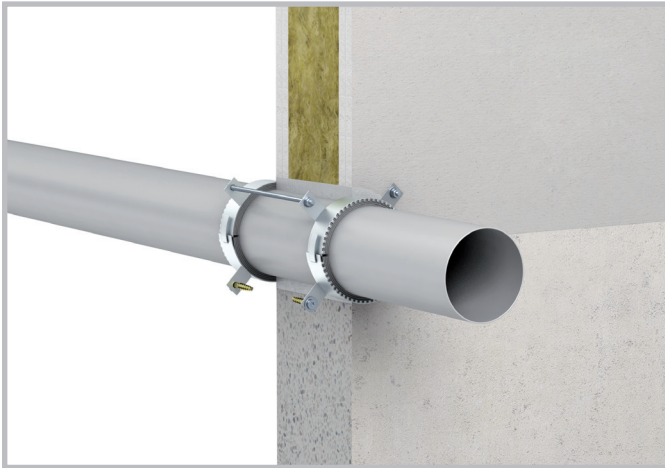


Assembly Instruction

FLAMRO Variant N-B

According to ETA-15/0677



Content

Target audience, usage of assembly instruction, safety information	2
Components	3
Application field (Component strength, insulation strength and distances)	3
Approved assignments and classifications	4
Approved assignment – wall	4
Approved assignment – floor	6
Applied products	10
Arrangement of the first support (backings)	10
Assembly steps	11
Declaration of performance	12

Assembly Instruction

FLAMRO Variant N-B

According to ETA-15/0677

Target audience

This assembly instruction is addressed exclusively to trained experts on fire technology.

Usage of assembly instruction

- Please read through the lot of this assembly instruction carefully prior to work start. Regard in particular the following safety information.
- The holder of assessment assumes no liability for damages which are caused by disregard for this assembly instruction.
- Graphic depictions serve as examples only. Assembly results may vary visually.

Safety information

For processing of partition components, please regard the safety data sheets.







Protection and hygiene measures:

- Observe the usual precautions when handling chemicals. Wash hands before work breaks and immediately after handling the product. Avoid contact with skin, eyes and clothing. Take off stained or soaked clothes immediately.

Eye wash with clean water (EN 15154).

Wear closed work clothing.

	<p>Respiratory protection - Dust mask When exposure limit is exceeded (e.g. possible when turning on), use particle-filtering half mask FFP 1 (white).</p>
	<p>Hand protection - Protective gloves Use waterproof, abrasion- and alkali-resistant nitrile gloves. Different requirements can result depending on application. Therefore observe additional recommendations by the protective gloves' manufacturer.</p>
	<p>Eye protection – Use safety goggles</p>
	<p>Body protection – Use protective work wear</p>

Do not eat, drink or smoke during work. After work is finished, wash all uncovered body parts with water and soap thoroughly.

Assembly Instruction

FLAMRO Variant N-B

According to ETA-15/0677

Components

Rigid walls

The wall must have a minimum thickness of ≥ 100 mm and consist of concrete, aerated concrete or masonry.
The wall shall be classified in accordance to EN 13501 - 2 for the required fire resistance period.

Lightweight partition walls

Lightweight partition walls must have a minimum thickness of ≥ 94 mm and consist of steel stands (U and C profiles; 0,5 - 1,5 mm thickness) which are to be coated on both sides with at least two layers of 12,5 mm thick panels of classification A2-s1, d0 oder A1 in accordance to EN 13501-1.

Additionally, wood stands can be used instead of steel stands. In this context, it should be noted that there must be a minimum distance of 100 mm between wood stands and partition. The insulation in between those stands must be at least comply with the building material class A1 or A2 (in accordance to EN 13501-1) and have a raw density of 85 - 115 kg/m³ (in accordance to EN 1363-1).

The soffit revetment must be built from steel stands with a minimum thickness of 0,6 mm and panels of the same specifications as of the wall.

The supporting structure must be classified for the necessary fire resistance duration in accordance to EN 13501-2.

Rigid walls

The floor must have a minimum thickness of ≥ 150 mm and consist of concrete or aerated concrete with a minimum raw density of 550 kg / m³.
The rigid floor shall be classified in accordance with EN 13501 - 2 for the required fire resistance period.

