Deutsches Institut für Bautechnik

Public-law institution jointly founded by the federal states and the Federation

European Technical Assessment Body for construction products

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European Technical Assessment ETA-23/0582 of 16 July 2024

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Kaiflex Pyrostar XTRA
Product family to which the construction product belongs	product for use in fire resistant penetration seals - intumescent mat
Manufacturer	KAIMANN GmbH Hansastraße 2-5 33161 Hövelhof DEUTSCHLAND
Manufacturing plant	Herstellwerk 1 manufacturing plant 1
This European Technical Assessment contains	11 pages including 7 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	350454-00-1104

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Specific part

1 Technical description of the product

The construction product "Kaiflex Pyrostar XTRA" is a fire protection wrap which is a cutout from an intumescent mat.

The fire protection wrap consists of a flexible, anthracite-coloured mat with micaceous speckles, which expands under heat exposure.

A detailed technical description of the fire safety related performance criteria of the construction product is given in Annex 1.

NOTE:

The characteristics listed are suitable both for identifying the construction product as well as for performing the manufacturer's factory production control.

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

The construction product "Kaiflex Pyrostar XTRA" is used as a component in pipe penetration seals.

Pipe penetration seals are used to seal openings in fire-resistant walls or floors, which are penetrated by pipes. Their aim is to preserve the walls' or floors' fire resistance in the area of the penetrations. The construction product "Kaiflex Pyrostar XTRA" is intended for use as a wrap for pipes made of steel, stainless steel, cast iron or copper. In the event of fire, the intumescent effect of the wrap helps prevent the passage of heat and the spread of fire in the area of the pipes.

This ETA has served to verify the resistance to fire of pipe penetration seals containing the construction product "Kaiflex Pyrostar XTRA". The pipe penetration seals also comprised pipe insulation material and, in some cases, a metal sheet collar as well as a seal between the penetrating pipe and the circular edge of the surrounding building component.

More detailed information and data on the verified penetration seals incorporating the construction product "Kaiflex Pyrostar XTRA" are given in Annexes 3 to 7. The performance data given in Section 3 relates exclusively to these penetration seals (e.g. with respect to the design and arrangement of the penetration seal components and the type and position of the services).

The construction product "Kaiflex Pyrostar XTRA" may be used under the conditions of Type Z_2 (dry internal conditions without frost (relative humidity between 50 % and 85 % and temperatures between +5 °C and 35 °C ± 5 °C)) provided that the other components of the penetration seal, which are not the subject of this ETA, meet the durability requirements.

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

3.1 Intended use: use in penetration seals

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire of the wrap	Class E in accordance with EN 13501-1
Resistance to fire of a penetration seal containing the construction product	The resistance to fire depends on how the penetration seal is designed and installed and on the other components forming the penetration seal. More details on the tested penetration seals and the related fire resistance classes are given in Annexes 1 to 7.

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

In accordance with European Assessment Document (EAD) no. 350454-00-1104, the following legal base shall apply: 1999/454/EC.

The system to be applied is: system 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.

Issued in Berlin on 16 July 2024 by Deutsches Institut für Bautechnik

Johanna Bartling
Head of Department

beglaubigt:
Meske-Dallal

Deutsches Institut für Bautechnik DIBt

Properties and performances crieteria of the construction product "Kaiflex Pyrostar XTRA"

Component	Property	Characteristic value with tolerances
"Kaiflex Pyrostar XTRA" Wrap made of an intumescent building material[1]	Classification of fire behavior acc. to EN 13501-1	E
	Nominal thickness	1,0 mm to 1,4 mm; thickness tolerances ± 10 %
	Weight per unit area	1,2 kg/m² ± 10%
	Loss mass on heating	40,0 % bis 50 % (tested on 450 °C over 30 minutes)
	Expansion ratio	10,0 to18,0 (tested on 450 °C over 30 minutes with applied weight with samples of a thickness of ~ 1,2)[2]
	Expasion pressure	0,45 N/mm² to 1,10 N/mm² (tested on 300 °C, method A)[2]

The properties listed can be used both for the identification of the construction product and for the implementation of the factory production control of the manufacturer.

Implementation details for the factory production control are included in the inspection plan.

1 The composition of the materials is deposited at DIBt.
2 Implementation Details of the test method are deposited at DIBt.

