



European Technical Approval ETA-13/0238

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung <i>Trade name</i>	LUX ELEMENTS WATERTIGHT SOLUTION
Zulassungsinhaber <i>Holder of approval</i>	LUX ELEMENTS GmbH & Co. KG An der Schusterinsel 7 51379 Leverkusen-Opladen DEUTSCHLAND
Zulassungsgegenstand und Verwendungszweck <i>Generic type and use of construction product</i>	Plattenförmige Abdichtungen für Wände und Böden in Nassräumen <i>Watertight covering kit based on inherently watertight boards for wet room floors and walls</i>
Geltungsdauer: <i>Validity:</i>	vom <i>from</i> bis <i>to</i> 16 May 2013 16 May 2018
Herstellwerke <i>Manufacturing plants</i>	LUX ELEMENTS GmbH & Co. KG An der Schusterinsel 7 51379 Leverkusen Deutschland LUX ELEMENTS GmbH & Co. KG Maybachstraße 21 51381 Leverkusen Deutschland

Diese Zulassung umfasst
This Approval contains

12 Seiten einschließlich 2 Anhänge
12 pages including 2 annexes

I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European technical approval is issued by Deutsches 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 Member States relating to construction products¹, modified by Council Directive 93/68/EEC² and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council³;
 - *Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998⁴, as amended by Article 2 of the law of 8 November 2011⁵;*
 - Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC⁶;
 - Guideline for European technical approval of "Watertight Covering Kits for Wet Room Floors and/or Walls - Part 3: Kits based on inherently watertight boards", ETAG 022-3.
- 2 Deutsches Institut für Bautechnik is authorized 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 Deutsches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5 (1) of Council Directive 89/106/EEC.
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- 6 The European technical approval is issued by the approval body in its official language. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

¹ Official Journal of the European Communities L 40, 11 February 1989, p. 12
² Official Journal of the European Communities L 220, 30 August 1993, p. 1
³ Official Journal of the European Union L 284, 31 October 2003, p. 25
⁴ *Bundesgesetzblatt Teil I 1998*, p. 812
⁵ *Bundesgesetzblatt Teil I 2011*, p. 2178
⁶ Official Journal of the European Communities L 17, 20 January 1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product/ products and intended use

1.1 Definition of the construction product

"LUX ELEMENTS WATERTIGHT SOLUTION" is a watertight covering kit. The kit consists of the following components:

- Watertight board "LUX ELEMENTS-ELEMENT-VK" for walls and floors on the basis of an expanded polystyrene foam (EPS), on both sides coated with mortar on the basis of modified cement reinforced with a glass fiber fabric, in addition the water exposed side is covered with a waterproofing sheet on the basis of polyethylene reinforced with a polypropylen fleece:

Main dimensions:	Length:	from 1250 mm to 2500 mm
	Width:	600 mm
	Thickness:	from 12 mm to 100 mm

Other dimensions for length and width can be cut from the board.

- Watertight board "LUX ELEMENTS-TUB" for floors on the basis of an expanded polystyrene foam (EPS), both sides covered with mortar on the basis of modified cement reinforced with a glass fiber fabric, the water exposed side with an additional sealing on the basis of cement. The boards have an integrated slope in direction of a prefabricated penetration for the floor gully. The boards are available in different geometries and sizes.

Main dimensions:	Length:	from 300 mm to 3000 mm
	Width:	from 300 mm to 3000 mm
	Thickness:	from 20 mm to 100 mm

Other dimensions for length and width can be cut from the board.

