



Approval body for construction products and types of construction

#### **Bautechnisches Prüfamt**

An institution established by the Federal and Laender Governments



### European Technical Assessment

### ETA-19/0668 of 23 December 2019

English translation prepared by DIBt - Original version in German language

#### **General Part**

Technical Assessment Body issuing the European Technical Assessment:

Trade name of the construction product

Product family to which the construction product belongs

Manufacturer

Manufacturing plant

This European Technical Assessment contains

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of Deutsches Institut für Bautechnik

Würth sealing rope FP

Fire sealing and fire stopping products - Linear joint and gap seals

Würth International AG Aspermontstrasse 1 7000 CHUR SCHWEIZ

18<sup>1</sup>

9 pages including 4 annexes which form an integral part of this assessment

EAD 350141-00-1105



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#### Specific Part

#### 1 Technical description of the product

Object of this European Technical Assessment (ETA) is the construction product "Würth sealing rope FP". The assessment of the construction product bases on the assessment document (EAD) N° 350141-00-1106, edition September  $2017^2$ .

"Würth sealing rope FP" is a flexible and elastic joint filling rope made of mineral fibres with a braid of textile glass yarn. It is produced in seven different diameters.

The maximum lateral stretching capability of "Würth sealing rope FP" is 7.4 %.

Further product characteristics of "Würth sealing rope FP" are presented in Annex A.

Details of the material specifications and processing of the components are deposited with Deutsches Institut für Bautechnik.

Details for the design of joint seals executed by using "Würth sealing rope FP" are presented in Annex B as tested.

## 2 Specification of the intended use in accordance with the applicable European Assessment Document

The joint seal "Würth sealing rope FP" is intended to be used for sealing horizontal and vertical linear non-movement joints (structural joints as stepped joints and linear butt joints) between fire resistant rigid walls and floors or ceilings with a fire-separating function.

The construction product "Würth sealing rope FP" is intended to maintain or reinstate the fire resistance performance of building components/elements with a fire-separating function where they are interrupted or separated by joints.

The permitted maximal width of the joints is 55 mm.

The acceptable width depending on the intended design is presented in Annex B.

The joint seal is not intended for load transmission.

The performances given in section 3 are only valid if the joint seal is used in compliance with

- the specifications and conditions given in Annex B and
- the manufacturer's instructions as stated in section 5.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of "Würth sealing rope FP" of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

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#### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1 in accordance with EN 13501-1
Resistance to fire	Classes in accordance with EN 13501-2; see annex B

#### 3.2 Hygiene, health and the environment (BWR 3)

The construction product does not contain any dangerous substances in accordance with the regulation (EC) N° 1272/2008 of European Parliament and of the Council of 16 December  $2008^3$ .

The filling rope consists of man-made mineral fibers which meet the requirements in accordance with the cited regulation (EC) N $^{\circ}$  1272/2008.

The chemical composition of the product has to accord with those deposited with DIBt.

#### 3.3 Safety and accessibility in use (BWR 4)

No performance assessed

#### 3.4 Protection against noise (BWR 5)

No performance assessed

#### 3.5 Energy economy and heat retention (BWR 6)

No performance assessed

#### 3.6 Sustainable use of natural resources

No performance assessed

#### 3.7 General aspects

The verification of durability is part of testing the essential characteristics.

"Würth sealing rope FP" was tested for climatic exposure in accordance with EAD 350141-00-1106, without any essential changes in its fire protective properties.

The linear joint and gap seal using the product "Würth sealing rope FP" can be used under final use conditions as follows (in accordance with EAD 350141-00-1106):

- Type  $Y_1$ : use at temperatures below 0 °C with exposure to UV radiation, but no exposure to rain.
- Type  $Y_2$ : use at temperatures also below 0 °C, but no exposure to rain or UV.
- Type  $Z_1$ : in-door use at a relative humidity equal to or higher than 85 % RH, but no temperatures below 0 °C.
- Type  $Z_2$ : in-door use at a relative humidity lower than 85 % RH, but no temperatures below 0 °C.

Durability is only ensured if the specifications of intended use according to Annex B and the manufacturer's instructions according to section 5 are taken into account.

<sup>3</sup> Official Journal of the EU N° L 353 of 31 December 2008, p. 1



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# 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD N° 350141-00-1106 "Fire stopping and fire sealing products – Linear joint and gap seals" the applicable European legal act is: 1999/454/EC<sup>4</sup>. The system to be applied is: 1.

The system of assessment and verification of constancy of performance (AVCP) (see Annex V and Article 65 Paragraph 2 to Regulation (EU) N° 305/2011) is given in the following table:

Product	Intended use	Level(s) or class(es) resistance to fire	AVCP- System
"Würth Fugenschnur FP"	For sealing joints between fire- resistant separating building elements	any	1

# 5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

The manufacturer shall provide installation instructions on every construction product according to this ETA containing at least the following information:

- type, properties (minimum thickness, density) and fire resistance of the building components with a fire-separating function in which the joint system may be installed
- description or graphic presentation of the proper installation (depending on the type of the building element, the intended fire resistance and the width of the joints).

