DOCUMENTATION

RISEFR 030-0256

With reference to the national code of building regulations of 27 June 2008 with the Norwegian building regulations of 1 July 2017 (TEK17) and belonging guidance, we document, on the basis of test certificates, evaluations and installation instructions, that this product meets the requirements of the Norwegian authorities as to the fire related qualities.

Building material: **FIRESAFE WRAP LX for Alu-PEX pipe, plastic pipe and metal pipe**
(The product is also marketed by ISOVER under the trade name ISOVER FIRE SEALING STRIP and by GLAVA AS under the trade name GLAVA WRAP on Roll)

Product responsible: **FIRESAFE AS**
Box 6411 Etterstad, 0605 Oslo, Norway

The documentation is conditional on that the product is in accordance with the specifications given in the appendix and that the products is applied and used in accordance with regulations and all important details in this process follow precisely what is described in an instruction manual, which is checked by RISE Fire Research AS. Both the instruction manual and the RISE Fire Research AS Documentation shall follow the product or be available for the purchaser, user, inspector and the local authority.

The product shall be labeled with **RISEFR 030-0256**, trade name, product responsible and/or manufacturer together with a reference to the production for traceability. The labelling shall have good visibility.

Detailed product design and principle design of installation details are described in "Standard construction details for FIRESAFE WRAP LX for Alu- PEX pipe, plastic pipe og metallic pipe, belonging to Documentation **RISEFR 030-0256** ". The version of the construction details filed at RISE Fire Research AS at any time is a formal part of the approval.

The product must have at least one annual, external inspection related to the internal system for control of quality. The inspection is adjusted to the type of product and other existing inspection arrangements. Details are specified in a written agreement with RISE Fire Research AS.

First issued: **2009-10-28.** A renewal may be issued based on a written application. Termination by the applicant shall be asked for in writing and with 6 months notice. RISE Fire Research AS may withdraw this documentation when irregularities or misuse happens and written instructions are not respected.

Issued: 2017-12-20
Valid until: 2023-01-01

Asbjørn Østnor
Discipline Manager Documentation

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Project Manager Documentation

This document is an English version of the Norwegian documentation RISEFR 030-0256 dated 2017-12-20.

RISE Fire Research AS

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Appendix 1 to Documentation RISEFR 030-0256 av 2017-12-20

1. Owner of the Documentation

Firesafe as
Box 6411 Etterstad,
0605 Oslo,
Norway
www.firesafe.no

2. Manufacturer

Firesafe AS, Norway.

3. Product Description

FIRESAFE WRAP LX is a wrap penetration seal for sealing of Alu-PEX pipes, plastic pipes and metallic pipes in walls and floors. FIRESAFE WRAP LX is marketed in individual packages or in rolls à 18 m. For installation of an individual wrap a single wrap is used only, which is adapted the dimension of the pipe. In the case of rolls, the number of overlaps is shown in the tables in the installation manual.

4. Fields of Application

Typical range of use for FIRESAFE WRAP LX are penetration seals for plastic and Alu-PEX pipes in walls and floors, as well as wraps for plastic pipes (PVC, Friaphon, PE and PP) and metallic pipes (steel- and copper pipes). **FIRESAFE WRAP LX can be used in situations where it is required a corresponding fire resistance of class 'EI' according to TEK (The Norwegian building regulations) equivalent to the fire resistance in Table 1, 2 and 3 on page 4.**

5. Properties

Table 1, 2 and 3 shows the fire resistance of FIRESAFE WRAP LX adapted to the actual dimensions of Alu-PEX-pipes, plastic pipes and metallic pipes, respectively.

6. Special Conditions for Use and Installation

Firesafe LX shall be installed according to installation details shown in "Standard Construction Details for the product belonging to RISE Fire Research AS documentation RISEFR 030-0256".

I. Alu-PEX pipe (Alu-PEX pipe, JRG Sanipex MT and Radopress).

Product name: FIRESAFE WRAP LX for Alu-PEX pipe.

