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designated according to Article 29 of the Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment, www.eota.eu)

European Technical Assessment

ETA 17/1020 of 21/12/2017

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: UL International (UK) Ltd

Trade name of the construction product

K-FLEX K-FIRE COLLAR - E

Product family to which the construction product belongs

Fire Stopping and Sealing Product:
 • Penetration Seals

Manufacturer

L'ISOLANTE K-FLEX S.p.A.
 Via Don G. Locatelli 35
 20877
 Roncello
 MB Italy

Manufacturing plant(s)

A/007 and A/003

This European Technical Assessment contains

19 pages including 1 Annex which forms an integral part of this assessment.

This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of

ETAG 026-2, edition 2011, used as European Assessment Document (EAD).

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I. SPECIFIC PARTS OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of the product

- 1) K-FLEX K-FIRE COLLAR - E is a pipe closure device used to form penetration seals where combustible pipes, cables and metal pipes with insulation penetrate walls and floors.
- 2) The K-FLEX K-FIRE COLLAR - E is supplied with intumescent liner complete within metal steel shell, to be clamped around the service and screw fixed back to the supporting element. The K-FLEX K-FIRE COLLAR - E may be supplied with powder coated steel or stainless steel shells.
- 3) In gypsum walls, gaps between the pipe and the construction below 8mm must have a bead of K-FLEX K-FIRE ACRYLIC to cover the opening, and for gaps 8mm or above, the seal must be plugged with 25mm deep of K-FLEX K-FIRE ACRYLIC.

In masonry/concrete walls, gaps between the pipe and the construction below 8mm must have a bead of K-FLEX K-FIRE ACRYLIC to cover the opening, and for gaps 8mm or above, the seal must be plugged with 20mm deep of K-FLEX K-FIRE ACRYLIC on 20mm deep backing of stonewool.

In floors, gaps between the pipe and the construction below 10mm must have 20mm deep stonewool to plug the opening, and for gaps 10mm or above, the seal must be plugged with 10mm deep of K-FLEX K-FIRE ACRYLIC on 40mm deep backing of stonewool.

K-FLEX K-FIRE COLLAR - E are oversized to allow for the natural gradient of pipework for flow purposes and inconsistencies of pipe installation.

- 4) The applicant has submitted a written declaration that the product and/or constituents of the product contains no substances which have been classified as dangerous according to Directive 67/548/EEC and Regulation (EC) No. 1272/2008 and listed in the 'indicative list on dangerous substances' of the EGDS – taking into account the installation conditions of the construction product and the release scenarios resulting from there.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

- 5) The use category of K-FLEX K-FIRE COLLAR - E in relation to BWR 3 (Hygiene, health and environment) is IA1, S/W3

2 Specification of the intended uses of the product in accordance with the applicable European Assessment Document (Hereinafter EAD): ETAG 026-2

Detailed information and data is given in Annex A.

The intended use of system K-FLEX K-FIRE COLLAR - E is to reinstate the fire resistance performance of flexible wall and rigid wall and floor constructions, where they are penetrated by services.

- 1) The specific elements of construction that the system K-FLEX K-FIRE COLLAR - E may be used to provide a penetration seal in, are as follows:

Flexible walls: The wall must have a minimum thickness of 100 mm and comprise steel studs lined on both faces with minimum 2 layers of 12.5 mm thick boards.

Rigid walls: The wall must have a minimum thickness of 100 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m³.

Rigid floors: The floor must have a minimum thickness of 150 mm and comprise aerated concrete or concrete with a minimum density of 650 kg/m³.

The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.

- 2) The system K-FLEX K-FIRE COLLAR - E may be used to provide a penetration seal with specific supporting constructions and substrates (for details see Annex A).

- 3) The provisions made in this European Technical Assessment are based on an assumed working life of the K-FLEX K-FIRE COLLAR - E of 30 years, provided that the conditions laid down in the manufacturers datasheet and instructions for the packaging/transport/storage/installation/use/repair are met. 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.
- 4) Type Z₂: intended for use at internal conditions with humidity classes other than Z₁, excluding temperatures below 0°C.