Application field

Identifier	Wall	Lightweight partition walls	Floor
Thickness of the component	≥ 100 mm	≥ 94 mm	≥ 150 mm
Maximal size of isolated combustible pipelines	≤ 160 mm	≤ 160 mm	≥ 160 mm
Distance to other openings or installations	≥ 100 mm	≥ 100 mm	≥ 100 mm
Distance to other openings or installations when component reveal is not larger than 200 mm x 200 mm	≥ 100 mm	≥ 100 mm	≥ 100 mm

Assembly Instruction

FLAMRO Variant N-B

in accordance to ETA-15/0677

Approved assignments and classifications

The pipe screening can be used on straight pipes arranged perpendicular to the wall or floor surface. The pipelines must be intended for non-combustible liquids or gases, for pneumatic conveying systems or vacuum lines only. Pneumatic conveying systems, compressed air lines or alike must be turned off through additional measures in the case of fire.

No ventilation systems

BLUE Power Rohre without insulation - wall -					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8 to 5.6	2 x 2	120	120	U/C
≤ 50 to ≤ 75	1.8 to 8.4	2 x 3			
>75 to ≤ 110	1.8 to 12.3	2 x 4			
>110 to ≤ 125	2.2 to 12,2	2 x 5			
≤ 160	3.2 to 11.9	2 x 6			
The classification of PVC-U pipes according to EN 1453-1, EN 1329-1 or EN 1452-1 also applies for PVC-C pipes according to EN 1566-1.					

PE-HD pipes in accordance to EN 1452-1 without insulation – wall –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8 to 4.6	2 x 2	120	120	U/C
≤ 50 to ≤ 75	1.8 to 8.4	2 x 3			
>75 to ≤ 110	2.7 to 10.0	2 x 4			
The classification of PE-HD pipes according to EN 1519-1 and EN 12666-1 also applies for PE pipes according to EN 12201-2, EN 1519-1 and EN 12666-1 as well as for ABS pipes according to EN 1455-1 and SAN+PVC pipes according to EN 1565-1.					

PP pipes according to EN 1452-1 without insulation – wall –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8 to 4.6	2 x 2	120	120	U/C
≤ 50 to ≤ 75	1.8 to 8.4	2 x 3			
> 75 to ≤ 110	2.7 to 10.0	2 x 4			
≤ 125	3.9 to 12.2	2 x 5	90	90	
≤ 160	> 4.0 to 14.6	2 x 6			

BLUE Power pipes without insulation – wall –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8	2 x 2	120	120	U/C
≤ 75	2.5	2 x 3			
≤ 110	3.4	2 x 4			

Assembly Instruction

FLAMRO Variant N-B

According to ETA-15/0677

Wawin SITECH pipes without insulation – wall –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	2.0	2 x 2	120	120	U/C
≤ 75	2.6	2 x 3		90	
≤ 110	3.6	2 x 4			

aquatherm green pipe MS Rohre without insulation – wall –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 16	2.2	2 x 2	120	120	U/C
≤ 50	6.9	2 x 2			
≤ 75	10.4	2 x 3			
≤ 110	15.2	2 x 4			
with covered pipe diameters (mm) / pipe wall thicknesses (mm)					
20-2.8 / 25-3.5 / 32-4.5 / 40-5.6 / 63-8.7 / 90-12.5					

Geberit Silent PP pipes without insulation – wall –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	2.0	2 x 2	120	120	U/C
≤ 75	2.6	2 x 3		90	
≤ 110	3.6	2 x 4			

PE-HD pipes in accordance to EN 1519-1 without insulation – wall –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8	2 x 2	120	120	U/C
≤ 75	1.9	2 x 3			
≤ 110	2.7	2 x 4			
≤ 125	3.1	2 x 5			
≤ 160	3.6	2 x 6			

Rehau Raupiano Plus pipes without insulation – wall –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8	2 x 2	120	120	U/C
≤ 75	1.9	2 x 3			
≤ 110	2.7	2 x 4			
≤ 125	3.1	2 x 5			
≤ 160	3.6	2 x 6			

