Authorised and notified according to Article 10 of the Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products

Österreichisches Institut für Bautechnik
Schenkenstrasse 4 | 1010 Vienna | Austria
T +43 1 533 65 50 | F +43 1 533 64 23
mail@oib.or.at | www.oib.or.at

Member of EOTA

European technical approval ETA-12/0346

(English translation, the original version is in German)

Handelsbezeichnung *Trade name*	**FuranFlex®**
Zulassungsinhaber *Holder of approval*	**Kompozitor Müanyagipari Fejlesztö Kft.** **Széchenyi utca 60** **H-2220 Vecsés** **Hungary**
Zulassungsgegenstand und Verwendungszweck *Generic type and use of construction product*	**Bausatz bestehend aus Innenrohr, hergestellt aus einem flexiblen Verbundmaterial aus Glasfasern, mineralischen und synthetischen organischen Bestandteilen, und Zubehör für Klassifizierung T200 P1 W2 Oxx** *Kit consisting of chimney flue liner, made of flexible compound of glass fibres and mineral and synthetic organic substances, and ancillaries for classification T200 P1 W2 Oxx*
Geltungsdauer vom *Validity from* bis zum *to*	**15.11.2012** **14.11.2017**
Herstellwerk *Manufacturing plant*	**Kompozitor Müanyagipari Fejlesztö Kft.** **Széchenyi utca 60** **H-2220 Vecsés** **Hungary**
Diese Europäische technische Zulassung umfasst *This European technical approval contains*	**17 Seiten einschließlich 3 Anhängen** *17 pages including 3 Annexes*

I LEGAL BASES AND GENERAL CONDITIONS

1 This European technical approval is issued by the Österreichisches Institut für Bautechnik in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products[1], modified by the Council Directive 93/68/EEC of 22 July 1993[2];
- Wiener Bauprodukte- und Akkreditierungsgesetz, LGBl. für Wien Nr. 30/1996, geändert durch das Gesetz LGBl. für Wien Nr. 24/2008, zuletzt geändert durch das Gesetz LGBl. für Wien Nr. 08/2012;
- Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex of Commission Decision 94/23/EC[3].

2 The Österreichisches Institut für Bautechnik is authorised to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.

3 This European technical approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval.

4 This European technical approval may be withdrawn by the Österreichisches Institut für Bautechnik, in particular after information by the Commission on the basis of Article 5 (1) of Council Directive 89/106/EEC.

5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of the Österreichisches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.

6 The European technical approval is issued by the approval body in its official language. This version corresponds to the version circulated within EOTA. Translations into other languages have to be designated as such.

1 Official Journal of the European Communities N° L 40, 11.2.1989, p. 12
2 Official Journal of the European Communities N° L 220, 30.8.1993, p. 1
3 Official Journal of the European Communities N° L 17, 20.1.1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

1.1 Definition of product

FuranFlex® is a kit for renovation and adaptation of existing chimneys. It is a flue liner made of glass fibres, mineral and organic substances, whereas the delivered kit comprises additional elements (fittings, cleaning and inspection doors, spacers, condensate collector). The basic material of the liner **FuranFlex®** is glass fibre reinforced thermosetting resin, a so-called composite material. The flexible flue liner is put in an existing outer wall of a chimney on site. During installation the hardening process of the flue liner is taking place by means of special heat treatment and using specific devices for this process (see also clause 4.2 in this ETA).

The kit consists of the following components:

- flue liner **FuranFlex®** (consisting of outer textile and basic composite) with a internal nominal size of 0,08 m up to 1,1 m (in terms of diameter) and related perimeter when cross section differs from circle)
- metallic fittings
- cleaning and inspection doors (except the condensate is lead to the outside by means of connecting flue pipe and instead of a cleaning door direct access is provided from the outside)
- condensate collector
- spacers (optional), made of spiral rings of metal
- closing devices (optional)
- elastomeric seals

FuranFlex® is a kit, working under wet/dry conditions, with corrosion resistance class 2 according to EN 1443, clause 4.5, operating under positive/negative pressure and a working temperature class T 200 according to EN 1443, clause 4.2. The distance to burnable materials, to be indicated by “Oxx”, is depending on the design situation, depicted in Annex 1 of this ETA, and is detailed in clause 2.1.2.1 in this ETA.

Drawings of **FuranFlex®** and its components are given in Annex 2.

1.2 Intended use

FuranFlex® is used for renovation or adaptation of existing chimneys, whereas for classification of resistance to fire from outside to outside the conditions for the existing outer wall apply. The design situations for which the product is to be used are depicted in Annex 1 of this ETA.