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

Product-type: Pipe Collar		Intended use: Penetration Seal
Basic requirement for construction work	Basic Requirement	Performance
BWR 1 Mechanical resistance and stability		
-	None	Not relevant
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	Performance not assessed
EN 13501-2	Resistance to fire	Annex A
BWR 3 Hygiene, health and environment		
EN 1026:2000	Air permeability (material property)	No performance determined
ETAG 026-2, Annex C	Water permeability (material property)	No performance determined
Declaration of manufacturer	Release of dangerous substances	Use categories: IA1, S/W3 Declaration of manufacturer
BWR 4 Safety in use		
EOTA TR 001:2003	Mechanical resistance and stability	No performance determined
EOTA TR 001:2003	Resistance to impact/movement	No performance determined
EOTA TR 001:2003	Adhesion	No performance determined
BWR 5 Protection against noise		
EN 10140-2/ EN ISO 717-1	Airborne sound insulation	Rw (C;Ctr): 58 (-1;-7)
BWR 6 Energy economy and heat retention		
EN 12664, EN 12667 or EN 12939	Thermal properties	No performance determined
EN ISO 12572 EN 12086	Water vapour permeability	No performance determined
General aspects relating to fitness for use		
EOTA TR 024:2009, clause 3.1.11 & 3.1.12	Durability and serviceability	Z ₂
BWR 7 Sustainable use of natural resources		
-	-	No performance determined

4 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE (HEREINAFTER AVCP) SYSTEM APPLIED, WITH REFERENCE TO ITS LEGAL BASE

According to the decision 1999/454/EC – Commission Decision of date 22nd June 1999 on the procedure for attesting the conformity of construction products pursuant to Article 20(2) of Council Directive 89/106/EEC as regards fire stopping, fire sealing and fire protective products, published in the Official Journal of the European Union (OJEU) L178/52 of 14/07/1999, see <http://eur-lex.europa.eu/JOIndex.do> of the European Commission¹, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table(s) applies (apply).

Product(s)	Intended use(s)	Level(s) or class(es)	System(s)
Fire stopping and Fire Sealing Products	For fire compartmentation and/or fire protection or fire performance	Any	1

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

Tasks of the manufacturer:

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 ensure that the product is in conformity with this European Technical Assessment.

The manufacturer may only use initial / raw / constituent materials stated in the technical documentation of this European Technical Assessment.

The factory production control shall be in accordance with the Control Plan of 6th May 2014 relating to the European Technical Assessment ETA 17/1020 issued on 21/12/17 which is part of the technical documentation of this European Technical Assessment. The "Control Plan" is laid down in the context of the factory production control system operated by the manufacturer and deposited at UL International (UK) Ltd.

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

¹ Official Journal of the European Communities L178/52 of 14/7/1999

Other tasks of the manufacturer

Additional information

The manufacturer shall provide a technical data sheet and an installation instruction with the following minimum information:

(a) Technical data sheet:

- Field of application:
- Building elements for which the penetration seal is suitable, type and properties of the building elements like minimum thickness, density, and - in case of lightweight constructions – the construction requirements.
- Limits in size, minimum thickness etc. of the penetration seal
- Construction of the penetration seal including the necessary components and additional products (e.g. backfilling material) with clear indication whether they are generic or specific.

(b) Installation instruction:

- Steps to be followed
- Procedure in case of retrofitting
- Stipulations on maintenance, repair and replacement

6 Issued on:

21st December 2017

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Reviewed by:



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For and on behalf of UL International (UK) Ltd.