- Primer "LUX ELEMENTS-COL-HSV", if necessary
- Adhesive "LUX ELEMENTS-COL-AK" for fixing the board on substrate
- Adhesive "LUX ELEMENTS-COL-MK" for fixing the joints between the boards
- Sealing tape "LUX ELEMENTS-DRY-DB", width: 100 mm or "LUX ELEMENTS-DRY-DBV", width: 120 mm
- Sealing sleeve for corners, floor gullies and penetrations:
"LUX ELEMENTS-DRY -DBIE/DBAE" or "LUX ELEMENTS-DRY-DBVIE/DBVAE" leg length 105 to 120 mm
"LUX ELEMENTS-DRY-DBDZM" 120 x 120 mm or 150 x 150 mm
"LUX ELEMENTS-DRY-DBBM", cut from a foil, at least 100 x 100 mm
- Sealing mass "LUX ELEMENTS-DRY-ASK" for fixing and embedding the sealing details
- Adhesives for tiles on the basis of cement mortar respectively of epoxy resin, CE-marked according EN 12004⁷:
"LUX ELEMENTS-COL-FLEX"; "SCHÖNOX CF"; "Sopro`s No.1"

The kit is intended to be used on a substrate and under a wearing surface, e. g. tiles. The wearing surface and its jointing material are not part of the kit, but are considered during the assessment of the intended use of the product.

⁷ EN 12004:2007 Adhesives for tiles - Requirements, evaluation of conformity, classification and designation

Annex 1 shows the system build-up and Annex 2 shows the sealing details.

1.2 Intended use

The intended use of the watertight covering kit under a wearing surface is to create a floor and wall watertight covering for indoor wet areas at possible operating temperature of 5 °C till 40 °C.

The following uses are intended:

- Floor and/or wall surfaces with only occasional direct exposure to water, e. g. at a good distance from shower or bathtub;
- Floor and/or wall in shower areas or around bathtubs used for a few showers daily, e. g. in ordinary dwellings, multifamily houses and hotels;
- Floor and/or wall surfaces with exposure to water more frequent or of longer duration than normally anticipated in dwellings, e. g. public wet rooms, schools and sport facilities.

The waterproofing kit shows certain levels of performance e. g. categories according to ETAG 022 part 3 which facilitate the use taking into account national regulations (see chapter 2.1).

The watertight membrane is intended to be used on flexible substrates e. g. plywood, chipboard, gypsum, anhydrite or similar material vulnerable to water and on rigid substrates e. g. masonry or concrete.

The product should be used in connection with the following types of gullies:

Plastics – type ABS and PE – with clamping ring and collar or prefabricated by LUX ELEMENTS

The gullies are not part of the kit. It is up to the responsibility of the user to use suitable products of the given type.

The verifications which are the basis of this ETA give the reason for the assumption of an intended working⁸ life of the watertight covering of 25 years, provided that the watertight covering kit is subject to appropriate use and maintenance. These provisions are based upon the current state of the art and the available knowledge and experience.

The indications given as to the working life of the watertight membrane cannot be interpreted as a guarantee given by the manufacturer or the approval body. They should only be regarded as a means for choosing the appropriate criteria for a watertight covering kit in relation to the expected economically reasonable working life of the works.

2 Characteristics of product and methods of verification

2.1 Characteristics of the watertight covering kit

The components of the watertight covering kit show the technical values with respect to the permissible tolerances which are stated in the manufacturer's technical dossier⁹ (MTD) to this ETA.

The permissible tolerance does not affect the characteristics of the products and the assembled system negatively.

The chemical composition and the technical characteristic values of the components of the kit and the manufacturing methods are confidential and deposited with DIBt.

⁸ "Assumed intended working life" means that it is expected that, when this working life has elapsed, the real working life may be, in normal use conditions, considerably longer without major degradation affecting the Essential Requirements.

⁹ The manufacturer's technical dossier (MTD) comprises all information necessary for the production and the installation of the product as well as for the repair of the roof waterproofing made from that and it is deposited with DIBt. It was checked by DIBt and it was found to be in accordance with the conditions stated in the approval and the characteristic values determined during the approval testing.

Requirements concerning safety in case of fire, hygiene, health and the environment and safety in use as well as durability in the sense of the essential requirements N° 2 to N° 4 of the Council Directive 89/106/EEC are satisfied.

The verified property values of the watertight covering lead to characteristics and categories according to ETAG 022 part 3. They are stated in Annex 1. An evaluation oriented at the intended use can be carried out with them by the user with respect to national regulations of the member states.