FuranFlex® can be used for vertical and non-vertical installation, whereas a value of 45° is considered as maximum allowable inclination.
Note: The maximum allowable change in direction is also subject to national regulations in concerned Member State of destination, if any.

The use is related to:

- Chimneys with one heating appliance for corrosion resistance classes 1 and 2 according to EN1443, whereas for corrosion resistance class 2 natural wood is excluded.
- Chimneys serving more than one heating appliance (optional) in case of chimneys for roomsealed appliances for N1 according to design situation no. 2, depicted in Annex 1 of this ETA, for concentric air flue configuration and corrosion resistance classes 1 and 2 according to EN 1443, whereas for this situation a change in the direction of the chimney kit is not applicable. For corrosion resistance class 2 natural wood is excluded.
  Note: Applicability depending on national regulations in concerned Member State of destination (e.g. restriction of applicability in respect to possible fuel types and related provisions).

The provisions made in this European technical approval are based on an assumed intended working life of **FuranFlex®** for the intended use of 15 years, provided that the kit is subject to appropriate use and maintenance. The indications given on the working life cannot be interpreted as a guarantee given by the producer or the approval body, but are to be regarded only as a means for choosing the appropriate product in relation to the expected, economically reasonable working life of the works.

2 Characteristics of product and methods of verification

2.1 Characteristics of assembled system

2.1.1 Safety in case of fire (ER 2)

Resistance to fire from external to external is related to the performance of the outer wall and, therefore, not subject of this ETA. Classification shall be done based on individual installation situation according to the concerned national regulations, if requested.

2.1.1.1 Resistance to fire from internal to external (sootfire resistance)

Resistance to fire from internal to external: “O”.

2.1.1.2 Reaction to fire of the assembled kit

NPD (No performance determined).
Due to the absence of a harmonized verification method, reaction to fire of the assembled kit shall be declared in accordance with national provisions, if any.

2.1.2 Hygiene, health and environment (ER 3)

2.1.2.1 Thermal performance

Design situation no. 1 according to Annex 1 of this ETA:
T200 P1* W2 O40 (Verification according to EN 13216-1) based on boundary conditions stated in table 1 of this ETA.

Design situation no. 2 according to Annex 1 of this ETA with ventilation:
T200 P1* W2 O00 (Verification according to EN 13216-1) based on boundary condition for the outer wall of a thermal resistance of the system-chimney of ≥ 0,08 m²K/W and related internal nominal diameter = 0,2 m.

Design situation no. 2 according to Annex 1 of this ETA without ventilation:
T200 P1* W2 O40 (Verification according to EN 13216-1) considering boundary conditions stated in table 1 of this ETA.

Design situation no. 3 according to Annex 1 of this ETA:
T200 P1* W2 O00 (Verification according to EN 13216-1) for double wall chimneys with thermal resistance of R>= 0,35 m² K/W.
T200 P1* W2 O100 (Verification according to EN 13216-1) for single wall chimneys.

*) Acceptance depending on the individual legal situation in the Member State of destination.

Table 1: Reference scenario used for outer wall for classification of **FuranFlex®** for renovation/adaptation of existing chimneys

Thermal resistance of the system-chimney [m²K/W]	Thickness of outer wall [m]	Internal nominal diameter [m]
≥ 0,09	≥ 0,115	≤ 0,35
≥ 0,12	≥ 0,115	≤ 0,65
≥ 0,15	≥ 0,115	≤ 1,40

2.1.2.2 Gas tightness/leakage

Gas tightness/leakage according to EN 13216-1 of the assembled system is classified as pressure class P1 according to EN 1443, table 5.
Due to the fact that the **FuranFlex®** according to this ETA is used with seals, the pressure class P1 is covering pressure class N1, where required.

2.1.2.3 Flow resistance

The flow resistance of the flue liner **FuranFlex®** is declared as mean roughness r = 0,0005 m. For non-vertical installation for a maximum value for inclination of 45° the flow resistance of the flue liner is declared with a ζ-value = 0,86.

The flow resistance of the fittings is in conformity with the values given in EN 13384-1, table B.8, figure 5.

As overflow opening for products according to this ETA only a T-element made of metal with a ζ–value as given in figure 5 of EN 13384-1, table B.8, is to be used, where relevant.