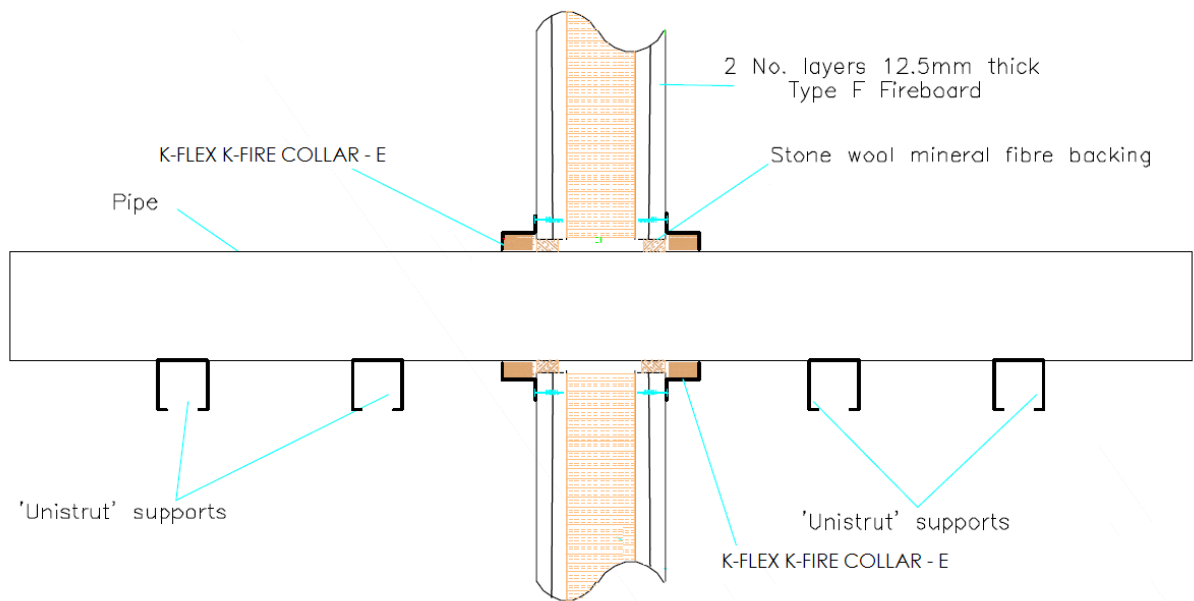
ANNEX A – Resistance to Fire Classification – K-FLEX K-FIRE COLLAR - E

A.1 Flexible or rigid wall constructions with wall thickness of minimum 100 mm

A.1.1 Penetration seals, in drywalls and concrete/masonry walls

Penetration Seal: Combustible pipes fitted with K-FLEX K-FIRE COLLAR - E, to both sides of the wall.

Construction details:



A.1.1.1

Services	Collar Inlay	Classification
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1		
Diameter 32 mm, wall thickness 1.2-3.7 mm	30 x 3.0 mm	E 90 U/C, E 90 C/C EI 60 U/C, EI 60 C/C
Diameter 40 mm, wall thickness 1.2-3.7 mm		
Diameter 50 mm, wall thickness 1.2-3.7 mm		
Diameter 55 mm, wall thickness 2.7-6.6 mm	30 x 3.2 mm	EI 60 U/C, EI 60 C/C
Diameter 63 mm, wall thickness 2.7-6.6 mm	30 x 3.6 mm	
Diameter 75 mm, wall thickness 2.7-6.6 mm	30 x 4.2 mm	
Diameter 82 mm, wall thickness 2.7-6.6 mm	30 x 4.6 mm	
Diameter 90 mm, wall thickness 2.7-6.6 mm	30 x 5.0 mm	
Diameter 110 mm, wall thickness 2.7-6.6 mm	30 x 6.0 mm	
Diameter 125 mm, wall thickness 3.2-9.5 mm	50 x 9.0 mm	
Diameter 140 mm, wall thickness 3.2-9.5 mm	50 x 11.5 mm	
Diameter 160 mm, wall thickness 3.2-9.5 mm	50 x 15.0 mm	EI 90 U/C, EI 90 C/C
Diameter 32 mm, wall thickness 2.4-4.6 mm	30 x 3.0 mm	E 90 U/U, E 90 C/U, E 90 U/C, E 90 C/C EI 60 U/U, EI 60 C/U, EI 60 U/C, EI 60 C/C
Diameter 40 mm, wall thickness 2.4-4.6 mm		
Diameter 50 mm, wall thickness 2.4-4.6 mm		
Diameter 55 mm, wall thickness 2.7-6.6 mm	50 x 3.2 mm	
Diameter 63 mm, wall thickness 2.7-6.6 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 2.7-6.6 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 2.7-6.6 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 2.7-6.6 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 2.7-6.6 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 3.2-9.5 mm	60 x 9.0 mm	
Diameter 140 mm, wall thickness 3.2-9.5 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 3.2-9.5 mm	60 x 15.0 mm	
Diameter 315 mm, wall thickness 9.2 mm	75 x 18 mm	EI 60 C/C

