flamro

FIRE PROTECTION CATALOGUE

FOR YOUR SAFETY

FIRE PROTECTION SYSTEMS

For your safety

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DID YOU KNOW?

Approx. 200,000 fires occur every year, leading to approx. 600 deaths annually with aprox. 6000 people suffering severe burns.

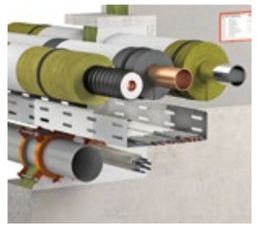
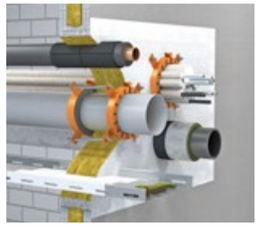
Our individual cable and pipe seals, cable ducts and cable coatings ensure that if a fire breaks out people and animals can be rescued, damage to property limited, operating failures prevented and environmental damage avoided.

FLAMRO is a partner of the Paulinchen e.V. organisation, which it supports actively.

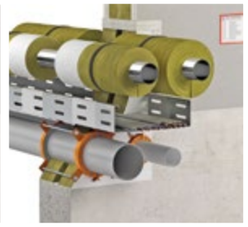
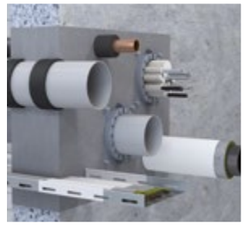
Paulinchen – Initiative for Young Burns Survivors e.V. was founded in 1993, in order to advise families about their children's burns and scalding accidents, to help them with problems during rehabilitation and to provide information about the causes of accidents for the purposes of prevention.
(Source: www.paulinchen.de, retrieved May 30, 2017)

01 Planning Overview

flamro Planning Overview

System				
Type	FLAMRO BS-MK Combi Seal max. EI 120	FLAMRO Multi Combi Seal EN max. EI 120	FLAMRO Multi Combi Seal EI 90	FLAMRO KSL Combi Seal max. EI 120
Permitted configuration	• Sheathed cables Ø ≤ 80 mm • Cable bundle Ø ≤ 100 mm with single cables inside Ø ≤ 21 mm • Cable supporting structures made from steel • Non sheated cables Ø ≤ 24 mm • Waveguide cable Heliflex HCA 158-50 J Ø ≤ 50.4 mm • Waveguide Heliflex HCA 158-38 J Ø ≤ 14.3 mm • Conduits Ø ≤ 63 mm • Plastic pipes Ø ≤ 110 mm • Steel pipes Ø ≤ 108 mm • Copper pipes Ø ≤ 89 mm	• Sheathed cables Ø ≤ 80 mm • Cable bundle Ø ≤ 100 mm with single cables inside Ø ≤ 21 mm • Cable supporting structures made from steel • Conduits Ø ≤ 25 mm • Plastic pipes Ø ≤ 160 mm • Steel pipes Ø ≤ 168.3 mm • Copper pipes Ø ≤ 88.9 mm	• Electric cables and lines of all types without Ø limit • Cable bundle Ø ≤ 100 mm with single cables inside Ø ≤ 21 mm • Cable supporting structures made from steel, aluminium or plastic • Control cables Ø ≤ 15 mm • RZD Multicore Tubes Ø ≤ 33 mm • Plastic pipes Ø ≤ 160 mm • Steel pipes Ø ≤ 168.3 mm • Copper pipes Ø ≤ 88.9 mm	• Sheated cables max. Ø 80 mm • Conduits max. Ø 63 mm individual diameter • Bundles of electric installation pipes max. Ø 125 mm • Synthetic rubber insulated copper pipes max. Ø 88.9 mm • Combustible wastewater pipes (PE, PP, PVC) Ø ≤ 160 mm • Copper pipes max. Ø 89 mm • Steel pipes max. Ø 160 mm • Multilayer composite pipes Geberit Mepla max. Ø 75 mm
Classification	max. EI 120 dependent on seal configuration	max. EI 120 dependent on seal configuration	EI 90	max. EI 120 dependent on seal configuration
Verification	ETA-15/0237	ETA-13/0756 FM 3044513	Exova Warringtonfire (England - BS): No. Warres R10749 UL No. R25820	ETA-16/0320
Construction | Components	FLAMRO BS system panels, D= 60 mm, 150 kg/m³ Melting point > 1000°C + FLAMRO Variant N II A (combustible pipe) + Sectional insulation (non-combustible pipes) + AF/Armaflex Ultima, Protect, LS und NH (refrigerant lines) + FLAMRO Variant N II KS (Bundle Electrical installation pipes) Coating of installations with FLAMRO BMA, double-sided min. 250 mm from seal surface	FLAMRO BS system panels, D = 60 mm, 150 kg/m³ Melting point > 1000 °C, Two-part seal + FLAMRO Variant (Wall) FLAMRO Variant N II A (Floor) (combustible pipe) + Sectional insulation (non-combustible pipes) + Armaflex Protect (refrigerant lines) Coating of installations with FLAMRO BMA, double-sided min. 250 mm from seal surface	FLAMRO BS system panels, , D = 60 mm, 150 kg/m³ Melting point > 1000 °C, Two-part seal + FLAMRO Variant + Sectional insulation (non-combustible pipes) Coating of installations with FLAMRO BMA, double-sided min. 100 mm from seal surface	FLAMRO BSL system panels D = 50 mm, 0.625 m², single-sided coating Additional components: +FLAMRO Variant N II A + FLAMRO BML + FLAMRO BMS + Sectional insulation (non-combustible pipes) + AF/Armaflex
Areas of application	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 100 mm) max. seal dimensions: 1000 x 600 mm (W x H) or 600 x 1000 (W x H) • Floors (concrete | aerated concrete min. 150 mm) max. seal dimensions: 1000 x 600 mm (L x W) • Seal width 60 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 122 mm) Seal dimensions in accordance with ETA up to: 970 x 1200 mm, 1200 x 970 mm Supplementary test: max. 1400 x 2000 mmm • Floors (concrete | aerated concrete min. 150 mm) Seal dimensions[1]: 1200 x 970 mm up to e.g. ∞ x 538 mm (L x W) or 2300 x 700 mm • Seal width 2 x 60 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 100 mm) max. seal dimensions: 1300 x 2000 mm (W x H) • Floors (concrete | aerated concrete min. 150 mm) max. seal dimensions: ∞ x 1500 mm (L x W) • Seal width ≥ 120 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 100 mm) max. seal dimensions: 2200 x 1100 mm (W x H) • Floors (concrete | aerated concrete min. 150 mm) max. seal dimensions: test 2600 x 1000 mm, permitted bis 724 mm x oo mm • Seal width ≥ 100 mm (Wall) ≥ 150 mm (Floor)