2.1.2.4 Thermal resistance

Table 2: Thermal resistance values for different design situations for **FuranFlex®**

Internal nominal size in terms of diameter	Design situations according to Annex 1 of this ETA	Result	Thermal Resistance Ryy
0,20 m	no. 1a	0,11 m²K/W	R11
	no. 1b	NPD [1)]	
	no. 2 (with ventilation)	0,13 m²K/W	R13
	no. 2 (without ventilation)	0,14 m²K/W	R14
	no. 3 (with thermal insulation of thickness = 25 mm)	0,40 m²K/W	R40

[1)] NPD: No performance determined

The thermal resistance Ryy is evaluated for the internal diameter of 0,20 m for flue liner **FuranFlex®** with a thermal conductivity λ = 0,27 W/mK and a thickness of 0,00216 m, as an representative installation situation. Depending on the individual installation situation, the concerned thermal resistance Ryy values are to be calculated for the concerned internal diameter, depending on the concerned design situation.

2.1.2.5 Condensate resistance and durability against chemicals and corrosion

The **FuranFlex®** kit according to this ETA is used with seals (see clause 1.1 in the ETA), whereas the pressure class P1 is to be applied for the design. This means that the condition for condensate resistance is valid for pressure class N1 as well. The durability against chemicals and corrosion is covered by clause 2.2 in this ETA. Therefore, the corrosion resistance of the assembled system is classified as class “W”.

2.1.2.6 Release and/or content of dangerous substances

Regarding the release of dangerous substances of the rigid flue liner **FuranFlex®** a declaration was made by the manufacturer. According to this declaration the product contains a certain amount of total volatile organic compound (TVOC) and formaldehyde.
Regarding the content of dangerous substances relevant information is given in the product information data sheet referred to the flue liner **FuranFlex®** before hardening, provided by the manufacturer and laid down in the technical documentation, deposited with the approval body Österreichisches Institut für Bautechnik.

The detailed information shall be made available on request and may be subject of individual assessment according to the regulations in the concerned Member States of destination, if any.

Regarding release and content of dangerous substances for the metallic components and seals, indicated in clauses 2.2.2 to 2.2.6 in this ETA, the concerned declarations according to the related technical specifications apply.

With respect to the potential release of dangerous substances during hardening in the installation procedure on site the declaration, made by the manufacturer, referring to the determined exposure (mg/m³) of the parameters phenol, formaldehyde and furans for the initial phase of polymerisation and for the final phase of polymerisation, is included in the information date sheet mentioned above. According to this declaration there is a certain amount of release of phenol and formaldehyde during the hardening procedure. The detailed information shall be made available on request and may be subject of individual assessment according to the regulations in the concerned Member States of destination, if any.

Further analyses have been done for temperatures higher than the operating temperature. The results are laid down in the technical documentation, deposited with the approval body Österreichisches Institut für Bautechnik. The concerned information shall be provided by the manufacturer on request and may be subject of individual assessment according to the regulations in the concerned Member States of destination, if any.

2.1.2.7 Thermal and fluid dynamic characteristics of chimneys serving more than one heating appliance

The intended use serving more than one heating appliance is only relevant for design situation no. 2 according to Annex 1 of this ETA and is restricted to class N1 for concentric air flue configuration and corrosion resistance classes 1 and 2 according to EN 1443. For this intended use a change in the direction of the chimney kit is not allowed. For corrosion resistance class 2 natural wood is excluded.

In case **FuranFlex®** should be used for serving more than one heating appliance, the assessment shall be carried out for each individual application, taking into account the conditions stated below:

- Number of heating appliances (to be foreseen in the installation)
- Performance of heating appliance
- Conditions for the heating appliances (e.g. CO_2 concentration, leakage rate)
- Guidance on proper closing devices for openings not in use
- Overflow openings (type)
- Minimum height above highest heating appliance
- Length of connecting flue pipe
- Elements for covering, including those for air supply, specified in EN 13384-1

For the verification by means of calculation EN 13384-2 applies.

The applicability is depending on national regulations in concerned Member State of destination (e.g. restriction of applicability in respect to possible fuel types and related provisions).

2.1.3 Safety in use (ER 4)

2.1.3.1 Maximum height

Maximum allowable height for vertical installation (design situation no. 2 according to Annex 1 of this ETA): 138 m.

Note: Less severe design situations may result in another maximum height of the kit

Maximum allowable height in case of non-vertical installation, including the section, above the non-vertical section: 35 m.

Maximum allowable inclination for non-vertical installation: 45 °.

2.1.3.2 Freeze thaw resistance

The flue liner **FuranFlex®** is freeze thaw resistant according to EN 14297, table 1.

2.1.3.3 Durability against UV-radiation

The flue liner **FuranFlex®** is durable against UV radiation according to EN 14471.

2.2 Characteristics of the components

2.2.1 Flue liner **FuranFlex®**

The components of the flue liner **FuranFlex®** and its composition are confidential[4] and are deposited with the approval body Österreichisches Institut für Bautechnik.