A.1.1.2

Services	Collar Inlay	Classification
PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1		
Diameter 32 mm, wall thickness 3.0-5.6 mm	30 x 3.0 mm	E 90 U/C, E 90 C/C EI 60 U/C, EI 60 C/C
Diameter 40 mm, wall thickness 3.0-5.6 mm		
Diameter 50 mm, wall thickness 3.0-5.6 mm		
Diameter 55 mm, wall thickness 3.4-10.0 mm	30 x 3.2 mm	EI 60 U/C, EI 60 C/C
Diameter 63 mm, wall thickness 3.4-10.0 mm	30 x 3.6 mm	
Diameter 75 mm, wall thickness 3.4-10.0 mm	30 x 4.2 mm	
Diameter 82 mm, wall thickness 3.4-10.0 mm	30 x 4.6 mm	
Diameter 90 mm, wall thickness 3.4-10.0 mm	30 x 5.0 mm	
Diameter 110 mm, wall thickness 3.4-10.0 mm	30 x 6.0 mm	
Diameter 125 mm, wall thickness 6.2-9.5 mm	50 x 9.0 mm	
Diameter 140 mm, wall thickness 6.2-9.5 mm	50 x 11.5 mm	
Diameter 160 mm, wall thickness 6.2-9.5 mm	50 x 15.0 mm	
Diameter 32 mm, wall thickness 3.0-4.6 mm	30 x 3.0 mm	
Diameter 40 mm, wall thickness 3.0-4.6 mm		
Diameter 50 mm, wall thickness 3.0-4.6 mm		
Diameter 55 mm, wall thickness 3.4-10.0 mm	50 x 3.2 mm	
Diameter 63 mm, wall thickness 3.4-10.0 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 3.4-10.0 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 3.4-10.0 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 3.4-10.0 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 3.4-10.0 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 4.9-14.6 mm	60 x 9.0 mm	E 90 U/U, E 90 C/U, E 90 U/C, E 90 C/C EI 60 U/U, EI 60 C/U, EI 60 U/C, EI 60 C/C
Diameter 140 mm, wall thickness 4.9-14.6 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 4.9-14.6 mm	60 x 15.0 mm	EI 90 U/U, EI 90 C/U, EI 90 U/C, EI 90 C/C
Diameter 200 mm, wall thickness 18.2 mm	75 x 10.8 mm	EI 60 C/C
Diameter 250 mm, wall thickness 22.7 mm	75 x 12.6 mm	