Kaiflex Pyrostar XTRA	Annex 1
Description of the construction product "Kaiflex Pyrostar XTRA"	

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Description of the additional components of the tested penetration seals

"FEF Kaiflex KK"	Declaration of performance DoP KK 17022015001 of 04.02.2016
"Kaiflex KKplus s2" or "Kaiflex KKplus s3"	Declaration of performance DoP KKplus s2 01032018001 of 01.03.2018 or DoP KKplus s3 01032018001 vom 01.03.2018
"FEF Kaiflex HF plus s2"	Declaration of performance DoP HFplus s2 01032018001 of 01.03.2018
Zinc-plated sheet steel cylinder	Zinc-plated sheet steel (material number DX51D) acc. to EN 10346 Thickness: 0,8 mm
Gypsum filling compound	Classification of fire behavior: Class A1 according to the commission decision 96/603/EC (in the amended version)

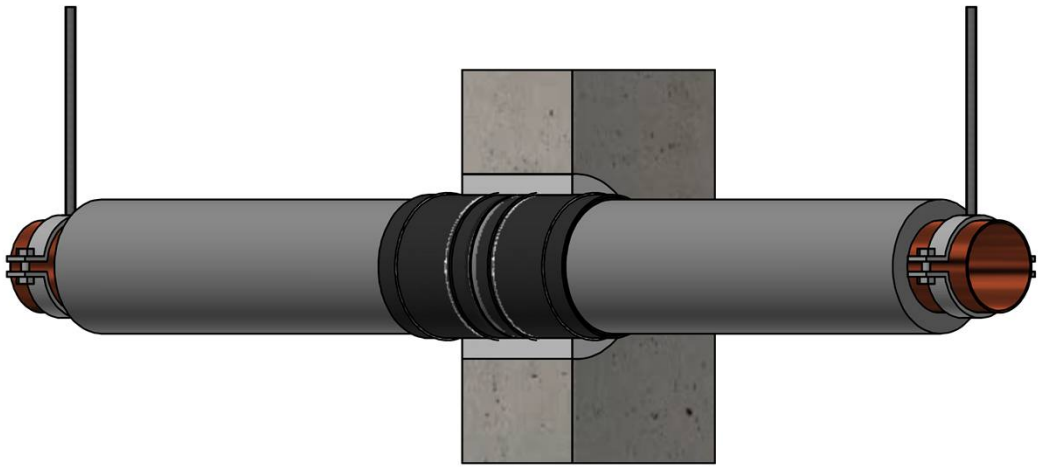
Performances of penetration seals comprising the construction product "Kaiflex Pyrostar XTRA"