[1] In accordance with ETA-13/0756, Annex D2

System					
Type	FLAMRO DSB-W EI 120	BC Seal 90 combi EI 90	BC Seal S 90 FM I – Combi EI 120	FLAMRO BK pillow seal S 90	FLAMRO BK-N pillow seal max. EI 180
Permitted configuration	• Sheathed cables ≤ 5 x 1.5² Ø ≤ 17 mm • Cable bundle made from telecommunication cables Ø ≤ 45 mm	• Electric cables ≤ 80 mm • Cable bundle ≤ Ø 100 mm (with single cables ≤ 21 mm) • Waveguide cables • Plastic pipes made from PVC, PE or PP ≤ 110 mm • Metal pipes ≤ 168,3 mm with mineral wool	• Electrical cables ≤ 80 mm • Cable bundle ≤ Ø 100 mm (with single diameter ≤ 21 mm) • Waveguide cable HELIFLEX • Plastic pipes (PVC, PE, PP) Ø ≤ 110 mm • Metal pipes ≤ 168,3 mm insulated with mineral wool	• Electrical cables of any thickness and material, as well as cable trays made of steel, aluminium or plastic profiles • Single steel and plastic pipes ≤ 15 mm • No filling of cable interstices required	• Cables and electrical lines up to max. 80 mm single diameter
Classification	EI 120	EI 90	EI 120	S 90	EI 90 / 120 / 180
Verification	ETA-16/0318	ETA-15/0556	ETA submitted	Exova Warringtonfire: (England - BS): No. J 90150 | 1 TNO, Delft NL: 97-CVB-R1327	ETA submitted
Construction | Components	Intumescent paint FLAMRO DSB-W • 310 ml cartridge • No cable coating required	• BC Panel 50 mm 150 kg/m³ Melting point > 1000 °C • BC Putty • BC Paint • Variant N II A Fire Protection Collar • Sectional insulation	BC FM I - Fire Protection Compound • BC Putty + Flamro Variant N II A collar for combustibel pipes + FLAMRO Variant N III Wrap for combustible pipes + Sectional insulation (non-combustible pipes, waveguide cables) Retrofitting wedges may be used.	FLAMRO BK Fire Protection Pillows Dimensions: BK 1: 250 x 220 x 15 mm BK 2: 250 x 145 x 15 mm BK 3: 250 x 60 x 10 mm BK 4: 250 x 220 x 45 mm	FLAMRO BK -N Fire Protection Pillows Dimensions: BK-N Size 1: 250 x 60 x 30 mm BK-N Size 2: 250 x 130 x 35 mm BK-N Size 3: 250 x 180 x 35 mm
Areas of application	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 100 mm) max. seal dimensions: ≤ Ø 65 mm • Floors (concrete | aerated concrete min. 150 mm) max. seal dimensions: ≤ Ø 65 mm • Seal width ≥ 100 mm (Wall) ≥ 150 mm (Floor)	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 100 mm) max. seal dimensions: 1200 x 2000 mm (B x H) • Floors (concrete | aerated concrete min. 150 mm) max. seal dimensions: 800 x 2200 mm (T x L)	In all fire protection-classified • walls (masonry | concrete | aerated concrete min. 100 mm) max. seal dimensions: 1200 x 2000 mm (W x H) • Floors (concrete | aerated concrete min. 150 mm) max. seal dimensions: 1200 x 1000 mm (L x W) • Mortar thickness wall ≥ 170 mm floor ≥ 150 mm	In all fire protection-classified • walls (masonry | concrete | autoclaved aerated concrete min. 150 mm) max. seal size: 700 x 400 mm (W x H) • Floors (concrete or autoclaved aerated concrete min. 200 mm) max. seal size: 400 x ∞ mm (W x L)	In all fire protection-classified • walls (masonry | concrete | autoclaved aerated concrete min. 100 mm) mmax. seal size: 600 x 600 x 250 mm (W x H x L) • Floors (concrete or autoclaved aerated concrete min. 150 mm) max. seal size: 600 x 600 x 250 mm (W x H x L)