A.1.1.3

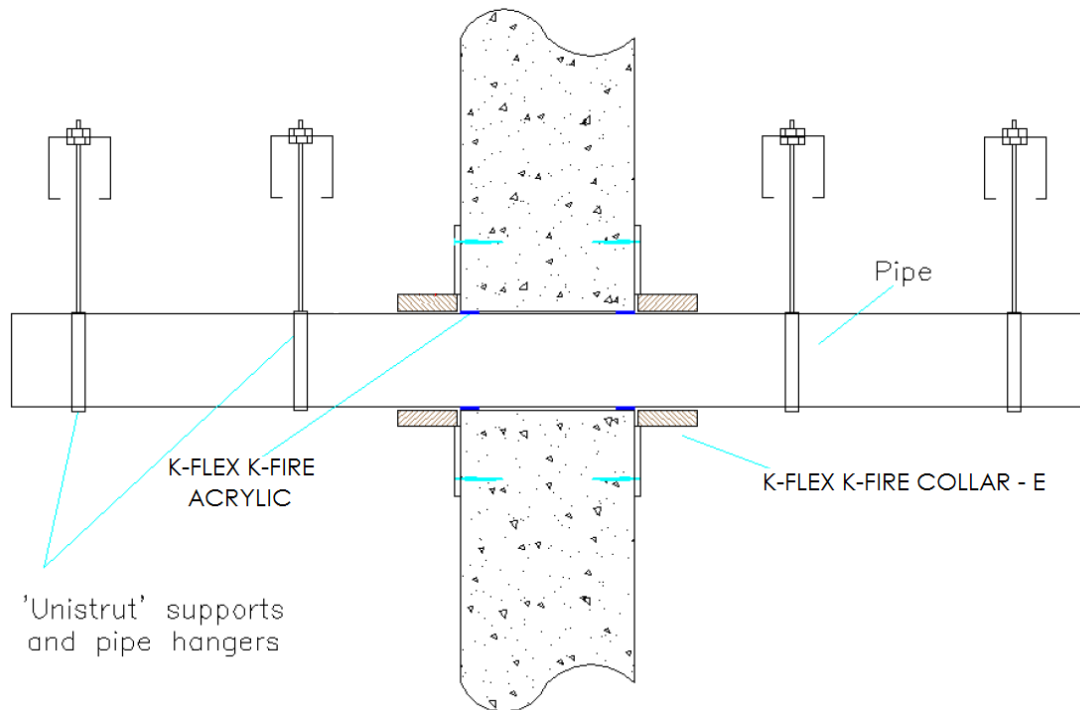
Services	Collar Inlay	Classification
PP pipe according to EN 1451-1		
Diameter 32 mm, wall thickness 3.0-5.6 mm	30 x 3.0 mm	E 90 U/C, E 90 C/C EI 60 U/C, EI 60 C/C
Diameter 40 mm, wall thickness 3.0-5.6 mm		
Diameter 50 mm, wall thickness 3.0-5.6 mm		
Diameter 55 mm, wall thickness 3.4-6.3 mm	30 x 3.2 mm	
Diameter 63 mm, wall thickness 3.4-6.3 mm	30 x 3.6 mm	
Diameter 75 mm, wall thickness 3.4-6.3 mm	30 x 4.2 mm	
Diameter 82 mm, wall thickness 3.4-6.3 mm	30 x 4.6 mm	
Diameter 90 mm, wall thickness 3.4-6.3 mm	30 x 5.0 mm	
Diameter 110 mm, wall thickness 3.4-6.3 mm	30 x 6.0 mm	
Diameter 125 mm, wall thickness 4.9-14.6 mm	50 x 9.0 mm	
Diameter 140 mm, wall thickness 4.9-14.6 mm	50 x 11.5 mm	
Diameter 160 mm, wall thickness 4.9-14.6 mm	50 x 15.0 mm	
Diameter 32 mm, wall thickness 1.8-4.6 mm	30 x 3.0 mm	E 90 U/U, E 90 C/U, E 90 U/C, E 90 C/C EI 60 U/U, EI 60 C/U, EI 60 U/C, EI 60 C/C
Diameter 40 mm, wall thickness 1.8-4.6 mm		
Diameter 50 mm, wall thickness 1.8-4.6 mm		
Diameter 55 mm, wall thickness 3.4-6.6 mm	50 x 3.2 mm	
Diameter 63 mm, wall thickness 3.4-6.6 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 3.4-6.6 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 3.4-6.6 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 3.4-6.6 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 3.4-6.6 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 4.9-14.6 mm	60 x 9.0 mm	
Diameter 140 mm, wall thickness 4.9-14.6 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 4.9-14.6 mm	60 x 15.0 mm	

A.2 Rigid walls constructions with wall thickness of minimum 150 mm

A.2.1 Penetration seals, in concrete/masonry walls

Penetration Seal: Combustible pipes fitted with K-FLEX K-FIRE COLLAR - E, to both sides of the wall.

Construction details:



A.2.1.1

Services	Collar Inlay	Classification
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1		
Diameter 32 mm, wall thickness 2.0-3.7 mm	50 x 3.0 mm	E 240 U/U, E 240 C/U, E 240 U/C, E 240 C/C EI 180 U/U, EI 180 C/U, EI 180 U/C, EI 180 C/C
Diameter 40 mm, wall thickness 2.0-3.7 mm		
Diameter 50 mm, wall thickness 2.0-3.7 mm		
Diameter 55 mm, wall thickness 2.7-6.6 mm	50 x 3.2 mm	EI 180 U/U, EI 180 C/U, EI 180 U/C, EI 180 C/C
Diameter 63 mm, wall thickness 2.7-6.6 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 2.7-6.6 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 2.7-6.6 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 2.7-6.6 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 2.7-6.6 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 4.0-9.5 mm	60 x 9.0 mm	EI 240 U/U, EI 240 C/U, EI 240 U/C, EI 240 C/C
Diameter 140 mm, wall thickness 4.0-9.5 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 4.0-9.5 mm	60 x 15.0 mm	
Diameter 315 mm, wall thickness 9.2 mm	75 x 18 mm	EI 120 C/C

