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Agrément Certificate

12/4936

Product Sheet 1

KOMPOZITOR CHIMNEY SYSTEMS

FURANFLEX-RWV CHIMNEY LINING SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to the FuranFlex-RWV Chimney Lining System⁽²⁾, a thermosetting resin, glass-fibre-reinforced lining, for use in internal domestic, commercial and industrial masonry chimneys for solid fuel appliances or solid fuel open fires.

(1) Hereinafter referred to as 'Certificate'

(2) FuranFlex is a registered trademark.

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

Thermal performance — the system is suitable for use in internal domestic, commercial and industrial masonry chimneys in conjunction with solid fuel appliances or solid fuel open fires (see section 7).

Designation — the system is designated T450 N1 D 3 G to BS EN 1443 : 2019 (see section 8).

Behaviour in relation to fire — the flue liner is soot-fire resistant (see section 9).

Gas tightness — the system will improve the resistance to flue gas leakage from defective masonry chimneys (see section 10).

Durability — the system is resistant to varying conditions of temperature and will have a service life equivalent to that of chimneys with plastic flue liners covered by BS EN 14471 : 2013 (see section 15).

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 Third issue: 13 July 2021

Originally certificated on 18 September 2012

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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Regulations

In the opinion of the BBA, the FuranFlex-RWV Chimney Lining 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:	J2	Discharge of products of combustion
Comment:		The system will improve the resistance to flue gas leakage of a masonry chimney. See section 10 of this Certificate.
Requirement:	J4	Protection of the building
Comment:		The system will contribute to an installation satisfying this Requirement. See section 7.1 of this Certificate.
Requirement:	J5	Provision of information
Comment:		Information is provided by the manufacturer to contribute to satisfying this Requirement. See sections 6 and 8 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The system is acceptable. See section 15 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The system can contribute to a construction satisfying this Regulation. See sections 14 and 15 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	3.17	Combustion appliances — safe operation
Standard:	3.20	Combustion appliances — removal of products of combustion
Comment:		When installed in accordance with this Certificate, the lined chimney can satisfy the relevant parts of these Standards, with reference to clauses 3.17.4 ⁽¹⁾⁽²⁾ , 3.17.7 ⁽¹⁾⁽²⁾ , 3.20.1 ⁽¹⁾⁽²⁾ , 3.20.2 ⁽¹⁾⁽²⁾ , 3.20.8 ⁽¹⁾⁽²⁾ , 3.20.11 ⁽¹⁾⁽²⁾ , 3.20.13 ⁽¹⁾⁽²⁾ and 3.20.17 ⁽¹⁾⁽²⁾ . See sections 6, 7.1, 8 and 10 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The system can contribute to satisfying 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:		Comments in relation to 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 15 and the <i>Installation</i> part of this Certificate.
Regulation:	71	Discharge of products of combustion
Comment:		The system improves the resistance to flue gas leakage of a masonry chimney. See section 10 of this Certificate.

Regulation:	73	Protection of people and buildings
Comment:	The system satisfies this Regulation. See section 7.1 of this Certificate.	
Regulation:	74	Provision of information
Comment:	Information is provided by the manufacturer that contributes to satisfying this Regulation. See sections 6 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.

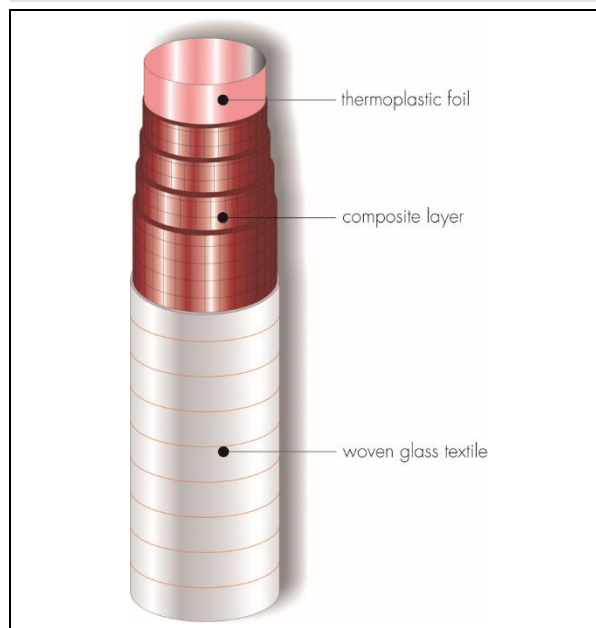
See sections: 1 *Description* (1.2), 3 *Delivery and site handling* (3.1) and 16 *General* (16.2) of this Certificate.