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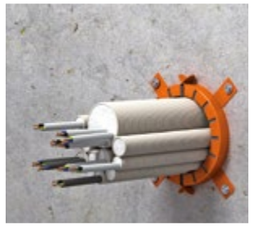
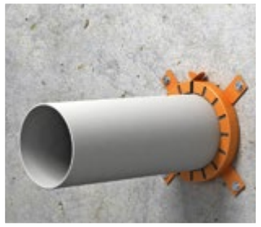
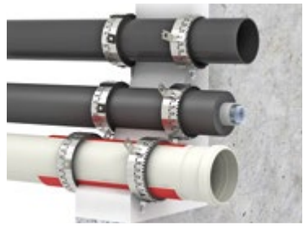
System								
Type	FLAMRO BSB-K Combi Seal EN max. EI 180	FLAMRO BSB-K Fire Protection Plugs max. EI 120	FLAMRO Variant N II KS Fire protection collar EI 120	FLAMRO Variant N II A pipe collar max. EI 240	FLAMRO Variant N III Wrap max. EI 240	FLAMRO Variant N III Wrap max. EI 240	FLAMRO Variant N EC max. EI 240	FLAMRO Variant N-B max. EI 240
Permitted configuration	• Sheathed cables Ø ≤ 80 mm • Cable bundle Ø ≤ 100 mm with single cables inside Ø ≤ 21 mm • Cable supporting structures made from steel • Non sheated cables Ø ≤ 24 mm • Conduits made of plastic or steel Ø ≤ 25 mm • Plastic pipes Ø ≤ 75 mm • Non-combustible pipes Ø ≤ 54 mm	• Sheathed cable Ø ≤ 21 mm • Cable bundle Ø ≤ 50 mm • Control lines Ø ≤ 16 mm made from steel or plastic • Conduits made of steel or plastic, rigid or flexible, filled or not filled with cables, Ø 20 mm • Sheathed cables Ø ≤ 21 mm, optionally put together in layers	Electric installation pipes seal, individual or in bundle, with or without cable: • Cables Ø ≤ 21 mm • Electrical installation pipes made from plastic Ø ≤ 63 mm, • Electrical installation pipes bundle Ø ≤ 125 mm The smallest fitting fire protection collar must be used on the individual or bundled electric installation pipe(s). The internal diameter of the fire protection collar may not be more than 30 mm greater than the diameter of the pipe or bundle.	• Plastic pipes (PVC, PE, PP) max. Ø ≤ 400 mm	• Plastic pipes up to Ø 110 mm • Insulated and uninsulated plastic pipes and sound-isolated sewer pipes	• Plastic pipes up to Ø 110 mm with synthetic rubber • Uninsulated plastic pipes	• Plastic pipes up to Ø 160 mm • Sound-isolated sewer pipes up to Ø 160 mm • Multi-layer composite pipes ≤ 110 mm • Plastic pipes, copper pipes and steel pipes with synthetic rubber	• Plastic pipes up to Ø 160 mm
Classification	max. EI 180 dependent on seal configuration	max. EI 120 dependent on seal configuration	EI 120	Max. EI 240 U/C or EI 120 U/U (ETA-13/0922)	EI 90 / 120 / 240	EI 90 / 120 / 240	EI 30 / 60 / 90 / 120 / 180 / 240	EI 120 / 240
Verification	ETA-15/0710	ETA-15/0816	ETA-13/0792	ETA-13/0922	ETA-16-0056	ETA-16-0056	ETA-15-0802	ETA-15/0907
Construction | Components	Main components: FLAMRO BSB-K Fire Protection Bricks Dimensions BSB-K 160 x 130 x 60 mm Additional components: + Coating FLAMRO-KL + Intumescent strip FLAMRO UBB (combustible pipe) + Sectional insulation (non-combustible pipes)	FLAMRO BSB-K Fire Protection Plug Dimensions: ≤ 182 mm x 60 mm FLAMRO-KL Compound for sealing residual joint interstices and coating cables	FLAMRO Variant N II A	FLAMRO Variant N II A	FLAMRO Variant N III Wrap self-adhesive fire protection wrap Dimension: 12500 x 50 x 2 mm	FLAMRO Variant N III Wrap self-adhesive fire protection wrap Dimension: 12500 x 50 x 2 mm	Dispenser box incl. 10 m ROKU® Strip fire protection wrap, 3 m stainless steel strap, 18 hooks	FLAMRO Variant N-B
Areas of application	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 100 mm) max. seal dimensions: 0,36 m² • Floors (concrete | aerated concrete min. 150 mm) max. seal dimensions: 0,36 m² • Seal width 160 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 122 mm) max. seal dimensions: Ø 180 mm • Seal width 122 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 100 mm) max. seal dimensions: Ø ≤ 125 mm • Floors (concrete | aerated concrete min. 150 mm) max. collar dimensions internally: Ø ≤ 125 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete min. 100 mm) max. collar dimensions internally: Ø ≤ 400 mm • lightweight partition wall (min. 100 mm) max. collar dimensions internally: Ø ≤ 160 mm • Floors (concrete | aerated concrete min. 150 mm) max. collar dimensions internally: Ø ≤ 400 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete min. 100 mm) max. collar dimensions internally: Ø ≤ 110 mm • lightweight partition wall (min. 94 mm) max. collar dimensions internally: Ø ≤ 110 mm • Floors (concrete | aerated concrete min. 150 mm) max. collar dimensions internally: Ø ≤ 110 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete | lightweight partition wall min. 100 mm) max. collar dimensions internally Ø ≤ 110 mm • Floors (concrete | aerated concrete min. 150 mm) max. collar dimensions internally: Ø ≤ 110 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete min. 100 mm) max. collar dimensions internally: Ø ≤ 160 mm • lightweight partition wall (min. 94 mm) max. collar dimensions internally: Ø ≤ 160 mm • Floors (concrete | aerated concrete min. 150 mm) max. collar dimensions internally: Ø ≤ 160 mm	In all fire protection-classified • walls (masonry | concrete | aerated concrete min. 100 mm) max. collar dimensions internally: Ø ≤ 160 mm • lightweight partition wall (min. 94 mm) max. collar dimensions internally: Ø ≤ 160 mm • Floors (concrete | aerated concrete min. 150 mm) max. collar dimensions internally: Ø ≤ 160 mm