The reaction to fire behaviour of the waterproofing system is classified in class E according to EN 13501-1¹⁰.

According to the manufacturer's declaration the watertight board does contain hexabromocyclododecane (HBCD). Within the scope of this approval there may be other requirements applicable to dangerous substances resulting from transposed European legislation or applicable national laws, regulations and administrative provisions.

There may be other requirements applicable to the products resulting from other applicable national laws, regulations and administrative provisions and transposed European legislation.

These requirements need also to be complied with, when and where they apply.

2.2 Methods of verification

The assessment of the fitness of the watertight covering kit for the intended use with regard to the essential requirements N° 2 to N° 4 was performed following the ETAG 022 "Watertight covering kits for wet room floor and/or walls" Part 3 "Kits based on inherently watertight boards".

3 Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to the decision 2003/655/EC¹¹ of the European Commission system 2+ for the procedure of the attestation of conformity (Annex III, clause 2(ii) first possibility of Directive 89/106/EC) applies to the watertight covering kit.

In addition, according to the Decision 2003/655/EC¹² of the European Commission system 3 of the attestation of conformity (Annex III, clause 2(ii) second possibility of Directive 89/106/EC) applies with regard to reaction to fire for this product.

The 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
 - (2) factory production control
 - (3) testing of samples taken at the factory in accordance with a prescribed test plan
- (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

System 3: Declaration of conformity of the product by the manufacturer on the basis of:

- (a) Task for the manufacturer:
 - (1) factory production control

¹⁰ EN 13501-1:2007+A1:2009 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

¹¹ Official Journal of the European Communities L 231/12 of 17 September 2003

¹² Official Journal of the European Communities L 209/33 of 2 August 2001

- (b) Task for the notified body:
(2) initial type-testing of the product

3.2 Responsibilities

For the component adhesive is provided that the attestation of conformity process for the adhesive according to EN 12004 is done on basis of this standard. The required additional attestation of conformity is related to the kit and shall be done by the Declaration of conformity by the manufacturer and the CE marking of the kit according to clause 3.3 respectively 3.2.1.3.

3.2.1 Task 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, including records of results performed. This production control system shall insure that the product is in conformity with this ETA.

The factory production control shall be in accordance with the appropriate part of the control plan¹³ which is confidential part of the MTD. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with DIBt.

The manufacturer may only use initial materials according to the MTD. He shall inspect or control the initial materials on acceptance according to the control plan.

The factory production control follows the identifying properties of the components and the example of the control plan as given in ETAG 022 part 3.

The results of the factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

The records shall include at least the following information:

- name of the product and of the initial materials,
- type of inspection or control,
- date of manufacture of the product, batch N° if needed, and date of inspection or control of the product or of the initial materials,
- result of inspections or controls and, as far as applicable, comparison with the requirements,
- signature of the person responsible for the factory production control.

The records shall be kept for at least five years. On request they shall be presented to DIBt.

Details concerning extent, type and frequency of the tests or inspections to be performed within the scope of the factory production control shall correspond to the control plan which is part of the MTD to this ETA.

¹³ The control plan is a confidential part of the MTD. It contains the required information on the factory production control and on the initial type-testing. The MTD is only handed over to the notified body involved in the procedure of attestation of conformity (see 3.2.2).

3.2.1.2 Initial type-testing of the product

The initial type-testing refers to the product properties stated in the appropriate part of the control plan to this ETA. It follows the example of the control plan as given in ETAG 022 part 3.

If the verifications underlying this ETA have been furnished on samples from the current production, these will replace the initial type-testing.

Otherwise the necessary initial type-testing shall be carried out according to the provisions of the control plan and observance of the required property values shall be ascertained by the manufacturer.

After changing the production process the initial type-testing shall be repeated.

3.2.1.3 Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is notified for the tasks referred to in section 3.1 (b) in the field of the product in order to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in section 3.2.2 shall be handed over by the manufacturer to the notified body involved.