A.2.1.2

Services	Collar Inlay	Classification
PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1		
Diameter 32 mm, wall thickness 3.0-4.6 mm	50 x 3.0 mm	EI 240 U/U, EI 240 C/U, EI 240 U/C, EI 240 C/C
Diameter 40 mm, wall thickness 3.0-4.6 mm		
Diameter 50 mm, wall thickness 3.0-4.6 mm		
Diameter 55 mm, wall thickness 3.4mm	50 x 3.2 mm	E 240 U/U, E 240 C/U, E 240 U/C, E 240 C/C EI 180 U/U, EI 180 C/U, EI 180 U/C, EI 180 C/C
Diameter 63 mm, wall thickness 3.4 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 3.4mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 3.4 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 3.4 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 3.4 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 4.9-9.5 mm	60 x 9.0 mm	
Diameter 140 mm, wall thickness 4.9-9.5 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 4.9-9.5 mm	60 x 15.0 mm	
Diameter 200 mm, wall thickness 18.2 mm	75 x 10.8 mm	EI 60 C/C
Diameter 250 mm, wall thickness 22.7 mm	75 x 12.6 mm	E 120 C/C EI 90 C/C

A.2.1.3

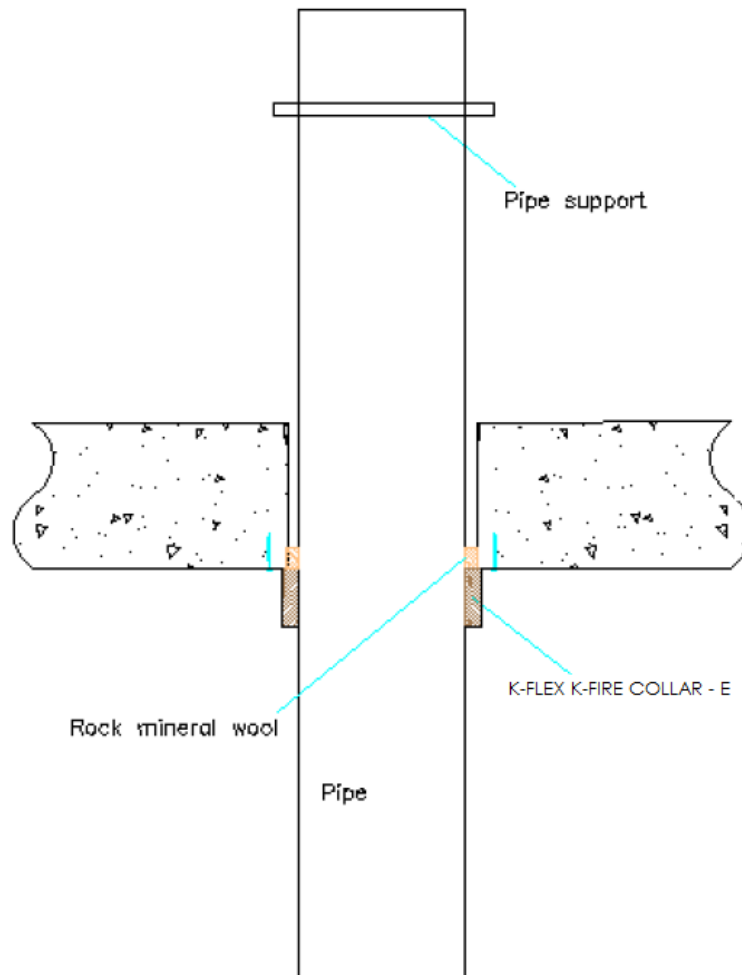
Services	Collar Inlay	Classification
PP pipe according to EN 1451-1		
Diameter 32 mm, wall thickness 1.6-5.5 mm	50 x 3.0 mm	EI 240 U/C, EI 240 C/C
Diameter 40 mm, wall thickness 1.6-5.5 mm		
Diameter 50 mm, wall thickness 1.6-5.5 mm		
Diameter 55 mm, wall thickness 2.7-10.0 mm	50 x 3.2 mm	
Diameter 63 mm, wall thickness 2.7-10.0 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 2.7-10.0 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 2.7-10.0 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 2.7-10.0 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 2.7-10.0 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 4.9-14.6 mm	60 x 9.0 mm	
Diameter 140 mm, wall thickness 4.9-14.6 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 4.9-14.6 mm	60 x 15.0 mm	
Diameter 32 mm, wall thickness 1.6-5.5 mm	30 x 3.0 mm	EI 240 U/U, EI 240 C/U, EI 240 U/C, EI 240 C/C
Diameter 40 mm, wall thickness 1.6-5.5 mm		
Diameter 50 mm, wall thickness 1.6-5.5 mm		
Diameter 55 mm, wall thickness 2.7-10.0 mm	50 x 3.2 mm	E 240 U/U, E 240 C/U, E 240 U/C, E 240 C/C EI 60 U/U, EI 60 C/U, EI 60 U/C, EI 60 C/C
Diameter 63 mm, wall thickness 2.7-10.0 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 2.7-10.0 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 2.7-10.0 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 2.7-10.0 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 2.7-10.0 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 4.9-14.6 mm	60 x 9.0 mm	
Diameter 140 mm, wall thickness 4.9-14.6 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 4.9-14.6 mm	60 x 15.0 mm	