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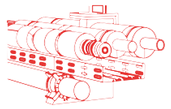
System				
Type	FLAMRO ABA Fire Protection Coating Material	FLAMRO BMA Cable Coating	BC Cable Coating System 1	BC Cable Coating System 2
Permitted configuration	Electric cable A cable coating may only be used with the approval of the appropriate testing authority	Electric cable A cable coating may only be used with the approval of the appropriate testing authority	• Electric cable of required thickness and materials • Cable trays made from steel or aluminium profiles	• Electric cable of required thickness and materials • Cable trays made from steel or aluminium profiles
Classification	• Prevents fire Spread and Integrity	• Prevents fire Spread and Integrity	• Prevents fire from spreading • Fire load enclosure • Performance extension	• Prevents fire from spreading • Fire load enclosure • Performance extension
Verification	IEC 60332-3-22	DIN EN 60332-2-22 (> 180 min.) DIN EN 60332-1-2 IEC 60331-21 FM No. 3971	IEC 332-3 IEC 331-1	U 96 055 IBMB, TU BS U 97 056 IBMB, TU BS
Construction | Components	Cable coating with FLAMRO ABA • Dry layer thickness≥ 1.0 mm	Cable coating with FLAMRO BMA in interiors and FLAMRO BMA (A+F) in exteriors Dry layer thicknesses: approx. ≥ 0.5 mm in interior approx. 2 - 3 mm in exterior (depending on area of application and required fire resistance)	Cable coating with BC Paint + Optional topcoat Dry layer thickness: • Minimal requirement 550 µm • Increased protective effect 900 µm • High protective effect 1350 µm	Cable coating with BC Paint + Optional topcoat Dry layer thickness:
Areas of application	• In all interiors with high protection requirement (basement, garages, safety areas etc.) • Ideal for difficult to access areas	• In all interiors with high protection requirement (basement, garages, safety areas etc.) • Ideal for difficult to access areas • Suitable for use in external areas, e.g. refineries, Industrial facilities etc. • Inside and Outside use	In all interiors with high protection requirements, e.g.: • Garages • Safety areas • Escape and exit routes • Power stations / nuclear power stations • Hospitals • Schools • Special structures • etc.	In all interiors with high protection requirements, e.g.: • Garages • Safety areas • Escape and exit routes • Power stations / nuclear power stations • Hospitals • Schools • Special structures • etc.