Technical Specification

1 Description

1.1 The FuranFlex-RWV Chimney Lining System comprises three layers: a removable inner foil tube of thermoplastic, a composite core of glass fibre impregnated with a thermosetting resin, and an external cover of woven glass fibre (see Figure 1).

Figure 1 FuranFlex-RWV Chimney Lining



1.2 The nominal characteristics and standard sizes (see Table 1) are:

Wall thickness (mm)	3 to 4
Diameter (mm)	80 to 1000
Length (m)	Up to 100 m
Density (kg/m ³)	1500
Colour	Red.

Table 1 Standard range of sizes

Diameter (mm)	Unit mass (kg·m ⁻¹)	Diameter (mm)	Unit mass (kg·m ⁻¹)
80	1.35	325	8.6
90	1.5	350	9.0
100	1.75	375	10.0
110	2.0	400	10.7
120	2.2	425	11.4
130	2.5	450	11.8
140	2.8	475	12.5
150	3.4	500	13.2
160	3.8	550	14.7
170	4.0	600	16.0
175	4.1	650	18.5
180	4.2	700	20.0
190	4.4	750	21.4
200	4.6	800	24.2
220	5.1	850	26.0
225	5.1	900	28.3
250	5.4	950	29.9
275	6.0	1000	31.5
300	7.1		

1.3 The following products are used with the system, but are outside the scope of this Certificate. These products must be designated T450 N1 D G to BS EN 1443 : 2019:

- T-joint chimney fitting with rigid connecting flue pipe
- calibrating ring
- condensation cleaning element.

2 Manufacture

2.1 FuranFlex-RWV chimney lining tube is manufactured from thermoplastic foil, a thermosetting resin, glass fibre and woven glass fibre into a composite sleeve form.

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 Kompozitor Plastics Development Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by IFU-CERT Zertifizierungsgesellschaft für Managementsysteme mbH (Certificate 50069).

2.4 The system is manufactured in Hungary by the Certificate holder.

3 Delivery and site handling

3.1 The liner is delivered in cardboard boxes or wooden cases (depending on weight) on pallets, for lifting with a forklift truck. Each liner is folded in 1 m lengths and individually wrapped in polythene film. Each pallet bears a label showing the system details, including date of production and identification code including manufacturing reference.

3.2 To prolong shelf-life where site storage is necessary (for example, where a number of chimneys are to be lined), materials should be stored dry and under cover, away from direct sunlight or heat radiation in a cool, humid, well-ventilated environment with temperatures not below freezing point and not exceeding 30°C (see Table 2).

Environment (°C)	Duration of storage time (weeks)
Summer temperatures (20 to 25)	2
Room temperature (15 to 20)	4
Cellar temperature (8 to 15)	8

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the FuranFlex-RWV Chimney Lining System.

Design Considerations

4 Use

4.1 The FuranFlex-RWV Chimney Lining System is for use as an internal chimney wall lining (straight or with bends) of existing brick, concrete or stone masonry in conjunction with solid fuel appliances or solid fuel open fires for the purpose of improving the resistance to leakage of flue gases from defective chimneys.

4.2 It is essential that the system is installed and used in accordance with the conditions set out in this Certificate and the Certificate holder’s specification. In deciding upon the suitability of a particular chimney for relining, it is important to ensure that the existing flue is large enough for the appliance.

4.3 Appropriate notification must be given in accordance with the requirements of the national Building Regulations.

4.4 To maintain the weathertightness of the chimney structure, it is essential that details (such as chimney capping/flaunching, flashings, external pointing of brickwork and rendering) are checked and maintained in accordance with normal good practice.

5 Practicability of installation

The system should only be installed by installers who have been trained and approved by the Certificate holder.

6 Marking and labelling



6.1 The Certificate holder’s name ‘Kompozitor’ and the system name ‘FuranFlex-RWV’ are printed on the external layer, together with a metre scale indicating the length of FuranFlex-RWV used.

6.2 An indelible notice giving information essential to the correct application and use of the lined chimney (see section 14.4) should be posted permanently in the building, in accordance with the requirements of the relevant national Building Regulations.

6.3 The indelible notice must include the chimney type designation according to BS EN 1443 : 2019, *Chimneys — General requirements* : T450 N1 D 3 G.

7 Thermal performance



7.1 The system can withstand flue gas temperatures associated with internal domestic, commercial or industrial solid fuel appliances or solid fuel open fires.

7.2 The system's thin lining will not have a significant effect on the thermal resistance of the chimney and, therefore, the thermal resistance is declared as zero.

8 Designation



8.1 The performance of the FuranFlex-RWV Chimney Lining System, based on the general chimney designation scheme of BS EN 1443 : 2019, is T450 N1 D 3 G.