The manufacturer shall make a Declaration of conformity, stating that the product is in conformity with the provisions of this ETA and shall mark the product with the CE mark according to clause 3.3. The Declaration of conformity shall be accompanied by the EC certificate of conformity of the factory production control certificate.

3.2.2 Task of the notified body

3.2.2.1 Initial type-testing with regard to reaction to fire

The appropriate part of the control plan states the information on the reaction to fire properties which have to be tested on initial type-testing by the notified body. In case of need it will be handed over for initial type-testing of the product to the notified body recognized for initial type-testing.

If the verifications underlying the ETA have been furnished on samples from the current production, these will replace the initial type-testing.

Otherwise the necessary initial type-testing shall be carried out according to the provisions of the control plan and observance of the required property values required in the ETA shall be ascertained by the notified body.

After changing the production process the initial type-testing shall be repeated.

3.2.2.2 Initial inspection of factory and factory production control

The appropriate part of the control plan states the information on the properties which have to be controlled by the notified body involved for initial inspection of factory and factory production control. The notified body has to control the devices and equipments and the documentation of the factory production control of the manufacturer when starting the production.

The notified body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in a written report.

The notified certification body involved by the manufacturer shall issue an EC certificate of conformity of the factory production control stating the conformity with the provisions of this ETA.

After changing the production process the initial inspection of factory and factory production control shall be repeated. The notified body shall issue a new EC certificate of conformity of the factory control stating the conformity with the provisions of this ETA.

3.2.2.3 Continuous surveillance, judgment and assessment of factory production control

The appropriate part of the control plan states the information on the product properties which have to be checked by the notified body involved. The frequency of this tasks shall be once a year but if necessary i.e. if the results of the inspection is unsatisfactory it is required to be done more often.

The notified body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in a written report.

In cases where the provisions of this ETA and its control plan are no longer fulfilled the certification body involved shall withdraw the certification of conformity and inform DIBt without delay.

3.3 CE marking


The CE marking¹⁴ shall be affixed on the packaging of the kit of the watertight membrane "LUX ELEMENTS WATERTIGHT SOLUTION" or its accompanying documents.

The letters "CE" shall be followed by the identification number of the notified body, and be accompanied by the following additional information:

- name and address or identifying mark of the manufacturer,
- last two digits of the year in which the CE marking was affixed,
- number of the EC certificate for the factory production control,
- number of the European technical approval,
- number of the European technical guideline.

The components shall be specified as belonging to the composite waterproofing kit "LUX ELEMENTS WATERTIGHT SOLUTION".

CE marking and accompanying information:

	Letters "CE"
<i>nnnn</i>	Identification number of notified body (system 2+)
LUX ELEMENTS GmbH & Co. KG An der Schusterinsel 7 51379 Leverkusen-Opladen DEUTSCHLAND	Name and address of the producer
13 <i>nnnn-CPD-xxxx</i>	two last digits of year of affixing CE marking number of the EC certificate for the FPC
ETA-13/0238 ETAG 022 part 3	ETA number ETAG number
Watertight board in combination with wearing surface for indoor wet areas classification of the system and declared values of the product and system characteristics see Annex 1 ETA-13/0238	intended use classification and characteristics of the product

¹⁴ Notes on the CE marking are stated in Guidance Paper D "CE marking under the Construction Products Directive", Brussels, 1 August 2002

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

4.1 Manufacturing

The components of the kit of the watertight membrane are factory-made according to the procedure laid down in the MTD.

The ETA is issued for the kit on the basis of the product composition deposited with DIBt. Changes to the components of the kit or in the production process of the components, which could result in this data being incorrect, should be notified to DIBt before the changes are introduced. DIBt will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment/alterations to the ETA shall be necessary.

4.2 Design and dimensioning

The fitness for the respective use of the watertight membrane results from the characteristic values.

The supplementing statements of the manufacturer stated in the MTD for design and application of the watertight system for creating a watertight covering under wearing surface for floors and walls in indoor wet areas shall be considered.