Assembly Instruction

FLAMRO Variant N-B

According to ETA-15/0677

Triplus 3 layer sound insulation pipes without insulation – floor –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8	2 x 2	120	120	U/C
≤ 75	2.5	2 x 3			
≤ 90	3.1	2 x 4			

PVC-U pipes according to EN 1452-1 without insulation – floor –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8 to 5.6	2	240	240	U/C
≤ 50 to ≤ 75	1.8 to 8.4	3			
>75 to ≤ 110	1.8 to 12.3	4			
>75 to ≤ 110	2.2 to 12.1	5	120	120	
≤ 125	12.1	5	240	240	
≤ 160	3.2 to 11.9	6	120	120	
≤ 160	11.9	6	240	240	

The classification of PVC-U pipes according to EN 1453-1, EN 1329-1 oder EN 1452-1 also applies for PVC-C pipes according to EN 1566-1.

PE-HD pipes in accordance to EN 1452-1 without insulation – floor –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8 to 4.6	2	120	240	U/C
≤ 50 to ≤ 75	1.8 to 8.4	3			
>75 to ≤ 110	2.7	4		180	
>75 to ≤ 110	>2.7 to 10.0	4			
≤ 125	3.1	5		240	
≤ 125	>3.1 to 11.4	5		120	
≤ 160	4.0	6		240	
≤ 160	>4.0 to 14.6	6		120	

The classification of PE-HD pipes according to EN 1519-1 and EN 12666-1 also apply for PE pipes according to EN 12201-2, EN 1519-1 and EN 12666-1 and for ABS pipes according to EN 1455-1 and SAN+PVC pipes according to EN 1565-1.

Rehau Raupiano Plus pipes without insulation - floor -					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	1.8 to 4.6	2	240	240	U/C
≤ 50 to ≤ 75	1.8 to 8.4	3			
>75 to ≤ 110	2.7	4			
>75 to ≤ 110	>2.7 to 10.0	4	180	180	

Assembly Instruction

FLAMRO Variant N-B

According to ETA-15/0677

Uponor MLC pipes „white“ without insulation – floor –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	4,5	2	120	120	U/C
≤ 75	7,5	3	90	90	
≤ 110	10	4			
with covered pipe diameters (mm) / pipe wall thicknesses (mm)					
(14-18)x2,0 / 20x2,25 / 25x2,5 / 32x3,0 / 40x4,0 / 63x6,0 / 90x8,5					

aquatherm green pipe MS pipes without insulation – floor –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 16	2,2	2	120	120	U/C
≤ 50	6,9	3			
≤ 75	10,4	4			
≤ 110	15,2	4			
with covered pipe diameters (mm) / pipe wall thicknesses (mm)					
20-2,8 / 25-3,5 / 32-4,5 / 40-5,6 / 63-8,7 / 90-12,5					

Wawin SITECH pipes without insulation – floor –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	2,0	2	120	120	U/C
≤ 75	2,6	3			
≤ 110	3,6	4			
≤ 125	4,2	5	60	60	
≤ 160	5,3	6			

Geberit Silent PP pipes without insulation – floor –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	2,0	2	120	120	U/C
≤ 75	2,6	3			
≤ 110	3,6	4			