8.2 The system can be used with the following fuels:

- wood, in open fireplaces
- wood, in closed stoves
- coal
- peat.

9 Behaviour in relation to fire

9.1 The system is soot-fire-resistant class G in accordance with BS EN 1443 : 2019.

9.2 The product has a reaction to fire classification⁽¹⁾ of A2-s1, d0 according BS EN 13501-1 : 2018.

(1) EMI Nonprofit Kft. Report MO-T381X-21046-2020/2 dated 12 October 2020. Copies may be obtained from the Certificate holder.

10 Gas tightness



The system will improve the resistance to flue gas leakage from defective masonry chimneys.

11 Resistance against condensate

The system has a condensate resistance class D, in accordance with BS EN 1443 : 2019, for chimneys operating under dry conditions.

12 Flow resistance

To determine the flow resistance, a mean roughness value of 0.001, as given in BS EN 13384-1 : 2015, can be assumed.

13 Strength and stability

13.1 When correctly installed in a structurally sound chimney, the lining will remain stable in normal service and will not collapse or cause danger to the building components in the event of a chimney fire caused by soot burn-out.

13.2 The system must not be relied upon to provide support to structurally unstable chimneys. It is essential that chimneys to be lined are capable of withstanding the loads imposed by the liner, both during installation and in service, as well as by the normal service loads. All chimneys must be checked in this respect prior to lining (see sections 4.4 and 17.1) and, where necessary, stabilised by conventional or other methods.

13.3 Chimneys to be lined with the system must have a minimum wall thickness of 100 mm of masonry.

14 Maintenance



14.1 Chimney cleaning should be carried out with nylon or non-metallic bristle brushes. The brush must be matched as closely as possible to the size of the flue and should never be more than 10 mm larger than the nominal flue size. Brushes with steel bristles must not be used for cleaning. This restriction should be included on the indelible notice described in section 6.2 of this Certificate.

14.2 Cleaning should be carried out at least annually, preferably just before the start of the heating season, to ensure that the flue is not obstructed. Regular inspection of the flue-way will indicate the necessity for more frequent sweeping. The frequency of chimney sweeping depends on several factors, eg type and quantity of fuel used and method of operation of the appliance.

14.3 Where solid fuel appliances or open fires are used continuously, particularly where wood or bituminous fuel is burned, more frequent sweeping may be necessary to prevent sooting-up and obstruction of the flue.

14.4 In the event of a soot-fire, the chimney must be relined.

15 Durability



15.1 The system has a corrosion resistance class 3 as described in BS EN 1443 : 2019.

15.2 Provided the chimney remains structurally stable and is correctly used (eg the flue size is matched to the type and rating of the heating appliance), the flue is swept regularly (see section 14) and the appliance is maintained in good working order and not misused, the system will have a service life equivalent to that of chimneys with plastic flue liners covered by BS EN 14471 : 2013. If these requirements are not met, the life of the chimney lining can be considerably reduced.

Installation

16 General

16.1 The FuranFlex RWV Chimney Lining System must be installed by installers trained and approved by the Certificate holder, using the Certificate holder's specialised equipment including: inspection camera, steam generator, blower and ancillary adaptors, clamps and frames, to ensure the correct levels of air and steam pressure are achieved during the installation process.

16.2 During installation, small amounts of pre-polymerised phenol and formaldehyde may be released. Adequate ventilation must be provided, and protective gloves and glasses used, during installation and cutting.

17 Procedure

17.1 An inspection of the chimney is carried out using a camera, first removing all foreign objects and debris (see Figure 2, stage 1).