Penetration seal for plastic pipes and Alu-PEX pipes in walls and floors. The aperture for the penetration seal has to be ≤ 600 mm x 700 mm or 0.42 m^2.

Fig.1
FIRESAFE WRAP LX / GLAVA WRAP on Roll.

For large apertures in the walls of bricked/casted or flexible constructions of thickness ≥ 100 mm is sealed one sided with FIRESAFE GPG MORTAR, or FS Fire Board CB511/ CB512 of mineral wool 120 kg/m^3 of thickness 2 x 50 mm painted with Intumex CSP.

For large apertures in the floors of bricked/casted constructions of thickness ≥ 150 mm is sealed one sided with FIRESAFE GPG MORTAR, or FS-Fire Board CB511/ CB512 of mineral wool 120 kg/m^3, of thickness 2 x 50 mm painted with Intumex CSP.

In case of smaller circular openings between the wrap and the aperture in floors/walls of bricked/casted or flexible structures, the penetration shall be sealed with the fire classified sealant FS Acrylic or FS-Heat Expanding EX.

LS[1)]: The pipe must have continuous pipe insulation of type «AF/Armeflex»/«Kaiflex» or adequate with minimum Euroclass B/B_L,s3-d0. Pipe insulation thickness from 6 mm to 32 mm must be used.

II. Plastic pipes (PVC, Friaphon, PE and PP)

Product name: FIRESAFE WRAP LX for plastic pipes.

The aperture for the penetration seal has to be ≤ 1000 mm x 800 mm, or ≤ 0.8 m^2.

For large apertures in the walls of bricked/casted or flexible structures of thickness ≥ 100 mm shall be sealed one sided with FS - GPG gypsum based mortar, or FS-Fire Board CB511/ CB512 of mineral wool 120 kg/m^3, of thickness 2 x 50 mm painted with Intumex CSP.

For large apertures in the floors of bricked/casted structures of thickness ≥ 150 mm shall be sealed one-sided with FIRESAFE GPG MORTAR, or FS-Fire Board CB511/ CB512 Intumex CSP of mineral wool 120 kg/m^3, of thickness 2 x 50 mm.

In case of smaller circular openings between the wrap and the aperture in floors/walls of bricked/casted or flexible structures, the penetration shall be sealed with the fire classified sealant FS-Acrylic or FS-Heat Expanding EX.

Table 2 on page 4 shows the fire resistance of the FIRESAFE WRAP LX for plastic pipes adapted to the actual dimensions for plastic pipes.

III. Metallic (steel and copper pipes)

Product name: FIRESAFE WRAP LX for metallic pipes.

The aperture for the penetration seal has to be ≤ 600 mm x 700 mm, or 0.42 m^2.

In walls of bricked/casted or plasterboard structures of thickness ≥ 100 mm, the aperture shall be sealed two-sided with FIRESAFE GPG MORTAR or equivalent and it shall be used a FIRESAFE WRAP LX on both sides of the wall flush with the wall/fire sealing.

In floors of casted structures with thickness ≥ 150 mm, the aperture is sealed on the underside with FIRESAFE GPG MORTAR or equivalent and it shall be used a FIRESAFE WRAP LX on the underside of the floor flush with the cover / fire sealing.

LS[1)]: The pipe must have continuous pipe insulation of type «AF/Armeflex»/«Kaiflex» or adequate with minimum Euroclass B/B_L,s3-d0. Pipe insulation thickness from 6 mm to 32 mm must be used.

Table 3 on page 4 shows the fire resistance of the FIRESAFE WRAP LX for metallic pipes.

7. Basis for the Documentation

This documentation is based on the properties that are documented in the following reports:

- PAVUS (Czech Republic): Report Pr-09-2.0009 of 2009-04-21 according to NS EN 1366-3:2009.

8. Validity

The validity of the appendix is uniquely linked to the first page of the document with the requirements, conditions and time stamps that are presented there.

9. Technical Management

Project manager for this approval is Jan P. Stensaas, Project Manager Documentation, RISE Fire Research AS, Trondheim, Norway.