A.3 Rigid floor constructions with floor thickness of minimum 150 mm

A.3.1 Penetration seals, surface mounted in concrete floors

Penetration Seal: Combustible pipes fitted with K-FLEX K-FIRE COLLAR - E, to the soffit of the floor.

Construction details:



A.3.1.1

Services	Collar Inlay	Classification
PVC-U pipe according to EN 1329-1, EN 1452-1 and EN 1453-1 and PVC-C according to EN 1566-1		
Diameter 32 mm, wall thickness 2.0-3.7 mm	50 x 3.0 mm	EI 120 U/C, EI 120 C/C
Diameter 40 mm, wall thickness 2.0-3.7 mm		
Diameter 50 mm, wall thickness 2.0-3.7 mm		
Diameter 55 mm, wall thickness 6.3 mm	50 x 3.2 mm	
Diameter 63 mm, wall thickness 6.3 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 6.3 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 6.3 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 6.3 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 6.3 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 4.0-9.5 mm	60 x 9.0 mm	
Diameter 140 mm, wall thickness 4.0-9.5 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 4.0-9.5 mm	60 x 15.0 mm	
Diameter 160 mm, wall thickness 3.2-9.5 mm	50 x 15.0 mm	E 180 U/C, E 180 C/C EI 90 U/C, EI 90 C/C
Diameter 32 mm, wall thickness 1.9-3.7 mm	30 x 3.0 mm	E 90 U/U, E 90 C/U, E 90 U/C, E 90 C/C EI 60 U/U, EI 60 C/U, EI 60 U/C, EI 60 C/C
Diameter 40 mm, wall thickness 1.9-3.7 mm		
Diameter 50 mm, wall thickness 2.0-3.7 mm		
Diameter 55 mm, wall thickness 3.2-6.6 mm	30 x 3.2 mm	EI 60 U/U, EI 60 C/U, EI 60 U/C, EI 60 C/C
Diameter 63 mm, wall thickness 3.2-6.6 mm	30 x 3.6 mm	
Diameter 75 mm, wall thickness 3.2-6.6 mm	30 x 4.2 mm	
Diameter 82 mm, wall thickness 3.2-6.6 mm	30 x 4.6 mm	
Diameter 90 mm, wall thickness 3.2-6.6 mm	30 x 5.0 mm	
Diameter 110 mm, wall thickness 3.2-6.6 mm	30 x 6.0 mm	
Diameter 125 mm, wall thickness 3.2-9.5 mm	60 x 9.0 mm	
Diameter 140 mm, wall thickness 3.2-9.5 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 3.2-9.5 mm	60 x 15.0 mm	