For the flue liner **FuranFlex®** its durability has been assessed with respect to the long term resistance to thermal load, the resistance against corrosion, the resistance to wet/dry cycling (for classification “W” relevant) and its long-term compatibility with ancillaries (made of metal).

Regarding “Reaction to fire” **FuranFlex®** is to be classified as class B - s1, d0 according to EN 13501-1.

2.2.2 Spacer

The spacers are made of stainless steel. The mechanical property of the element is defined by its free length, the diameter of the wires and of the spring and the tensile force of the required shape and is laid down in the technical documentation, deposited with the approval body Österreichisches Institut für Bautechnik.

Regarding “Reaction to fire” the spacers are to be classified as class A1 according to EN 13501-1.

2.2.3 Seal

The elastomeric seals used are to be in accordance with EN 14241-1, verified in conjunction with the relevant technical documentation for the concerned metallic elements according to EN 1856-1 and EN 1856-2 for pressure class P1. Details are laid down in the technical documentation, deposited with the approval body Österreichisches Institut für Bautechnik

The performance characteristic “reaction to fire” is to be classified as class F according to EN 13501-1.

4 The technical documentation of this European technical approval has been deposited with the Österreichisches Insitut für Bautechnik and, as far as relevant for the tasks of the approved body involved in the attestation of conformity procedure, is handed over to the approved body.

2.2.4 Metallic fitting and metallic cleaning and inspection door

For the metallic fittings EN 1856-1 and EN 1856-2 apply. The relevant information is laid down in the technical documentation, deposited with the approval body Österreichisches Institut für Bautechnik.

Regarding “Reaction to fire” the metallic fittings and metallic cleaning and inspection doors are to be classified as class A1 according to EN 13501-1.

For the metallic fittings and metallic cleaning and inspection doors, to be assessed together according to EN 1856-1,-2, their use for **FuranFlex®** for classification “W” is restricted to designation V2 according to EN 1856-1, clause 6.7.

For the cleaning and inspection doors to be used for the flue liner **FuranFlex®** EN 1856-1 and EN 1856-2 apply for all design situations, depicted in Annex 1 of this ETA.

For the cleaning and inspection doors to be used for outer walls of the kit **FuranFlex®** EN 1856-1 and EN 1856-2 apply for design situation no.3, depicted in Annex 1 of this ETA. For the design situations no. 1 and no. 2 the cleaning and inspection doors shall conform to the level of performance for leakage rate and surface temperature as given in EN 13063-2 for the concerned classification. Alternatively, for all design situations the cleaning and inspection door for the outer wall shall conform to available national provisions in the Member State of destination, as far as laid down in the technical documentation and accompanying the CE marking. This is laid down in the installation manual. The technical documentation is deposited with the approval body Österreichisches Institut für Bautechnik.

Metallic fittings and cleaning and inspection doors for the flue liner are to be assessed together for the use according to this ETA.

2.2.5 Closing devices (to be used in case of serving more than one heating appliance)

Technical specifications as given for cleaning and inspection doors apply.

2.2.6 Condensate collector made of metal

The condensate collector shall correspond to EN 1856-1 and EN 1856-2 respectively.

Regarding “Reaction to fire” the metallic condensate collector is to be classified as class A1 according to EN 13501-1.

Note: For the use of siphon, where relevant (e.g. use of the kit with positive operating pressure), national regulations, if any, apply.

2.3 Methods of verification

The assessment of the fitness of **FuranFlex®** for the intended use was undertaken according to the CUAP (Common Understanding of Assessment Procedure) for “Kit consisting of chimney flue liner, made of glass fibres, mineral and organic substances and ancillaries”, ETA request No 08.02/25, version May 2012.

3 Evaluation of conformity and CE marking

3.1 Attestation of conformity system

According to the decision 95/467/EC of the European Commission[5], amended by the Commission Decision 2001/596/EC[6] and 2002/592/EC[7] and 2010/679/EC[8] , system 2+ of attestation of conformity applies.

In addition, with regard to reaction to fire and referred to the components of the kit, system 1-3-4 of attestation of conformity applies[9]. Considering reaction to fire for the components no stage in the production process has been identified as that which results in a change of the reaction to fire classification of the components. Consequently, system 3 and 4 of attestation of conformity applies.
Regarding “Reaction to fire” of the kit, referred to Commission decision 2010/679/EC, it is referred to clause 2.1.1.2 in this ETA.