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1) **Forkortelser**

Pipe insulation (ref. NS-EN 1366-3: 2009, Tabell 1):
LS: The insulation with given length from the wall/floor on both sides and within the penetration.

In the following tables there is a abriviations, which is defined as follows:

Pipe termination in test (ref. NS-EN 1366-3: 2009, Table 2):
U/C: «Uncapped/Capped», open/closed, unventilated pipe systems, e.g. cold or hot water pipes.

Table 1
Fire resistance of FIRESAFE WRAP LX adapted to the actual pipe dimensions for *Alu-PEX pipes.*

Diameter of Alu-PEX pipe (mm)	Pipe termination*)	Thickness of pipe material (mm)	Thickness of aluminum (mm)	# layers of wraps (thickness x width 2.5 x 50 (mm))	Thickness of insulation (mm)	Thickness of fire partition*) (mm)	Fire resistance (minutes)***
≤ Ø 75	U/C	≤ 4,7	≤ 1,3	1	6 - 32	Wall ≥ 100	60
≤ Ø 63	U/C	≤ 4,5	≤ 1,8	1	6 - 32	Wall ≥ 100	120
≤ Ø 63	U/C	≤ 4,5	≤ 1,8	1	6	Floor ≥ 150	60
≤ Ø 63	U/C	≤ 4,5	≤ 1,8	1	32	Floor ≥ 150	120
≤ Ø 16	U/C	≤ 2,0	≤ 0,4	1	6 - 32	Floor ≥ 150	120

Table 2
Fire resistance of FIRESAFE WRAP LX adapted to the actual pipe dimensions for *plastic pipes.*

Pipe material and diameter (mm)	Pipe termination*)	Thickness of pipe material (mm	# layers of wraps (thickness x width 2.5 x 50 (mm))	Thickness of fire partition* (mm)	Fire resistance (minutes)***
PVC/ Friaphon ≤ Ø160	U/C	≤ 11,8	4	Wall ≥ 100 Floor ≥ 150	120
PP/ PE ≤ Ø160	U/C	≤ 14,6	4	”	120
PVC/ Friaphon/ PP/ PE ≤ Ø125	U/C	≤ 11,4	3	”	120
PVC/ Friaphon ≤ Ø110	U/C	≤ 8,1	2	”	120
PP/ PE ≤ Ø110	U/C	≤ 10	2	”	120
PVC/ Friaphon/ PP/ PE ≤ Ø90	U/C	≤ 4,9	1	”	120

Table 3
Fire resistance of FIRESAFE WRAP LX adapted to the actual pipe dimensions for *metallic pipes.*

Pipe material and diameter (mm)	Pipe termination*)	Thickness of pipe material (mm	# layers of wraps (thickness x width 2.5 x 50 (mm))	Thickness of fire partition* (mm)	Fire resistance (minutes)***
Steel pipes ≤ Ø50	U/C	≤ 2,0	1	Wall ≥ 100 Floor ≥ 150	120
Steel pipes ≤ Ø220	U/C	≤ 10	1	Wall ≥ 100	90
Steel pipes ≤ Ø220	U/C	≤ 10	1	Floor ≥ 150	60
Cu- pipes ≤ Ø20	U/C	≤ 2,0	1	Wall ≥ 100 Floor ≥ 150	90
Cu- pipes ≤ Ø88,9	U/C	≤ 2,0	1	Wall ≥ 100	90
Cu- pipes ≤ 2 x Ø88,9	U/C	≤ 2,0	1	Floor ≥ 150	30

*) U/C: «Uncapped/Capped», open/closed, unventilated pipe systems, e.g. cold or hot water pipes.

**) Wall of gypsum board or concrete with thickness ≥ 100 mm, or Floor of concrete with thickness ≥ 150 mm.
Wall: The wraps are mounted on the pipes visible at the outer edge, one on both sides flush with the wall/fire sealing.
Floor: The wrap is mounted on the pipes visible at the outer edge, on the underside flush with the floor/fire sealing.

***) **Firesafe Wrap LX Seals can be used in situations where it is required a corresponding fire resistance of class 'EI' according to TEK17 (The Norwegian building regulations of 2017).**