A.3.1.2

Services	Collar Inlay	Classification
PE pipe according to EN 1519-1, EN 12201-2 and EN 12666-1, ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1		
Diameter 32 mm, wall thickness 3.0-4.6 mm	50 x 3.0 mm	EI 120 U/C, EI 120 C/C
Diameter 40 mm, wall thickness 3.0-4.6 mm		
Diameter 50 mm, wall thickness 3.0-4.6 mm		
Diameter 55 mm, wall thickness 3.4-10.0 mm	50 x 3.2 mm	
Diameter 63 mm, wall thickness 3.4-10.0 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 3.4-10.0 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 3.4-10.0 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 3.4-10.0 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 3.4-10.0 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 4.9-14.7 mm	50 x 9.0 mm	
Diameter 140 mm, wall thickness 4.9-14.7 mm	50 x 11.5 mm	
Diameter 160 mm, wall thickness 4.9-14.7 mm	50 x 15.0 mm	E 180 U/C, E 180 C/C EI 120 U/C, EI 120 C/C
Diameter 32 mm, wall thickness 3.0-4.6 mm	30 x 3.0 mm	EI 60 U/U, EI 60 C/U, EI 60 U/C, EI 60 C/C
Diameter 40 mm, wall thickness 3.0-4.6 mm		
Diameter 50 mm, wall thickness 3.0-4.6 mm		
Diameter 55 mm, wall thickness 3.4-10.0 mm	50 x 3.2 mm	
Diameter 63 mm, wall thickness 3.4-10.0 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 3.4-10.0 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 3.4-10.0 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 3.4-10.0 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 3.4-10.0 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 4.9-14.6 mm	60 x 9.0 mm	
Diameter 140 mm, wall thickness 4.9-14.6 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 4.9-14.6 mm	60 x 15.0 mm	

A.3.1.3

Services	Collar Inlay	Classification
PP pipe according to EN 1451-1		
Diameter 32 mm, wall thickness 1.9-2.9 mm	30 x 3.0 mm	EI 120 U/C, EI 120 C/C
Diameter 40 mm, wall thickness 1.9-2.9 mm		
Diameter 50 mm, wall thickness 1.9-2.9 mm		
Diameter 55 mm, wall thickness 2.7-6.6 mm	50 x 3.2 mm	
Diameter 63 mm, wall thickness 2.7-6.6 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 2.7-6.6 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 2.7-6.6 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 2.7-6.6 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 2.7-6.6 mm	50 x 6.0 mm	
Diameter 125 mm, wall thickness 9.5-14.6 mm	50 x 9.0 mm	EI 60 U/C, EI 60 C/C
Diameter 140 mm, wall thickness 9.5-14.6 mm	50 x 11.5 mm	
Diameter 160 mm, wall thickness 9.5-14.6 mm	50 x 15.0 mm	
Diameter 125 mm, wall thickness 4.9-14.6 mm	60 x 9.0 mm	EI 120 U/C, EI 120 C/C
Diameter 140 mm, wall thickness 4.9-14.6 mm	60 x 11.5 mm	
Diameter 160 mm, wall thickness 4.9-14.6 mm	60 x 15.0 mm	EI 180 U/C, EI 180 C/C
Diameter 32 mm, wall thickness 1.8-4.6 mm	30 x 3.0 mm	EI 120 U/U, EI 120 C/U, EI 120 U/C, EI 120 C/C
Diameter 40 mm, wall thickness 1.8-4.6 mm		
Diameter 50 mm, wall thickness 1.8-4.6 mm		
Diameter 55 mm, wall thickness 2.7-6.6 mm	50 x 3.2 mm	EI 60 U/U, EI 60 C/U, EI 60 U/C, EI 60 C/C
Diameter 63 mm, wall thickness 2.7-6.6 mm	50 x 3.6 mm	
Diameter 75 mm, wall thickness 2.7-6.6 mm	50 x 4.2 mm	
Diameter 82 mm, wall thickness 2.7-6.6 mm	50 x 4.6 mm	
Diameter 90 mm, wall thickness 2.7-6.6 mm	50 x 5.0 mm	
Diameter 110 mm, wall thickness 2.7-6.6 mm	50 x 6.0 mm	