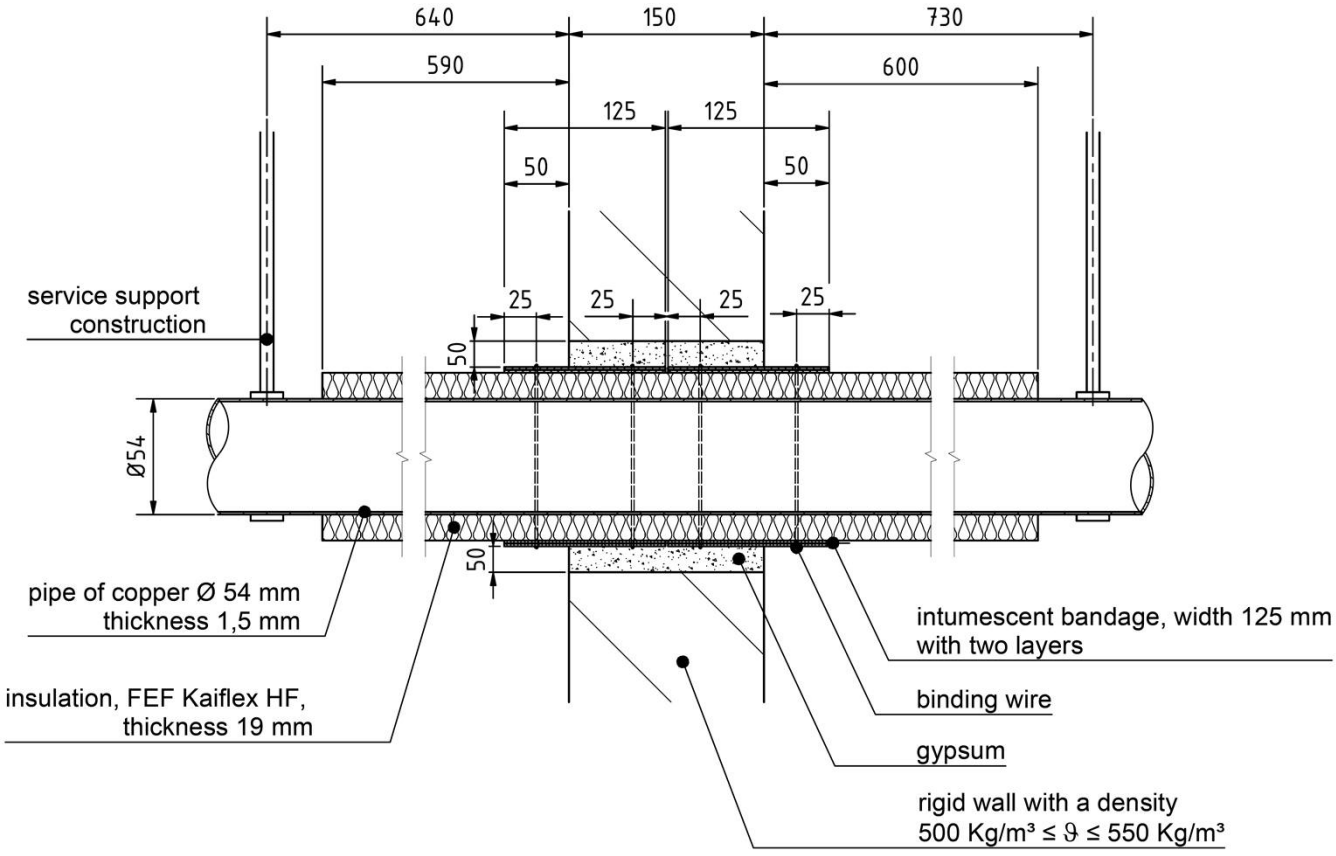
	Essential requirement	Test method	Construction of the test specimen	Performance
1	Resistance to fire	EN 1366-3	200 mm thick rigid wall; design and layout of the penetration seal acc. to Annex 3*	see Annex 3
2	Resistance to fire	EN 1366-3	100 mm thick flexible wall; design and layout of the penetration seal acc. to Annex 4*	see Annex 4
3	Resistance to fire	EN 1366-3	150 mm thick rigid floor; design and layout of the penetration seal acc. to Annex 5*	see Annex 5
4	Resistance to fire	EN 1366-3	100 mm thick flexible wall; design and layout of the penetration seal acc. to Annex 6*	see Annex 6
5	Resistance to fire	EN 1366-3	100 mm thick flexible wall; design and layout of the penetration seal acc. to Annex 7*	see Annex 7

* Illustrations without guarantee for completeness

The use of the construction product "Kaiflex Pyrostar XTRA" in penetration seals shall be in accordance with national requirements for planning, design and execution and in accordance with the installation instruction of the manufacturer.
The tested/ illustrated seals are only examples for the use.

Kaiflex Pyrostar XTRA	Annex 2
Description of additional components, properties and performances of the tested penetration seals comprising "Kaiflex Pyrostar XTRA"	





dimensions in mm

Kaiflex Pyrostar XTRA	Annex 3
Example for use of the construction product "Kaiflex Pyrostar XTRA" as a part of a pipe seal with a fire resistance (integrity and thermal insulation) for more than 120 minutes	