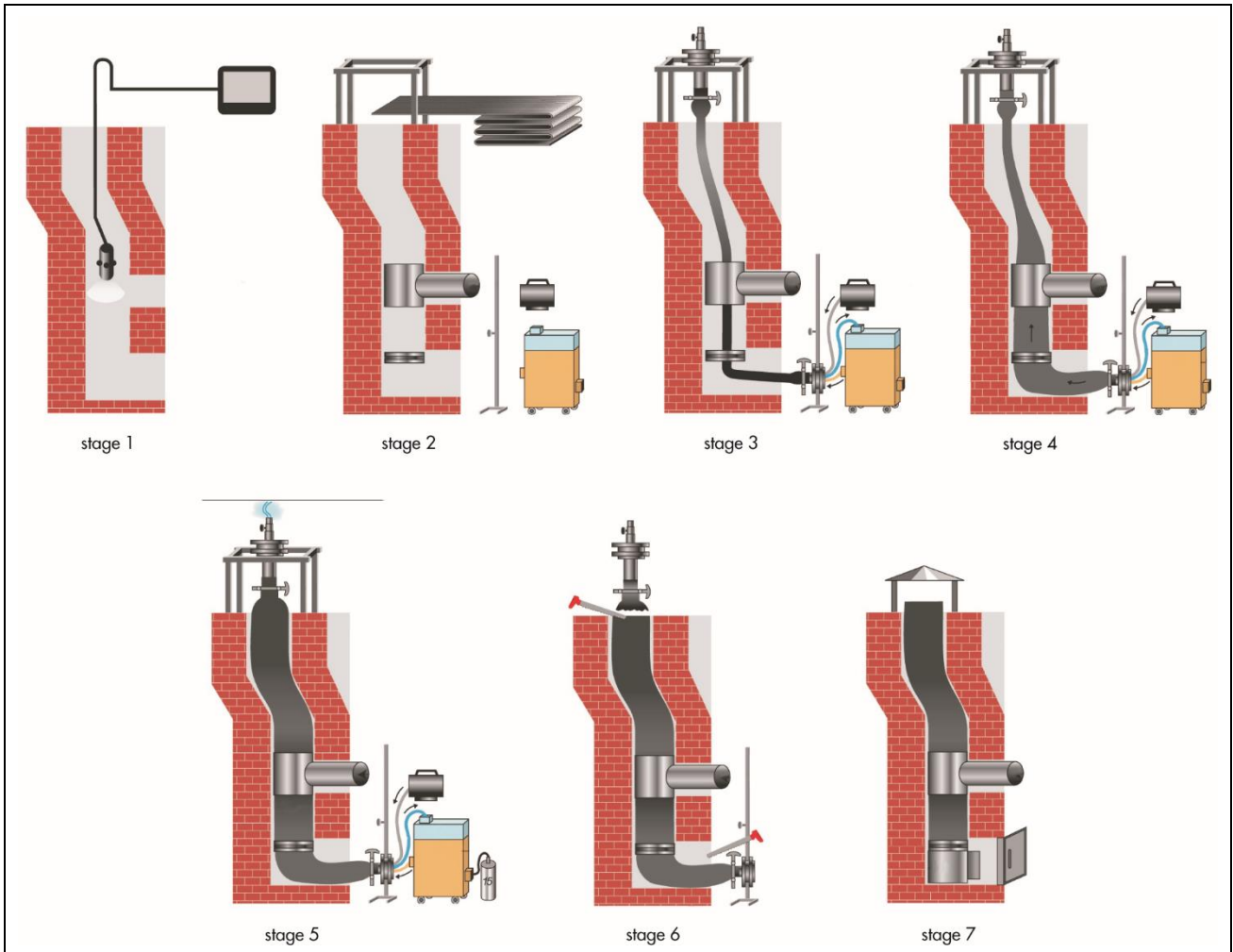
17.2 An adjustable frame is inserted at the top of the chimney to support the weight of the liner and a lower head holder at the base to support the adaptor head at the appropriate height and direction.

17.3 The support framework is installed and the FuranFlex liner tube inserted into the chimney from the top via a winch (see Figure 2, stage 2). The liner is connected to the steam generator and the air pressure blower adaptors attached to the lower frame (see Figure 2, stage 3).

17.4 Low pressure steam is pumped into the sleeve and monitored and adjusted using an adaptor. At the same time, air pressure is introduced to inflate the liner to fit the chimney cavity (see Figure 2, stages 4 and 5). Depending on the diameter of the liner, this process takes approximately 2 to 10 minutes.

17.5 Once the liner has hardened sufficiently, the process is completed and the liner trimmed to size and allowed to cool (see Figure 2, stages 6 and 7).

Figure 2 Hardening process



Technical Investigations

18 Tests

Test reports were assessed in relation to:

- heat resistance
- resistance to fire
- soot fire resistance
- gas tightness
- practicability of installation and adequacy of installation instructions.

19 Investigations

19.1 An assessment was made of:

- strength and stability
- flow resistance
- resistance to corrosion
- durability of lining material
- acid resistance of the liner material
- resistance to abrasion and effects due to sweeping
- maintenance requirements.

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

Bibliography

BS EN 1443 : 2019 *Chimneys — General requirements*

BS EN 13384-1 : 2015 *Chimneys — Thermal and fluid dynamic calculation methods — Chimneys serving one appliance*

BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN 14471 : 2013 + A1 : 2015 *Chimneys — System chimneys with plastic flue liners — Requirements and test methods*

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

20 Conditions

20.1 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.

20.2 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.

20.3 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.

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

20.5 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.

20.6 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.