				
FLAMRO ST-I	FLAMRO BaGe fire protection bandage	FLAMRO AC Kitt	FLAMRO BSS Foam Seal S 90	FLAMRO BSD fire protection socket EI 90
• Steel beams • Steel girders • Truss members	• Electric cable of required thickness and materials • Cable trays made from steel or aluminium profiles	• Individual cables with max. Ø 21 mm • Individual cables with max. Ø 80 mm, telecommunications cable with max. Ø 21 mm or cable harnesses with max. Ø 100 mm • Steel and stainless steel pipes with max. Ø 219 mm insulated with mineral wool insulation • Plastic pipes with max. Ø 32 mm	• Electric cables and lines of all types Ø ≤ 32 mm • Cable supporting structures made from steel, aluminium or plastic • Control cables Ø ≤ 15 mm • RZD Multicore Tubes Ø ≤ 30 mm • Fibre Optic Cable	3 Dimensions: Ø 74mm Depth = 45 mm Ø 74mm Depth = 55 mm Ø 74 x 142 mm Depth = 55 mm Cable Ø ≤14,4 mm (max. 2 cables per socket)
up to R 240	• Prevents fire from spreading • Fire load enclosure • Performance extension	EI 90 / 120 / 180 / 240	S 90	EI 90
ETA-13/0837	Z-56.217-3570	ETA-14-0014 ETA-14-0017	Exova Warringtonfire (England - BS): No. 189516	ETA-15/0598
FLAMRO ST-I Fire protection coating for construction steel	Flame-retardant fire protection bandage consisting of a glass fabric and an intumescent material	FLAMRO AC Kitt 310 ml cartridge	Fire stop foam FLAMRO BSS 180 g cartridge gives approx. 650 ml (at 18 °C) approx. 1000 ml (at 23 °C) 480 g cartridge gives approx. 1750 ml (at 18 °C) approx. 2500 ml (at 23 °C) Refractory Adhesive FLAMRO KL, optional instead of a soffit covering in the case of lightweight partition walls • No cable coating required	Fire protection socket consisting of thermoplastic polyphenylene sulphide and an intumescent material
• Vertical and horizontal load-bearing steel profiles • Open steel profiles, H- / I-beams and girders	In all interiors with high protection requirements, e.g.: • Garages • Safety areas • Escape and exit routes • Power stations / nuclear power stations • Hospitals • Schools • Special structures • etc.	In all fire protection-classified • Walls (masonry | concrete | aerated concrete | lightweight partition wall min. 150 mm) • Floors (concrete | aerated concrete min. 100 mm)	In all fire protection-classified • Walls (masonry | concrete | aerated concrete | lightweight partition wall min. 100 mm) max. seal dimensions: 220 x 220 mm • Floors (concrete | aerated concrete min. 150 mm) max. seal dimensions: 220 x 220 mm • Seal width 200 mm	In all fire protection-classified • Lightweight partition walls (min. 100 or 125 mm)

02

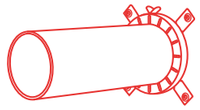
General information

Our systems are divided into various categories.