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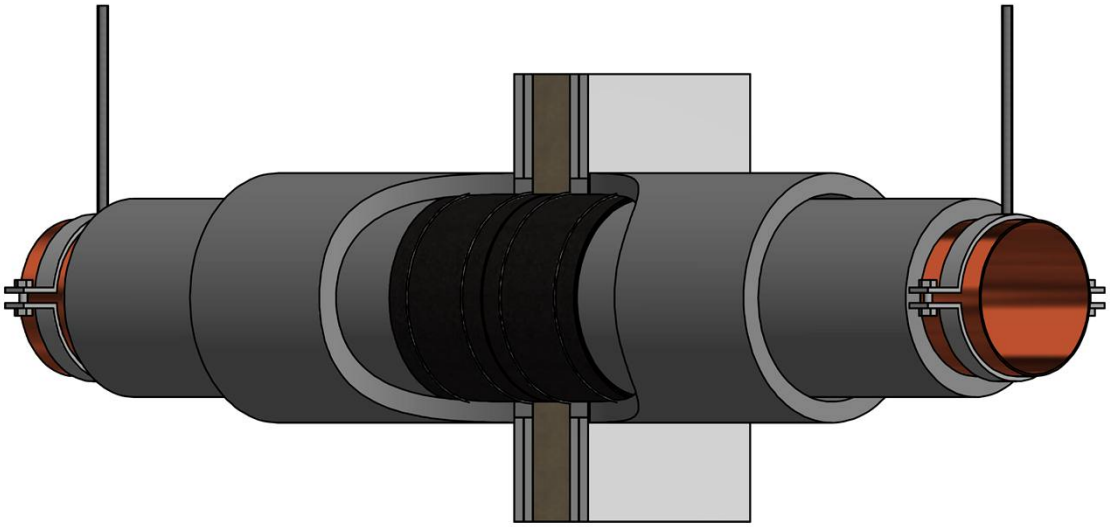