This system 2+ of attestation of conformity is defined as follows:

System 2+: Declaration of conformity of the product by the manufacturer on the basis of:

(a) Tasks for the manufacturer
  (1) Initial type-testing of the product (except reaction to fire)
  (2) Factory production control
  (3) Testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan[10]

(b) Tasks for the notified body
  (4) Certification of factory production control on the basis of:
    – Initial inspection of factory and of factory production control
    – Continuous surveillance, assessment and approval of factory production control
  (5) ITT for reaction to fire of flue liner according to system 3

3.2 Responsibilities

3.2.1 Tasks of the manufacturer

3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures. This production control system shall insure that the product is in conformity with this European technical approval.

The manufacturer shall only use materials stated in the technical documentation[11] of this European technical approval.

In the framework of factory production control the manufacturer carries out tests and controls in accordance with the control plan[12] which is fixed with this European technical approval.

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5 Official Journal of the European Communities L 268/29 of 10.11.1995
6 Official Journal of the European Communities L 209/33 of 2.8.2001
7 Official Journal of the European Communities L 192/57 of 20.7.2002
8 Official Journal of the European Communities L 292/55 of 08.11.2010
9 Letter of EC dated 12 January 2010
10 The prescribed test plan is part of the control plan.
11 The technical documentation of this European technical approval has been deposited at the Österreichisches Institut für Bautechnik and, as far as relevant for the tasks of the approved body involved in the attestation of conformity procedure, is handed over to the approved body.
12 The control plan, related to the manufacturing plant, has been deposited at the Österreichisches Institut für Bautechnik and is handed over only to the approved body involved in the attestation of conformity procedure.

Details of the extent, nature and frequency of testing and controls to be performed within the factory production control correspond to this control plan which is part of the technical documentation of this European technical approval.

The results of factory production control are recorded in checklists signed by the person responsible and are evaluated. The records shall be presented to the approved body involved in continuous surveillance. On request the records must be presented to the Österreichisches Institut für Bautechnik.

3.2.1.2 Other tasks of manufacturer

3.2.1.2.1 Initial type-testing of the product

For initial type-testing the results of the tests performed as part of the assessment for the European technical approval may be used unless there are changes in the manufacture or manufacturing plant. In such cases the necessary initial type-testing has to be agreed between the Österreichisches Institut für Bautechnik and the approved body involved.

3.2.1.2.2 Testing of samples taken at the factory

In the framework of factory production control the manufacturer carries out tests in accordance with the control plan which is fixed with this European technical approval.
Details of the extent, nature and frequency of testing to be performed within the factory production control correspond to this control plan which is part of the technical documentation of this European technical approval.

3.2.1.2.3 Declaration of conformity

When all the criteria of the conformity attestation are satisfied the manufacturer shall make a declaration of conformity.

3.2.2 Tasks of notified bodies

3.2.2.1 Initial inspection of factory and of factory production control

The approved body shall ascertain that, in accordance with the control plan, the manufacturing plant, in particular personnel and equipment, and the factory production control are suitable to ensure a continuous and orderly manufacturing of the kit according to the specifications given in clause 2 and in the Annex of this European technical approval.

3.2.2.2 Continuous surveillance, assessment and approval of factory production control

The approved body shall visit the factory at least once a year for surveillance of the manufacturer.
It has to be verified that the system of factory production control and the specified manufacturing process are maintained taking into account the control plan.

Continuous surveillance and assessment of factory production control have to be performed according to the control plan.

The results of continuous surveillance shall be made available on demand by the approved body or the Österreichisches Institut für Bautechnik. In cases where the provisions of the European technical approval and the control plan are no longer fulfilled, the certificate of conformity shall be withdrawn.

3.2.2.3 Initial type-testing regarding reaction to fire of the components

For initial type-testing the results of the tests performed as part of the assessment for the European technical approval shall be used unless there are changes in the production line or plant. In such cases the necessary initial-type testing has to be agreed between the approval body and the notified bodies involved.

3.2.2.4 Certification

When all criteria for conformity attestation are fulfilled the approved body shall issue a certification of conformity of the factory production control.

3.3 CE marking

The letters “CE” shall correspond to the Council Directive 93/68/EEC. The CE marking shall be affixed on the chimney plate[13].