The manufacturer shall also provide instructions on processing, packaging, transport, storage and use, maintenance and repair of the construction product.

Issued in Berlin on 23 December 2019 by Deutsches Institut für Bautechnik

Maja Tiemann Head of Department beglaubigt: Dr.-Ing. Dierke

Decision of the Commission N° 1999/454/EC of 22 June 1999 (OJ L 178/52 of 14/07/99, p. 3), as amended by Decision of the Commission N° 2001/596/EC of 8 January 2001 (OJ L 209/33 of 2/8/2001, p. 2)

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#### **Product description**

Table A.1 shows the dimensions and the nominal bulk density of the joint filling rope "Würth sealing rope FP".

Table A.1

nominal diameter*	joint width b	bulk density
[mm]	[mm]	[kg/m³]
12	≤ 10	≥ 700
15	≤ 12	≥ 490
20	≤ 17	≥ 440
30	≤ 27	≥ 260
40	≤ 37	≥ 300
50	≤ 47	≥ 240
60	≤ 55	≥ 325

\* nominal diameter depending on the joint width to be sealed

Würth sealing rope FP

#### Product description Properties

Annex A

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#### Separating building elements

The joint filling rope "Würth sealing rope FP" is used for sealing linear joints between the following separating building elements:

- rigid walls and floors
  - aerated concrete, concrete, reinforced concrete or masonry with a minimum density of 700 kg/m<sup>3</sup>
  - concrete, reinforced concrete or masonry with a minimum density 2400 kg/m<sup>3</sup>  $\pm$  20 %

The minimum thickness of the separating building elements shall be 100 mm or 150 mm (see Table B.2 and B.3).

The separating building elements shall be classified according to EN 13501-2 for the required fire resistance period.

The joint filling rope "Würth sealing rope FP" is according to table B.1 used

- in horizontal joints between fire-resistant separating floors or between walls and floors (A)
- in vertical joints between fire-resistant separating walls (B)
- in horizontal joints between fire-resistant separating floors and walls (C).

Table B.1



For the number of layers and the arrangement of the joint filling rope

- for joints without shear stress, see Table B.2.
- for joints with vertical shear stress, see Table B.3.

#### Würth sealing rope FP

**Performance of the linear joint seal** Resistance to fire - application Annex B 2

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#### Design and arrangement of the joint filling rope

The joint filling ropes shall be arranged overlapped. For joints

- with a single-layer arrangement the joint filling ropes shall overlap a minimum of 100 mm,
- with a multi-layer arrangement the joints of the joint filling rope shall be arranged 500 mm shifted to each other.

For arrangement and number of layers of the joint filling rope, see Table B.2 and B.3.

For the choice of the suitable joint filling rope (nominal diameter depending on the joint width to be sealed) see Table A.1.

Table B.2 (joints without shear stress)

Overview of the fire-resistant designs for the arrangement in rigid wall constructions with a minimum thickness of 100 mm and rigid floor constructions with a minimum thickness of 150 mm each with a minimum density of 700 kg/m <sup>3</sup>				
application joint width [mm]	joint width	Würth sealing rope FP		alagaification fire registeres
	number of layers and arrangement			
(A) (B)	10 to 55	1	any arrangement within the joint	EI 90–V–X–F–W 10 to 55
				EI 90 –H–X–F–W 10 to 55
	10 to 55	2	layers arranged close together, any arrangement within the joint	EI 120–V–X–F–W 10 to 55
	10 10 33			EI 120 –H–X–F–W 10 to 55
	10 to 27	4		EI 180–V–X–F–W 10 to 55
	27 to 55	3		EI 180–H–X–F–W 10 to 55

Table B.3 (joints with vertical shear stress)

Overview of the fire-resistant designs for the arrangement in rigid wall constructions and rigid floor constructions with a minimum thickness of 150 mm and a minimum density of 2400 kg/m <sup>3</sup> $\pm$ 20 %.				
application	joint width [mm]	Würth sealing rope FP number of layers and arrangement		classification fire resistance
(A) (C)	10 to 50	2	One strip on each side, minimum distance 25 mm to the outer edge of the building element	EI 90–H–M 65–F–W 10 bis 50

- The maximum shear stress of horizontal joints is restricted to  $\Delta h = 100$  mm compared to the installed condition.
- For joints with vertical shear stress, the joint filling ropes shall be arranged with a minimum distance of 25 mm to the outer edge of the building element.

#### Würth sealing rope FP

**Performance of the linear joint seal** Resistance to fire - Design, arrangement and classification - Annex B 2

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# List of reference documents

EN 13501-1:2018	Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests
EN 13501-2:2016	Fire classification of construction products and building elements – Part 2: Classification using data from resistance tests, excluding ventilation services
EN ISO 1182:2019	Reaction to fire tests for products – Non-combustibility test
EN ISO 1716:2018	Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value)
EN 1363-1:2018	Fire resistance tests – Part 1: General requirements
EN 1366-4:2019	Fire resistance tests for service installations – Part 4: Linear joint seals

#### Würth sealing rope FP

#### **Reference documents**

Annex C