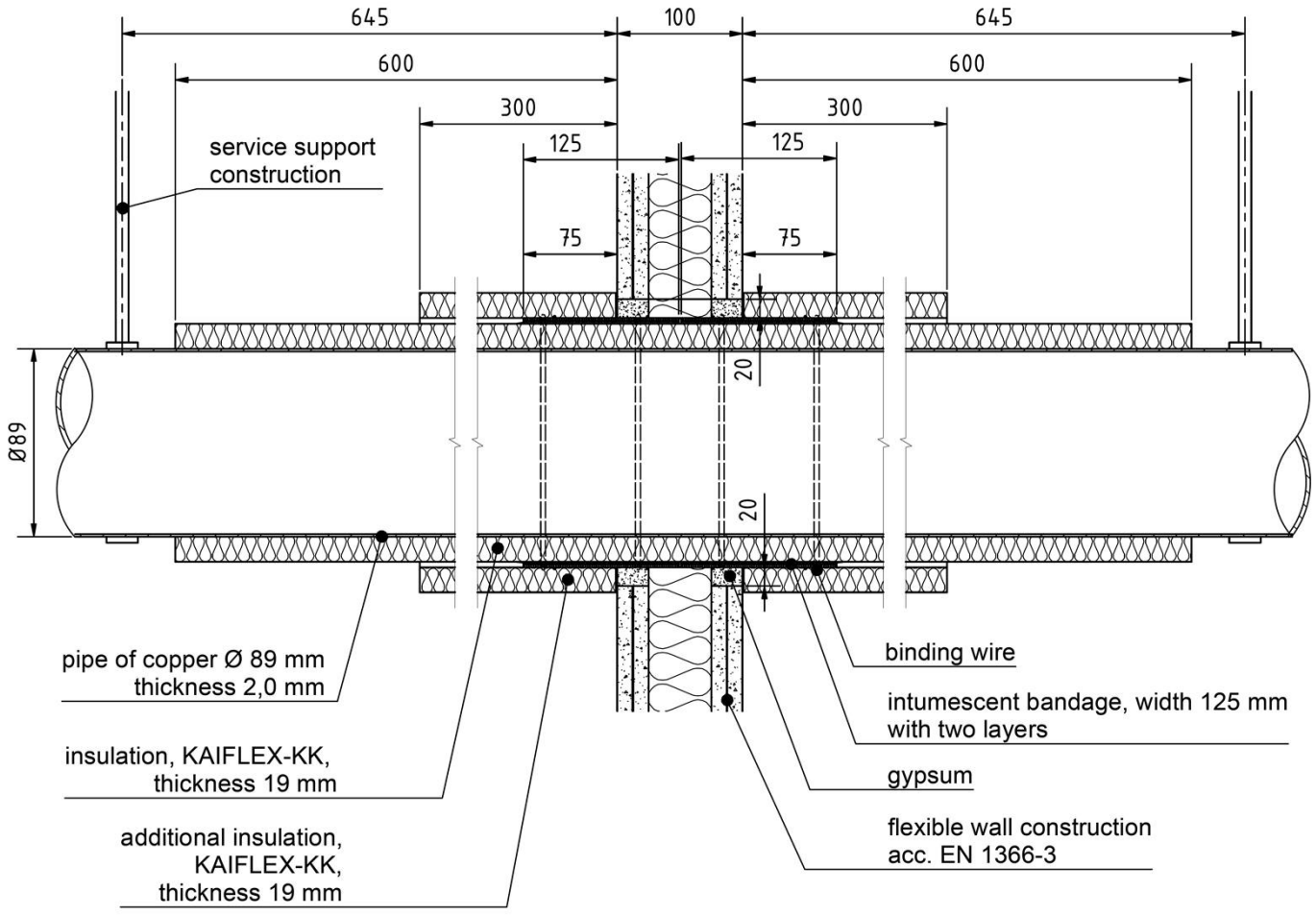
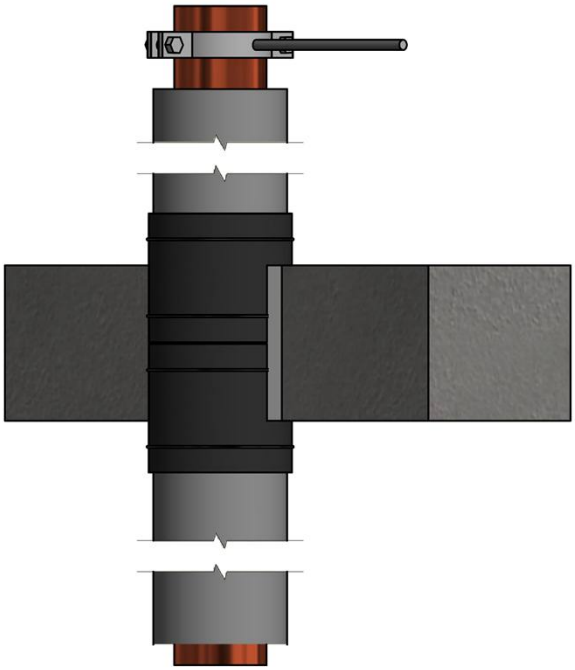
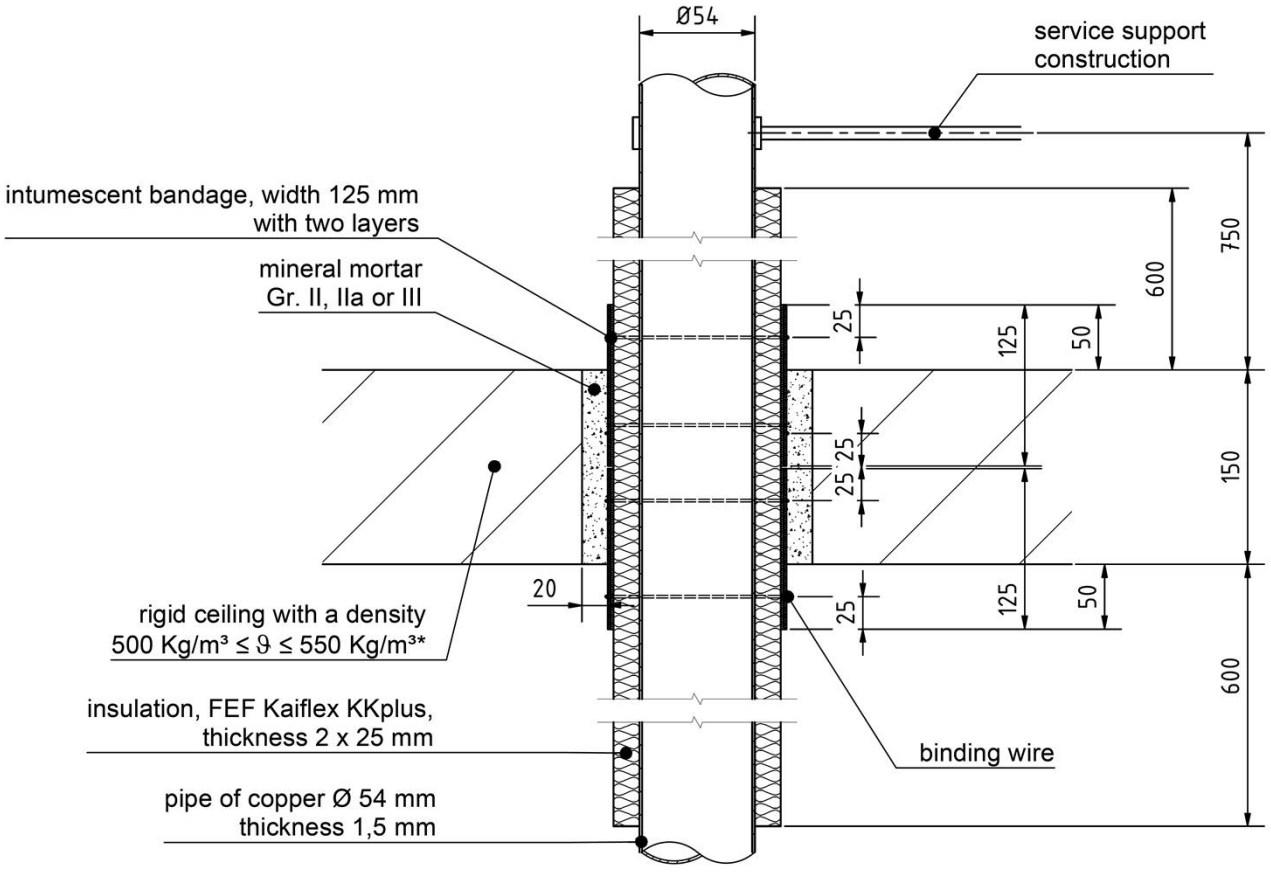