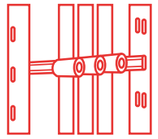


Combi Seals

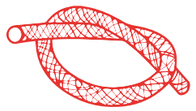
Cable Seals



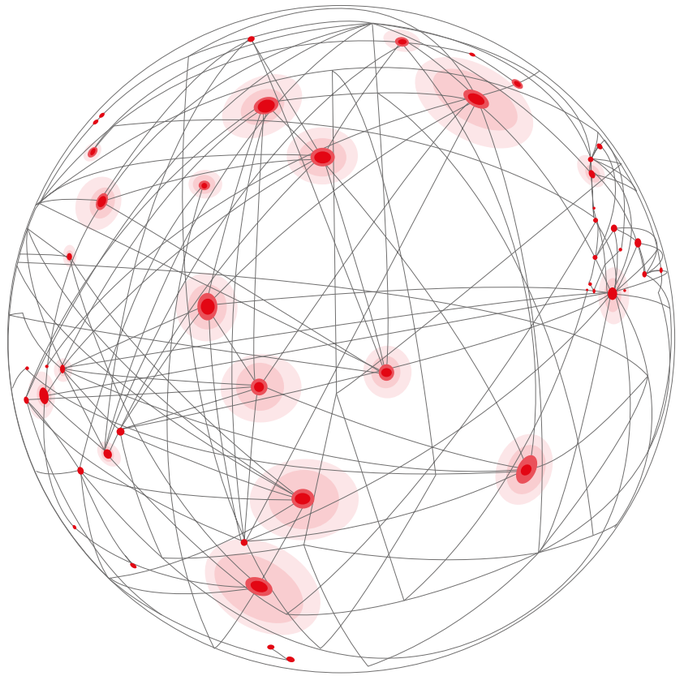
Pipe seals



Coatings



Joint filling rope



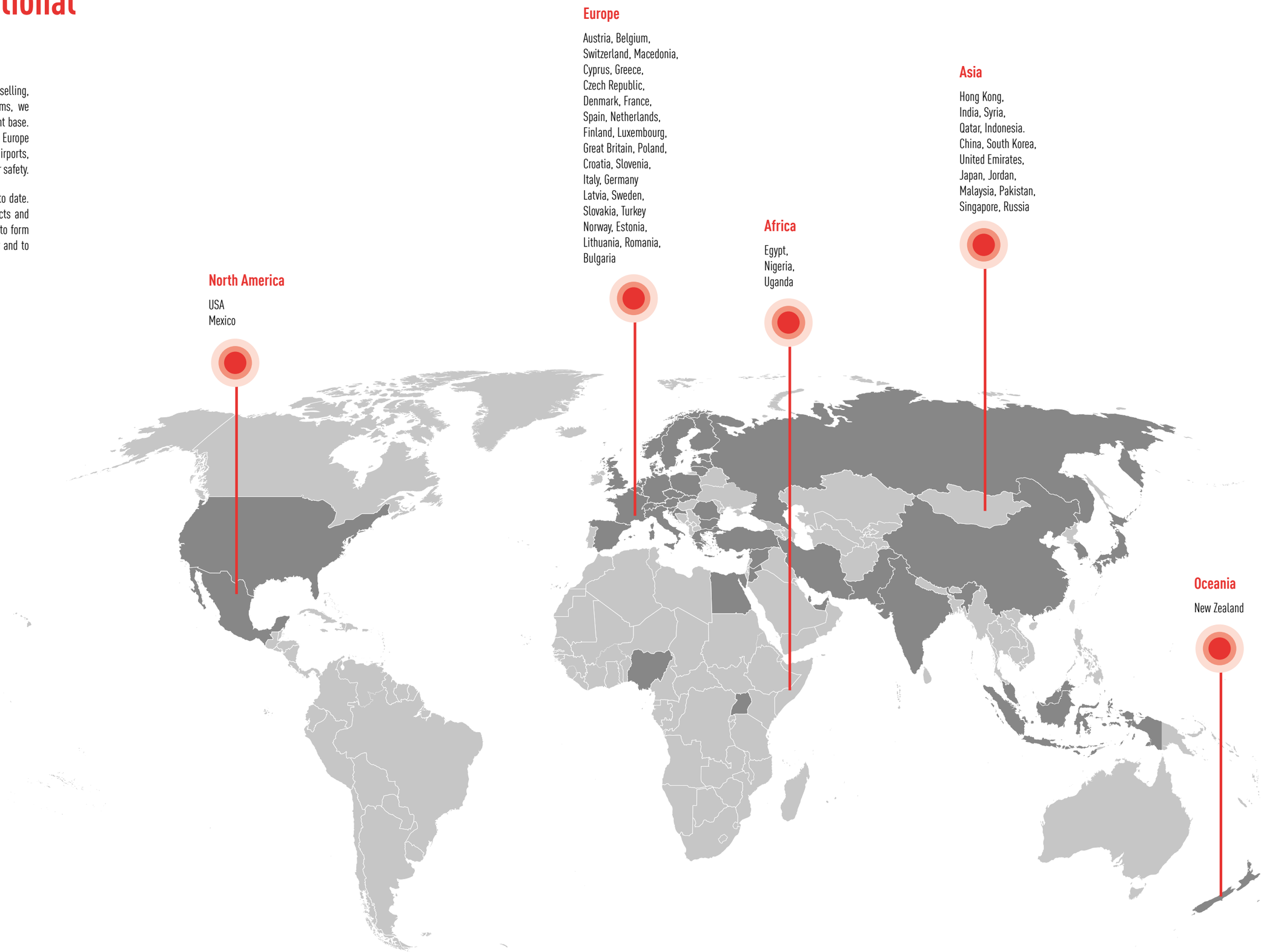
FLAMRO is the expert for fire retardant seals in constructional fire protection and safety in the event of fire. As a developer and manufacturer of flexible and customized fire prevention solutions the family enterprise has ensured its customer's safety for more than 35 years!

The products are manufactured on site at Leiningen near Koblenz in Germany and distributed nationwide and all over the world. Customized fire retardant seals for cables, pipes, cable ducts and coatings help to prevent the risk of property and environmental damages as well as operational failures in the event of fire.