The CE marking of the chimney kit with flue liner **FuranFlex®** shall be accompanied by the following information:

- the identification number of the notified certification body
- the name and address of the producer (legal entity responsible for the manufacture)
- the last two digits of the year in which the CE marking was affixed
- the number of the EC certificate for the factory production control
- the number of the European technical approval
- description of the product: type of product and intended use
- appropriated designation including:
  - Temperature class
  - Pressure class, whereas the assessment of class P1 allows the declaration of N1 as well
  - Condensate resistance class
  - Corrosion resistance class
  - Sootfire resistance class “O”, followed by a distance to combustible materials, depending on the design situation (including related verification method)
- declaration of the relevant essential characteristics which are:
  - Thermal resistance
  - Compressive strength flue liner
  - Maximum allowable height for vertical installation of the flue liner **FuranFlex®**
  - Maximum allowable height in case of non-vertical installation, including the section above the non-vertical section
  - Maximum allowable inclination for non-vertical installation
  - Flow resistance (friction coefficient/mean roughness)
  - Freeze thaw resistance
  - Classification of reaction to fire for the individual components
  - Classification of reaction to fire the assembled kit: NPD or declaration according to national specification, if any
  - Statement on the presence of dangerous substances, including concentration, if any

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The flue liner **FuranFlex®** is manufactured in accordance with the provisions of the European technical approval, using the manufacturing processes for manufacturing as identified in the inspection of the manufacturing plant by the approval body and laid down in the technical documentation of this European technical approval.

4.2 Installation

Provisions for proper installation of the kit are given in the installation manual and form part of the technical documentation of this European technical approval and shall be delivered with each kit.

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13 A permanent form of identification (chimney plate) shall be provided with the system chimney (see clause 5.3 in this ETA).

The hardening process of the flexible glass fibre reinforced composite material is taking place after installation on site. Provisions for proper installation, including placing and distance to be controlled by the spacers, are provided in the installation manual.
Installation shall be done by trained staff only. They shall receive regular training. The training program shall correspond to the instructions, laid down in the technical documentation and deposited with the approval body Österreichisches Institut für Bautechnik.
In the installation guide the following corner stones are considered in detail:

- Preparation of the chimney flue to be adapted/renovated
- Insertion of flexible flue liner in to the chimney
- Assembly of the adapter heads
- Hardening of the flexible flue liner (blowing up with air-compressor, blowing up with steam and hardening)
- Inspection of hardening of the installed liner
- Disconnection of installation tools
- Removing of inner foil (inner foil is element for installation only)

Relevant information in case of serving more than one heating appliance are given in the installation manual.

5 Recommendations for the manufacturer

5.1 Recommendations on packaging, transport and storage

Materials shall be handled and stored with care, protected from accidental damage. It is the responsibility of the manufacturer of the product to ensure that the information on these provisions is given to those who are concerned. Details are given in the manufacturers manual which forms part of the technical documentation, deposited with the approval body Österreichisches Institut für Bautechnik.

5.2 Recommendations on use, maintenance, dismounting and recycling

It is the responsibility of the manufacturer of the product to ensure that the information on these provisions is given to those who are concerned. Instructions for use and maintenance of installed flue liner are given in the manufacturers manual which forms part of the technical documentation, deposited with the approval body Österreichisches Institut für Bautechnik.

Details for dismounting are given in the technical documentation. Flue liners according to this ETA are not subject of recycling. Instructions for disposals for products after use and for dismounting are given in the manufacturers manual, which forms part of the technical documentation, deposited with the approval body Österreichisches Institut für Bautechnik.

5.3 Identification of the kit

A permanent form of identification (system plate) shall be provided with the renewed/adapted chimney. The system plate is a permanent form of identification which shall be provided with the kit and to be fixed on the renewed/adapted chimney.

The system plate shall include:

- ETA number
- Number of the EC certificate
- Name and address of the producer of the kit, including information on the installer
- Designation according to the relevant design situation

In case of use for chimneys serving more than one heating appliance (optional) this form shall include:

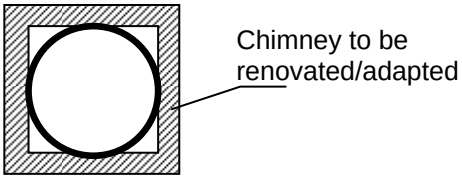
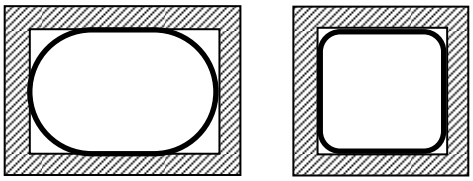
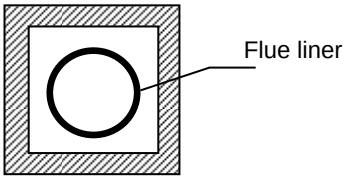
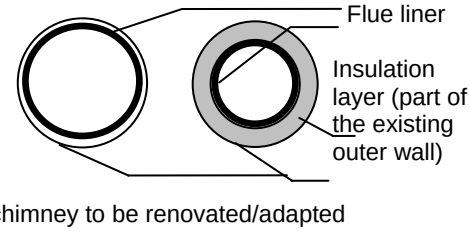
- Type and number of heating appliances
- Declaration of restriction to concerned fuel type
- Performance of heating appliance [kW] connectable at each level
- Inside set-up
- Dimension of collecting chimney (height and section)
- Dimension of connecting flue pipe (diameter and length)

Concerned information is included in technical documentation accompanying each delivered kit, when relevant.