dimensions in mm

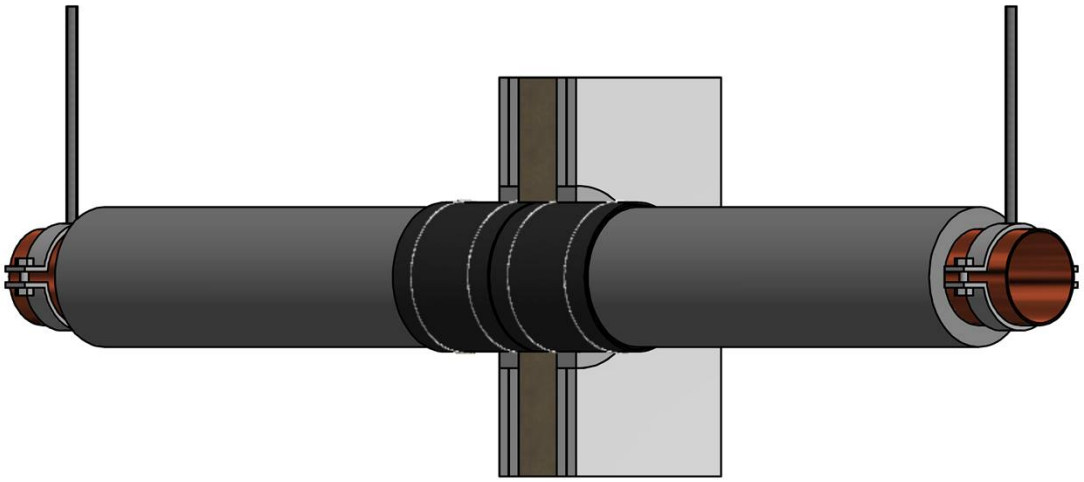
Kaiflex Pyrostar XTRA	Annex 4
Example for use of the construction product "Kaiflex Pyrostar XTRA" as a part of a pipe sealing, with a fire resistance (integrity and thermal insulation) for more than 120 minutes	