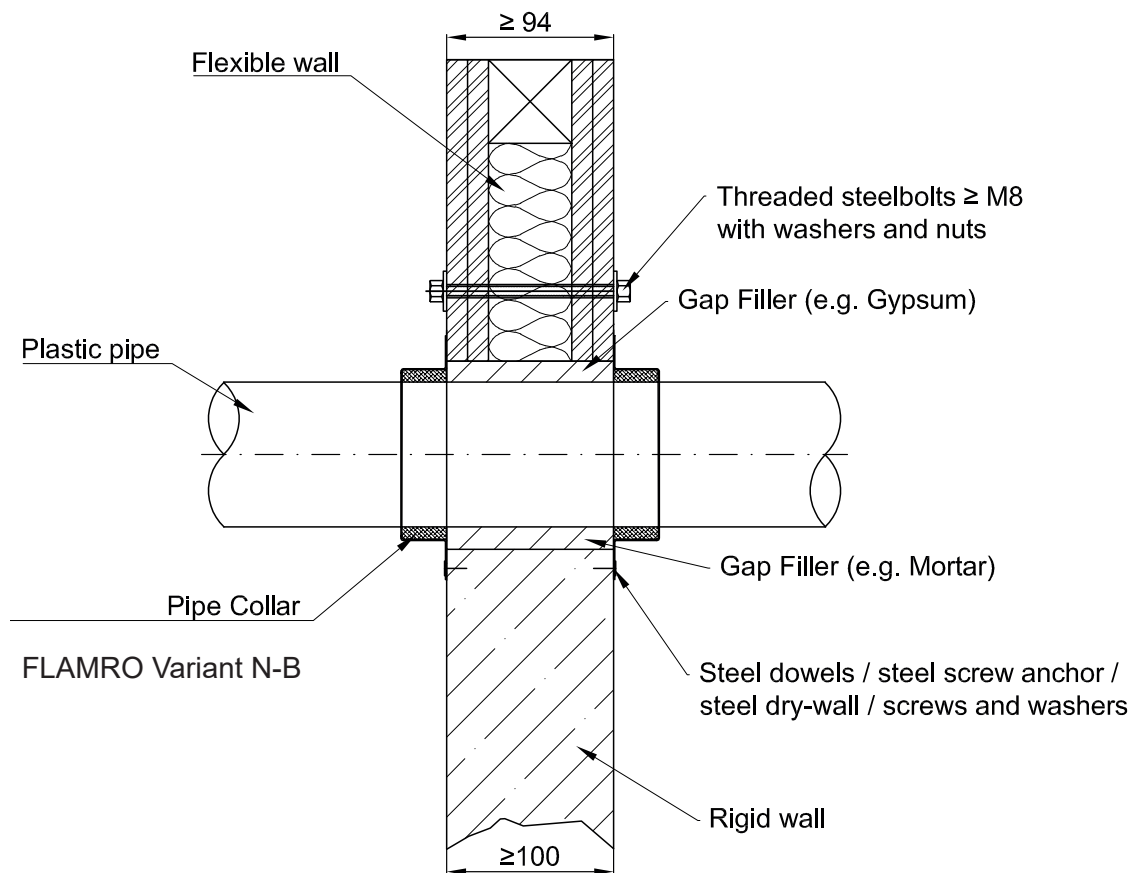
POLO-KAL NG pipes without insulation – floor –					
Outer diameter [mm]	Wall thickness [mm]	Additional fire protection measures - ROKU® Strip EM -	E	I	Pipe end configuration
≤ 50	2,0	2	120	90	U/C
≤ 75	2,6	3		120	
≤ 110	3,6	4		120	

Assembly Instruction

FLAMRO Variant N-B

According to ETA-15/0677

Approved assignment - wall -



Annular Gap

The annular gap between the inserted plastic pipes and the wall must be filled completely with mineral building materials.