On behalf of Österreichisches Institut für Bautechnik

The original document is signed by:

Rainer Mikulits
Managing Director

Cross-section of the renovated/adapted chimney
Design situation no.1a    Intended use: one heating appliance
Design situation no.1b  Intended use: one heating appliance
Design situation no. 2    Intended use: one/more than one heating appliance
Design situation no. 3    Intended use: one heating appliance

Note: Design situations given in 1a and 1b are representing similar situations for different cross sections of the chimney.

FuranFlex®	**Annex 1** of European technical approval ETA-12/0346 Design situations for renovation or adaption of existing chimneys

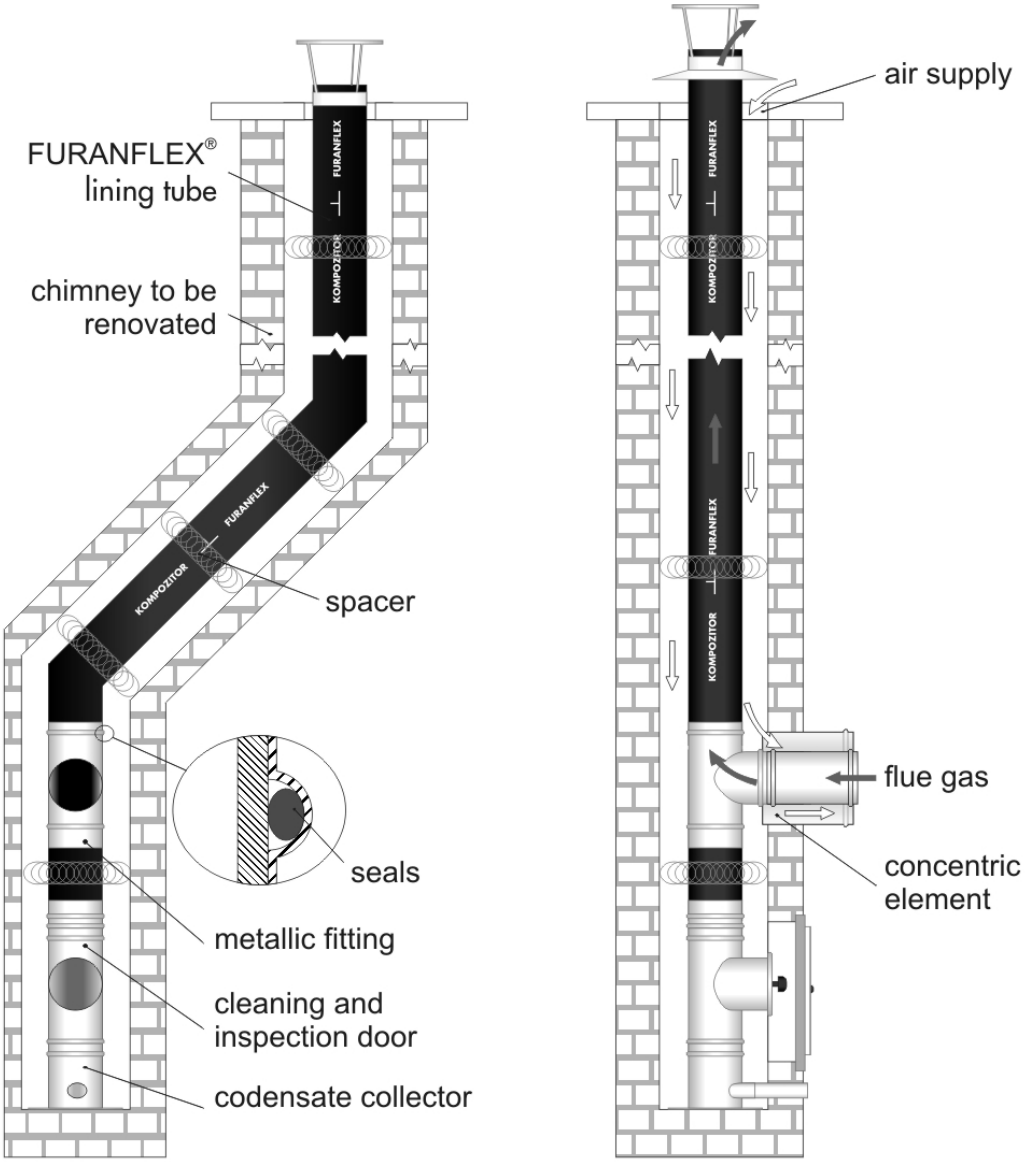
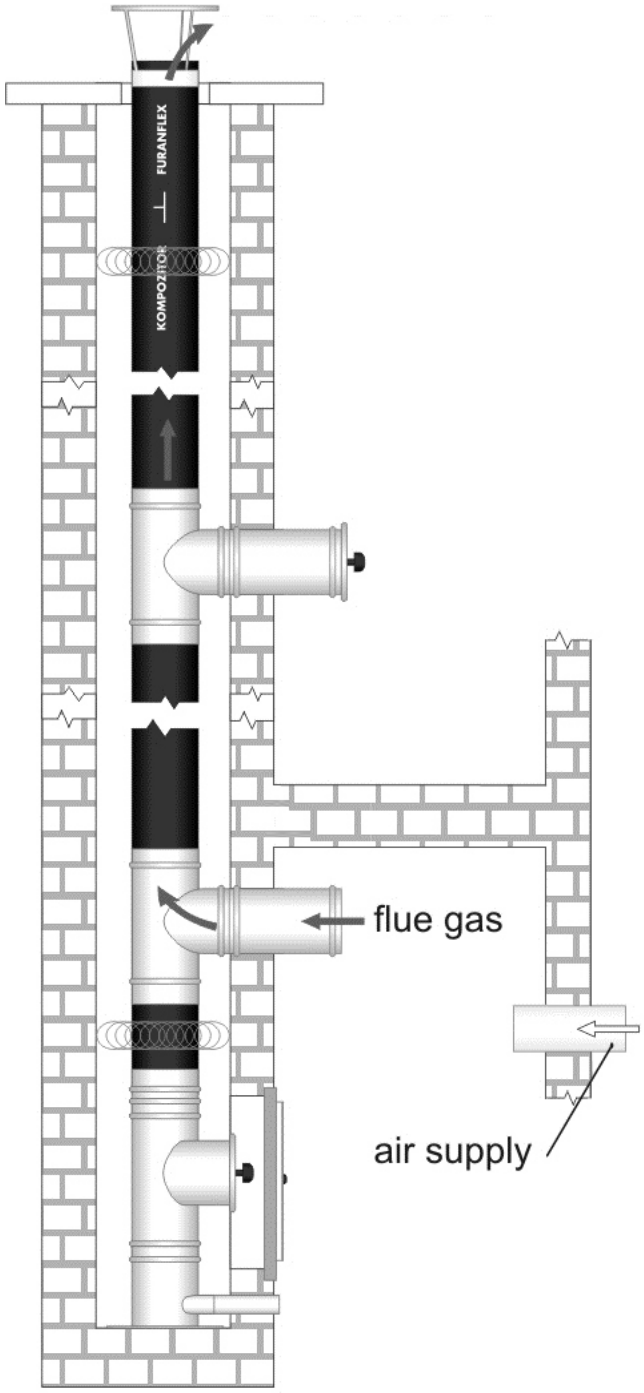