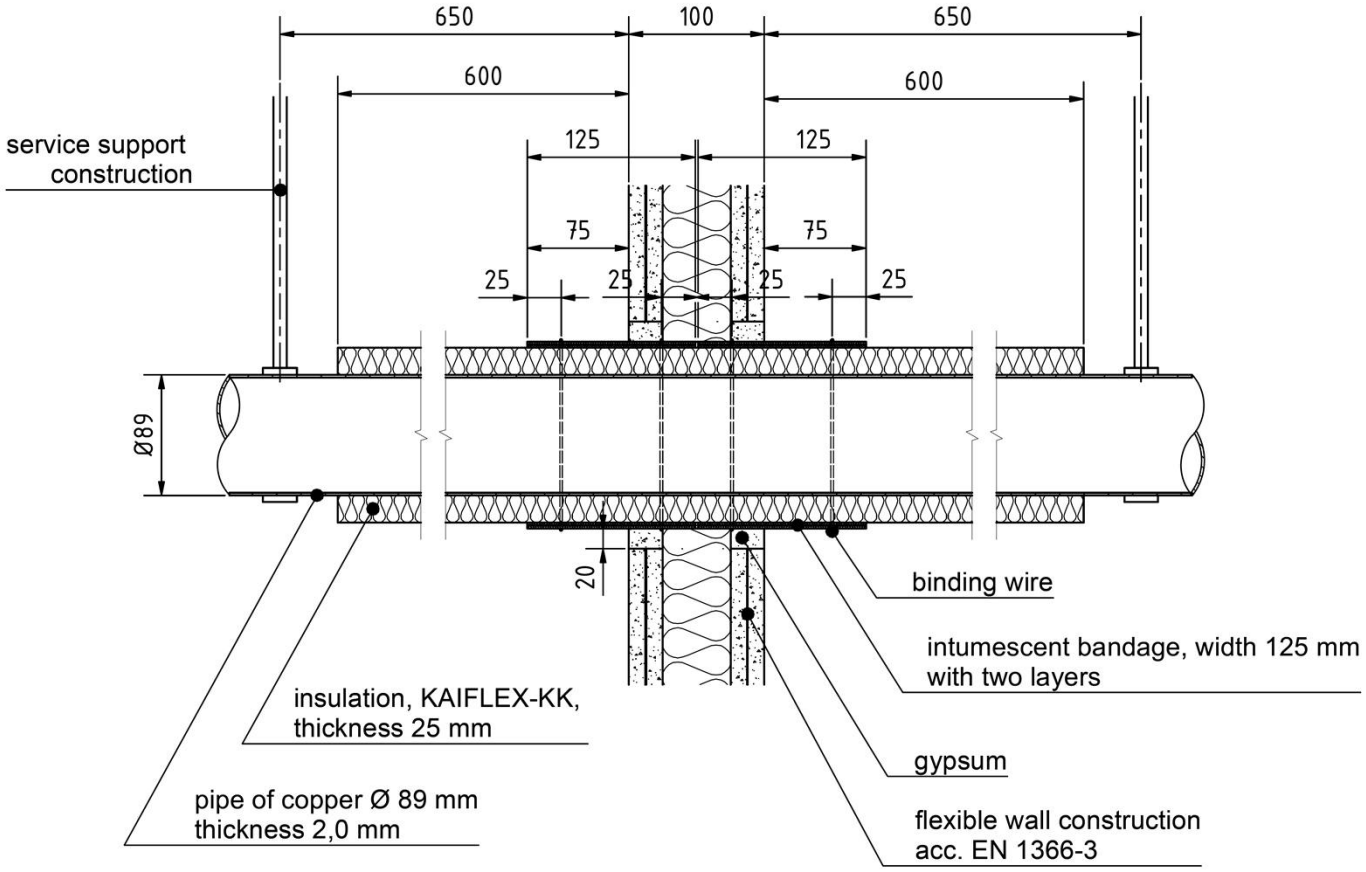




dimensions in mm

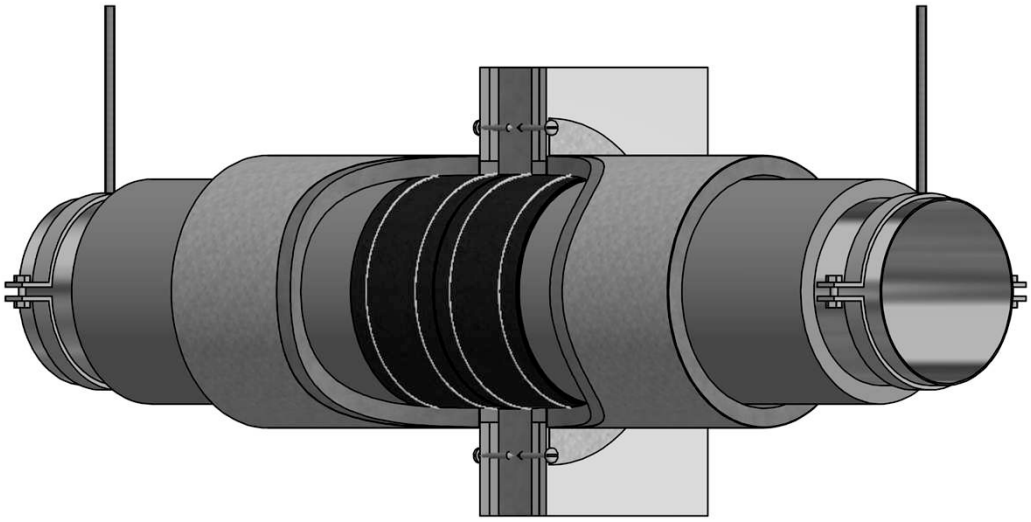
Kaiflex Pyrostar XTRA	Annex 5
Example for use of the construction product "Kaiflex Pyrostar XTRA" as a part of a pipe sealing, with a fire resistance (integrity and thermal insulation) for more than 120 minutes	