4.3 Installation

The fitness for use of the watertight membrane can be assumed only, if the installation is carried out according to the installation instructions stated in the MTD by the manufacturer, in particular taking account of the following points:

- installation by appropriately trained personnel,
- installation of only those components which are specified components of the kit,
- installation with the required tools and adjuvants,
- precautions during installation,
- inspecting the substrate surface for cleanliness and correct treatment,
- inspections during installation and of the finished watertight membrane and documentation of the results.

The information as to the

- method of repair on site,
- handling of waste products

shall be observed.

4.4 Manufacturer's responsibilities

It is the manufacturer's responsibility to make sure that all those who utilize the kit will be appropriately informed about the specific conditions according to sections 1, 2, 4, and 5 including the annexes to this ETA and the not confidential parts of the MTD deposited to this ETA.

5 Indications to the manufacturer

5.1 Packaging, transport and storage

Information on:

- packaging,
- transport and
- storage

are given in the MTD.

5.2 Use, maintenance and repair

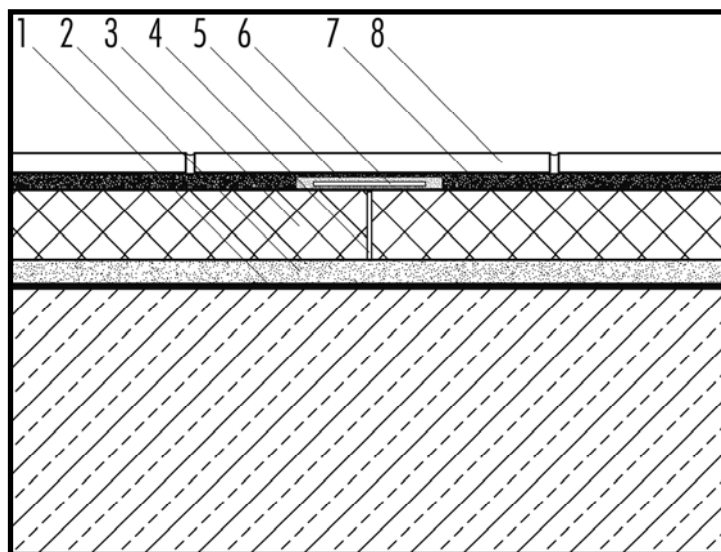
Information on:

- use,
- maintenance,
- repair

are given in the MTD.

Dirk Brandenburger
Head of Department

beglaubigt:
Hemme



- 1 Primer "LUX ELEMENTS-COL-HSV", if necessary
- 2 Adhesive "LUX ELEMENTS-COL-AK"
- 3 Watertight board "LUX ELEMENTS-TUB" or "LUX ELEMENTS-ELEMENT-VK"
- 4 Adhesive "LUX ELEMENTS-COL-MK" for fixing the joints between the boards
- 5 Sealing mass for Details "LUX ELEMENTS-DRY-ASK"
- 6 Sealing tape "LUX ELEMENTS-DRY-DB" or "LUX ELEMENTS-DRY-DBV"
- 7 Tile adhesive (see Annex 2)
- 8 Wearing surface (e. g. tiles) (not part of the kit)

Applicable to the watertight covering kit:

