 1968 and the Water and Sewerage Services (Northern Ireland) Order 2006.

4.2 This Certificate does not cover the use of any of the system components for untreated trade effluent.

5 Practicability of installation

The system is designed to be installed by a competent general builder, or a contractor, experienced with this type of system.

6 Strength

The pipe and fittings have adequate resistance to the forms of loading associated with installation and normal service conditions.

7 Performance of joints

7.1 The joints will not be adversely affected by thermal movement when correctly installed.

7.2 The joints will remain watertight under conditions of pipeline movement in excess of those expected to occur in normal good drainage practice.

8 Flow characteristics

8.1 A system comprising Brymec SML Cast Iron Waste Water and Rain Drainage System (including swept entry branches and other accessories) is expected to have flow characteristics associated with cast iron products. Non-swept branch connections are restricted in accordance with BS EN 12056-2 : 2000.

8.2 Offsets in the wet portion of a discharge stack should be avoided. However, if the S-bend offsets are to be fitted in this position, large radius bends should be used (see BS EN 12056-2 : 2000). A ventilation stack may be necessary above and below the offset.

9 Resistance to chemicals

The system will be unaffected by the types and quantities of chemicals likely to be found in the effluents defined in section 4.1.

10 Resistance to elevated temperatures

The system has adequate resistance to the temperatures likely to occur in the effluents defined in section 4.1.

11 Properties in relation to fire

11.1 The pipe and fittings achieved Reaction to Fire Classification A2 when tested in accordance with BS EN 13501-1 : 2007 (test report Nr. 308.906e.).

11.2 The Regulations concerning the prevention of fire spread by fire-stopping must be taken into account if the systems pass through a fire rated wall or floor.

12 Noise

In common with all types of pipe materials, where the pipe penetrates a floor or wall separating habitable rooms, it should be fully enclosed to limit sound transmission.

13 Maintenance

The system (excluding flexible EPDM adaptors/couplers) can be maintained using conventional flexible drain rods or jetting equipment. Toothed mechanical cleaning systems, such as root cutters, could damage the internal coatings and should not be used. Sections of the system can be removed and replaced. Access must be provided in accordance with BS EN 12056-2 : 2000 and BS EN 12056-3 : 2000.

14 Durability

When used within the conditions and recommendations given in this Certificate, the system will have a service life equivalent to that of the building in which it is installed. Where used externally, the pipe and fittings should be painted regularly using exterior grade coating, to prevent surface oxidisation.

15 Reuse and recyclability

The cast-iron components and fittings, and steel clamps and couplings, are fully recyclable.

Installation

16 Procedure

16.1 Installation of Brymec SML Cast Iron Waste Water and Rain Drainage System, should be in accordance with BS EN 12056-2 : 2000, BS EN 12056-3 : 2000, BS EN 12506-5 : 2000 and the Certificate holder's Technical Guide.

16.2 Pipes can be cut square and to length on site with a bandsaw, circular saw, mechanical hacksaw, angle grinder or pipe cutter. Before jointing, the cut ends should be thoroughly cleaned, de-burred and treated with an appropriate pipe edge protection.

16.3 To connect socketless pipes and fittings, clamps and couplings have to be used. Special attention has to be paid to their resistance to axial restraint caused by internal pressure loads and to special measures to be taken to compensate for axial forces.

16.4 Horizontal pipes have to be adequately fastened at all turns and branches. Downpipes have to be fastened at a maximum distance of 2 m. In buildings with 5 floors or more, the downpipe of DN 100 or larger should be secured against sinking by means of a downpipe support. Additionally, for higher buildings a downpipe support should be fitted at every subsequent fifth storey.

16.5 Both, Rapid Coupling and Rapid Clamps have a 6 mm hexagon socket head screw which allows fastening of both elements with one single tool. For tightening, use a common powered screw driver, a hexagon socket spanner or a ratchet. For all coupling fasteners, the indicated torque has to be observed.

Technical Investigations

17 Tests

Tests were carried out in accordance with the relevant clauses of BS EN 877 : 1999 to determine:

- surface condition
- external diameter and ovality
- wall thickness
- internal diameter of pipes
- straightness of pipes
- end faces
- length of pipes
- angle of fittings
- masses
- tensile strength
- Brinell hardness
- ring crush strength of pipes
- internal coatings (resistance to salt spray, resistance to wastewater, chemical resistance, dry coating thickness, adhesion, resistance to hot water, resistance to temperature cycling)
- external coatings (dry coating thickness, adhesion)
- watertightness under different conditions
- airtightness
- temperature resistance
- marking.

18 Investigations

18.1 An evaluation of data was carried out to assess:

- system design
- resistance to chemicals
- practicability of installation
- suitability of materials
- quality of castings
- flame resistance
- compatibility with other paints.

18.2 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 681-1 : 1996 *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Vulcanized rubber*

BS EN 877 : 1999 + A1 : 2006 *Cast iron pipes and fittings, their joints and accessories for the evacuation of water from buildings — Requirements, test methods and quality assurance*

BS EN 12056-1 : 2000 *Gravity drainage systems — General and performance requirements*
BS EN 12056-2 : 2000 *Gravity drainage systems inside buildings — Sanitary pipework, layout and calculation*
BS EN 12056-3 : 2000 *Gravity drainage systems inside buildings — Roof drainage, layout and calculation*
BS EN 12056-5 : 2000 *Gravity drainage systems — Installation and testing, instructions for operation, maintenance and use*

BS EN 13501-1 : 2007 *Fire classification of construction products and building elements. Classification using test data from reaction to fire test*s

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

BS EN ISO 14001 : 2015 *Environmental management systems — Requirements*

19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.