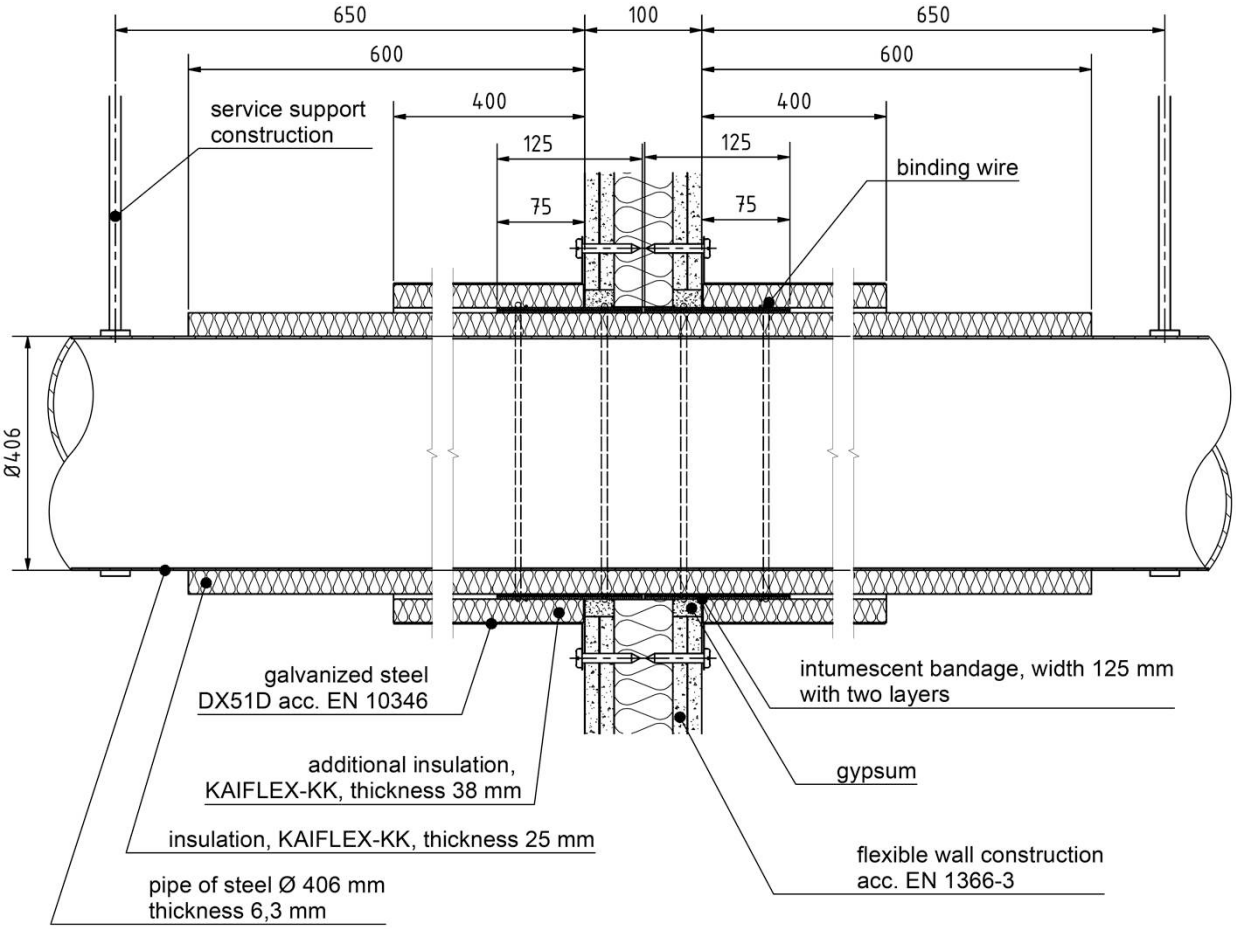




dimensions in mm

Kaiflex Pyrostar XTRA	Annex 6
Example for use of the construction product "Kaiflex Pyrostar XTRA" as a part of a pipe sealing, with a fire resistance (integrity and thermal insulation) for more than 120 minutes	





dimensions in mm

Kaiflex Pyrostar XTRA	Annex 7
Example for use of the construction product "Kaiflex Pyrostar XTRA" as a part of a pipe sealing, with a fire resistance (integrity and thermal insulation) for more than 60 minutes	