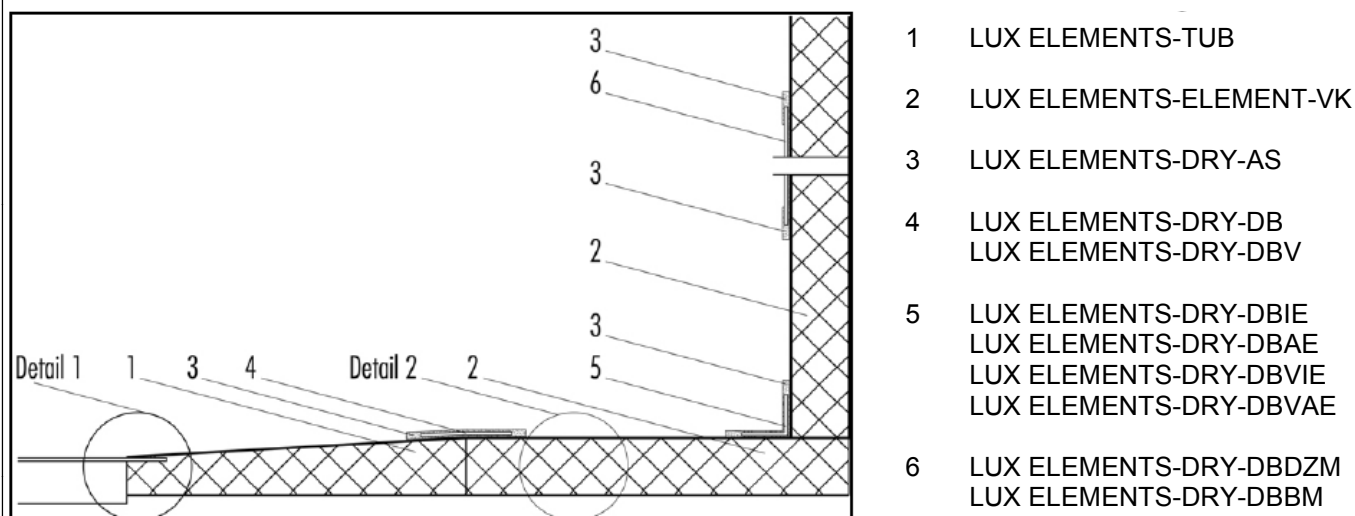
Thickness of the watertight boards		12 to 100 mm
Assumed intended working life		25 years
Reaction to fire	EN 13501-1	class E
Statement on dangerous substances		the watertight boards do contain < 1,0 % HBCD*
Water vapour diffusion resistance factor (23 °C – 50/93 % r.h.)		$s_d > 85 \text{ m}$
Water tightness		watertight
Impermeability at sealings		pass
Scratch resistance		not relevant acc. ETAG 022-3
Dimensional Stability		all directions < +/- 1 %
Resistance to mechanical wear		not relevant acc. ETAG 022-3
Cleanability		not relevant acc. ETAG 022-3
Reparability		reparable
Slipperiness		npd
Applicability		applicable
<u>Levels of categories according ETAG 022 with relation to:</u>		
Crack bridging ability		category 1: 0.4 mm
Bond strength		category 2: $\geq 0.3 \text{ MPa}$
Joint bridging ability		category 2
Water tightness around penetrations		category 2: watertight
Resistance to temperature		temperature resistant
Resistance to water		water resistant
Resistance to alkalinity		alkali resistant (50 °C/8 W)

* This substance is included in Annex XIV of the Regulation (EC) No 1907/2006 (REACH)

LUX ELEMENTS WATERTIGHT SOLUTION
LUX ELEMENTS GmbH & Co. KG

System built up, characteristic values and classifications

Annex 1



Main dimensions of sealing details:

LUX ELEMENTS-DRY-DB	width:	100 mm
LUX ELEMENTS-DRY-DBV	width:	120 mm
LUX ELEMENTS-DRY-DBIE	leg length	at least: 115 mm
LUX ELEMENTS-DRY-DBAE	leg length	at least: 110 mm
LUX ELEMENTS-DRY-DBVIE	leg length	at least: 110 mm
LUX ELEMENTS-DRY-DBVAE	leg length	at least: 100 mm
LUX ELEMENTS-DRY-DBDZM	length/width:	120/120 mm; 150/150 mm
LUX ELEMENTS-DRY-DBBM	length/width:	at least 100/100 mm

Tile adhesives

LUX ELEMENTS-COL-FLEX

SCHÖNOX CF

Sopro's N°1

LUX ELEMENTS WATERTIGHT SOLUTION
LUX ELEMENTS GmbH & Co. KG

Components

Annex 2