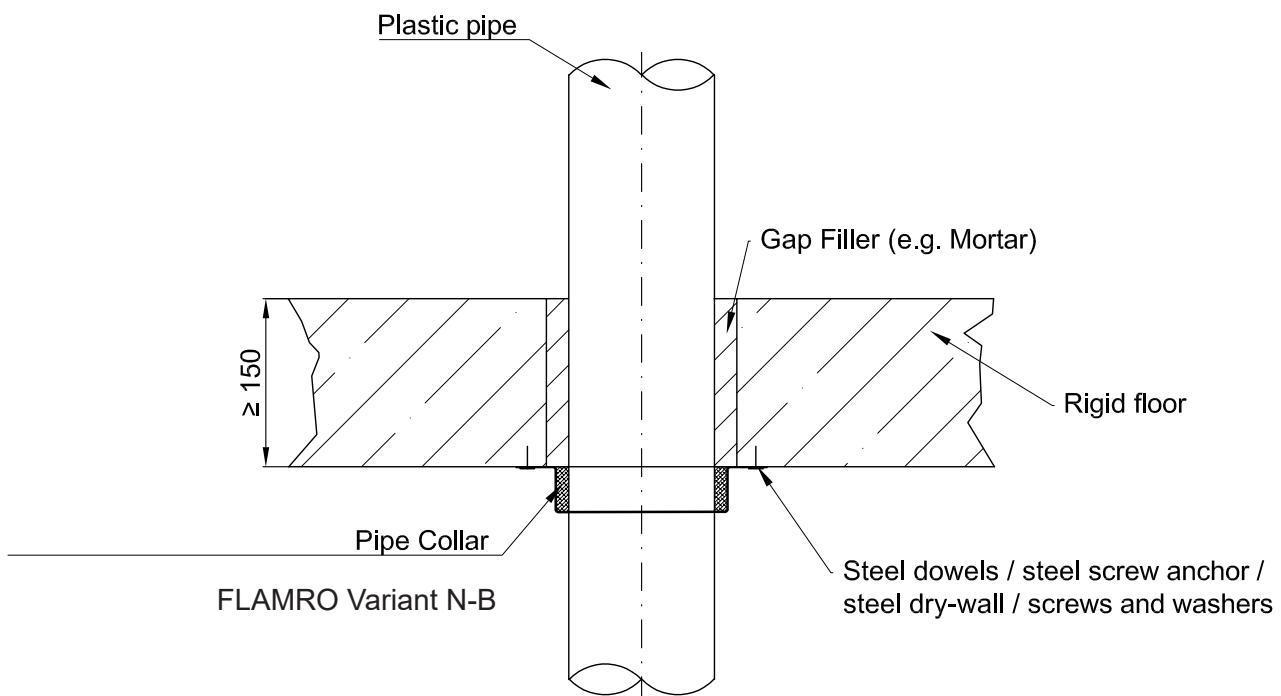
Wall installation: Gap width 1 – 3 cm, sealing of annular gap with gypsum / gypsum filling compound (lightweight partition walls), for rigid walls. Cement mortar is possible as well.

Assembly Instruction

FLAMRO Variant N-B

According to ETA-15/0677

Approved assignment - floor



Annular Gap

The annular gap between the inserted plastic pipes and the wall must be filled completely with mineral building materials.


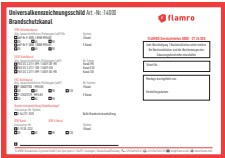
Floor installation: Gap width 1 – 5 cm, ealing of annular gap with gypsum / gypsum filling compound / cement mortar

Assembly Instruction

FLAMRO Variant N-B

according to ETA-15/0677

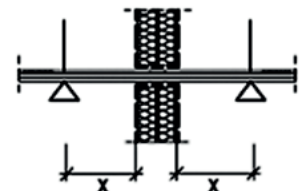
Applied products

Image	Article identifier	Art.-No.:
	FLAMRO Variant N-B Fire protection collar Diameter [mm]: 50 63 75 90 110 125 140 160	19050 19063 19075 19090 19110 19125 19140 19160
	Mounting kit Ø 32 – 50 mm Mounting kit Ø 63 – 125 mm Mounting kit Ø 140 – 160 mm	15001 15002 15003
	Identification sign	14000

Arrangement of the first support (backings)

Supports/Backings of the installations in front of the wall insulation must consist of essentially non-combustible components and be arranged with a distance according to the following overview.

Installation	Wall	Floor
non-combustible pipes	≤ 650 mm on both sides	not defined



Assembly Instruction

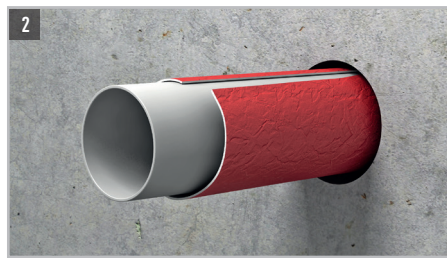
FLAMRO Variant N-B

According to ETA-15/0677

Assembly steps



Before the installation of the pipe seal, it is to be checked if all boundary conditions (e.g. type and thickness of wall or floor, type and size of pipes and insulations as well as environmental conditions) comply with the regulations.



The fire protection collar FLAMRO Variant N-B can be applied for uninsulated pipes only.



Before assembling the fire protection mortar, the remaining gaps between wall or floor and the inserted pipe are to be filled completely with dimensionally stable, non-combustible building materials, e.g. concrete, cement or gypsum mortar (class A1 or A2-s1,d0 according to EN 13501-1).