Figure left: Example for non-vertical installation (design situation no. 2)
Figure right: Example for concentric P1 configuration (design situation no. 2)



Example for more than one heating appliance application with classification N1

FuranFlex®	**Annex 2** of European technical approval ETA-12/0346 Renovation or adaption of existing chimneys

Reference documents

EN 1443:2003 “Chimneys - General requirements”
EN 1856-1:2009 “Chimneys - Requirements for metal chimneys - Part 1: System chimney products”
EN 1856-2:2009 “Chimneys - Requirements for metal chimneys - Part 2: Metal flue liners and connecting flue pipes”
EN 13063-2:2005+A1:2007 “Chimneys - System chimneys with clay/ceramic flue liners - Part 2: Requirements and test methods under wet conditions”
EN 13216-1:2004 “Chimneys - Test methods for system chimneys - Part 1: General test methods”
EN 13384-1:2002+A2:2008 “Chimneys - Thermal and fluid dynamic calculation methods - Part 1: Chimneys serving one appliance”
EN 13384-2:2003+A1:2009 “Chimneys - Thermal and fluid dynamic calculation methods - Part 2: Chimneys serving more than one heating appliance”
EN 13501-1:2007+A1:2009 “Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests”
EN 14241-1:2005 “Chimneys – Elastomeric seals and elastomeric sealants – Material requirements and test methods – Part 1: Seals in flue liners”
EN 14297:2004 “Chimneys - Freeze-thaw resistance test method for chimney products”
EN 14471:2005 “Chimneys - System chimneys with plastic flue liners - Requirements and test methods”