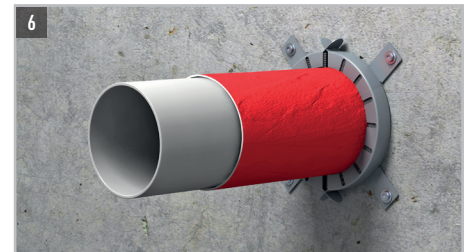
A suitable fire protection collar must be utilised.

For pipe penetrations through floors, there must be a fire protection collar arranged to the bottom side of the floor. For pipe penetration through walls, there must be a fire protection collar arranged on each side of the wall.

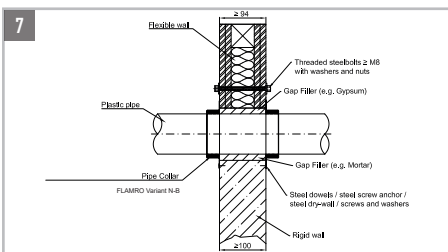


The pipe collars must be mounted to the rigid walls or floors through the fastening clip with appropriate dowels and steel screws M6 or M8.

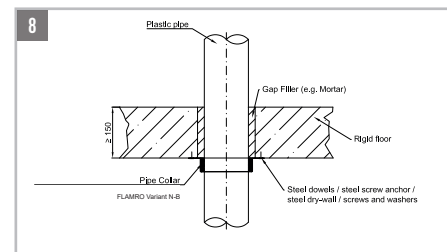
Available fixing points should be used.



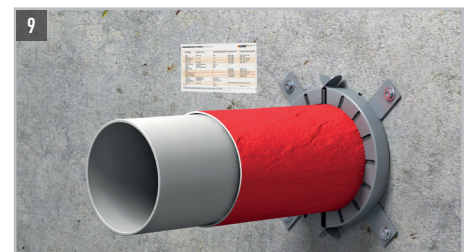
The pipe collars must be mounted to lightweight partition walls with threaded rids M6 or M8.



Wall installation



Floor installation



Finally apply the identification sign to the penetration seal.

The identification must be placed next to the penetration seal to the building component and is available at Kuhn.



DECLARATION OF PERFORMANCE

for product **FLAMRO Variant N-B**

1.	Unique identification code of the product-type:	RA-15-0677
2.	Intended use:	Pipe sealing
3.	Manufacturer:	FLAMRO Brandschutz-Systeme GmbH Am Sportplatz 56291 Leiningen
4.	Authorised representative:	Not relevant
5.	System(s) of AVCP:	System 1
6.a)	Harmonised standard	Not relevant
6.b)	European Assessment Document:	ETAG-026, Part 2, August 2011
	European Technical Assessment:	ETA-15/0677
	Technical Assessment Body:	ETA-Danmark A/S, DK-2150 Nordhavn
	Notified bod/ies:	Materialprüfanstalt für das Bauwesen Braunschweig, Nr. 0761

7. Declared performances

Essential characteristics	Performance	Harmonised technical specification
Fire resistance as a pipe sealing for combustible pipes on flexible and rigid walls (thickness \geq 100 mm) or rigid floors (thickness \geq 150 mm) constructions by means of the fire protection collar type FLAMRO Variant N-B with max. dimensions of 160 mm.*)	Max. EI 240 U/C	ETA-15/0677
Durability and serviceability	Use category type Y ₂	
Air permeability	NPD	
Water permeability	NPD	
Release of dangerous substances	none	
Mechanical resistance and stability	NPD	
Resistance to impact / movement	NPD	
Adhesion	NPD	
Airborne sound insulation	NPD	
Thermal properties	NPD	
Water vapour permeability	NPD	
Components - reactions to fire	Class acc. to EN 13501-1	
FLAMRO Variant N II A (steel housing)	A1	
ROKU® Strip EM	E	
*) according to ETA-15/0677		

8. Appropriate Technical Documentation /
Specific Technical Documentation:

Not relevant

**Website where Declaration of Performance can be viewed:
www.flamro.com**



The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued in accordance with Regulation (EU) No. 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Dr. Hemp, Head of R&D / Authorised officer, FLAMRO Brandschutz-Systeme
(Name and position)

Leiningen, 27.10.2017
(Place and date of issue)

A handwritten signature in blue ink, appearing to read 'Dr. Hemp', written over a horizontal dotted line.

(signature)