FLAMRO International

As the result of our many years of experience in selling, developing and manufacturing fire protection systems, we have succeeded in building up a steady and loyal client base. FLAMRO is found in every type of building, not just in Europe but throughout the world. In schools, town halls, airports, shopping malls and football stadia we take care of your safety.

The map shows where our products have been used to date. However, we work tirelessly at developing our products and extending our product range. Our goal is to continue to form partnerships in Germany and abroad in order to grow and to make the world a little safer.



References

Our products are distributed worldwide and are used in many different types of structures. In airports, carefacilities or hotels, our systems ensure your safety. Our references including the following buildings.

Further references may be found at: www.flamro.de/references/?lang=en

Germany:

- RTL Rheinhallen, Cologne Deutz
- Dominium, Cologne
- Uni Siegen, Siegen
- RWE Kraftwerk, Neurath
- SWR 3, Stuttgart
- Central Station, Würzburg
- BMW, Munich
- Messeturm, Frankfurt am Main
- City Hall, Bremen
- Schadow – Arcades, Düsseldorf
- Munich Airport, Munich
- 'Die Zeit' publishing company, Hamburg
- Veltins Arena, Gelsenkirchen
- Lufthansa Aviation Center, Frankfurt
- Airbus Industries, Hamburg

International:

- German School, Turkey
- Substation Marina Mall, UAE
- Dubai Etisalat Building, UAE
- Athens Airport, Greece
- Messe Zürich, Switzerland
- Zürich Airport, Switzerland
- Budapest City Hall, Hungary
- Samsung Jaszfenyszaru, Hungary
- Porsche Moscow, Russia
- Commercial Bank Dubai, UAE
- Ritz Carlton Grand Hotel Abu Dhabi, UAE
- DEWA Substation Dubai, UAE
- Burj Khalifa Dubai, UAE
- Uniklinikum, Amsterdam

Reference source: Photo Flughafen München AG
Reference source: Photo Flughafen Zürich AG

Preventive fire protection

Preventive fire protection

Construction fire protection

- Fire behaviour of building materials and building components
- Fire compartment
- Escape and emergency routes
- Space between buildings
- [...]

Plant fire protection

- Fire alarms
- Fire-extinguishing appliances
- RWA
- Water supply
- [...]

Organizational fire protection

- Regulations
- Instructions
- Works fire brigade
- [...]

Fire protection concept

Holistic view of a safety concept in the event of fire.
(Construction fire protection, Plant fire protection, ...)

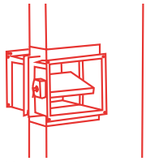
Fire Resistance Ratings

Description of fire resistance ratings of components in accordance with DIN EN 13501

Description	Component
R	Load-bearing capacity; no loss of structural stability
E	Spatial enclosure; prevents fire from passing to the side not exposed to flames
I	Heat insulation; restricts propagation of fire and restricts heat to the side facing away from fire
W	Heat radiation; restricts heat radiation to the facing side
S	Smoke protection; restricts passage of smoke
M	Mechanical effect; impact stress on the wall
C	Self-closing; for smoke protection doors and other fire protection closures
P	Ensures energy supply is maintained; for electric cables
G	Soot fire resistance
K	Fire retardant effect

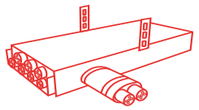
Certified and Tested Systems by:

Fire protection socket

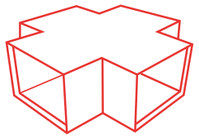


Mortar seal

Fire protection hood



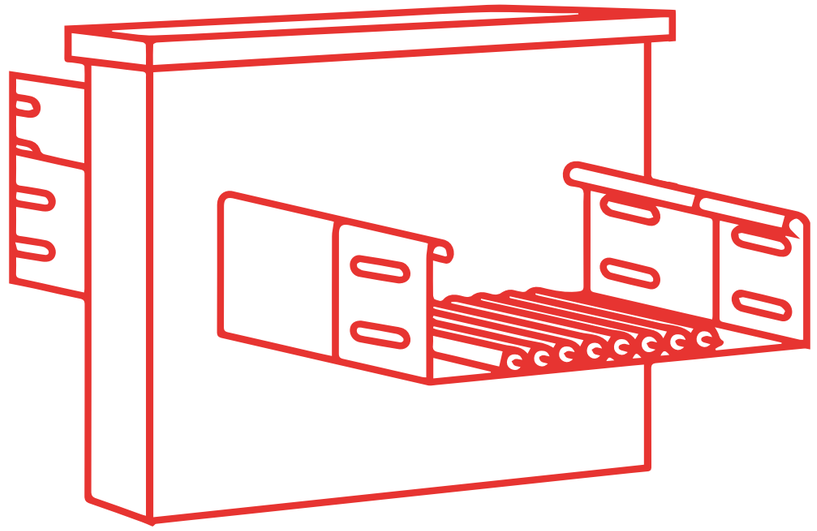
Cable bandage

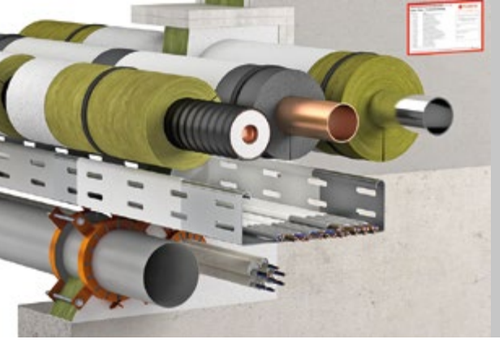


Fire protection duct

03

Soft Seal Ablation





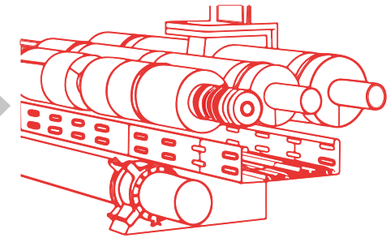
FLAMRO BS-MK Combi Seal

max. EI 120

ETA-15 | 0237

Description

Flexible combi seal consisting of a 60 mm thick panel seal used in conjunction with fire protection collars. It is used for sealing electric lines, cables and pipes and preserves the ability of walls and floors to resist fire.



Special Benefits

- Coating may be sprayed, brushed or spread with spatula
- No drops, clean working
- Easy installation and retrofitting
- Also approved for lightweight partition walls with steel and wooden stands
- Short coating lengths for installations (100 / 250 mm)
- Coatable with aqueous emulsion paint
- Seal width only 60 mm, single-layer arrangement
- The seal may also be installed in pressurised areas or in a vacuum
- High flexibility
- It is possible to feed pipes with synthetic rubber insulation (refrigerant lines)
- Penetration of ducts up to 3 items per 25 mm, rigid | flexible | occupied | unoccupied | combustible | non-combustible
- Penetration of ducts up to 32 mm also in bundle up to Ø115 mmn

Permitted Configuration

- Non-combustible steel, stainless steel and cast iron pipes ⩽ 108 mm
- CU pipes ⩽ 89 mm
- Plastic pipes (PVC, PE) ⩽ 110 mm in conjunction with Variant N II A Fire Protection Collar EI 90 / EI 120 U / U
- Sheathed cables up to Ø 80 mm
- Cable bundle up to Ø 100 mm (cable up to Ø 21 mm)
- Installation pipes made from steel ⩽ 25 mm
- Synthetic rubber insulated pipes AF/Armaflex, Armaflex LS, Ultima, NH
- Waveguide cable ⩽ 50.4 mm
- Non sheated cables ⩽ 24 mm
- Bundle made from electric installation pipes up to Ø 115 mm

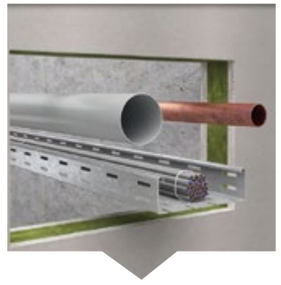
Sectional Insulation

- Mineral fibre shells
- Synthetic rubber

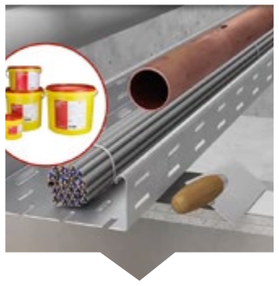
Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO BS 60/2 system panel, double-sided coating	1000 x 625 x 60 mm	50036
FLAMRO BMS Putty	1 kg 5 kg 12.5 kg 25 kg	10010 10500 10125 10250
FLAMRO BMA Coating Material Airless	1 kg 5 kg 12.5 kg 25 kg	20010 20500 20125 20250
FLAMRO Variant N II A Fire Protection Collar	see page 54	Dependent on Pipe diameter
FLAMRO UBB Strip	1000 x 60 x 2 mm	90050

How much material is required?



The component opening soffits must first be cleaned.

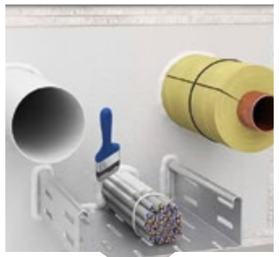


The inserted cables, lines, multicore tubes and cable supporting structures must be coated on both sides with FLAMRO BMA Ablation Coating. The dry layer thickness must be at least 2 mm.

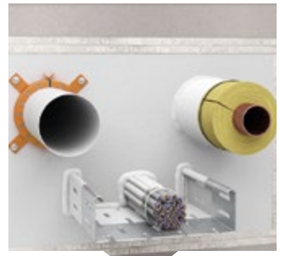
When installing the Combi Seal in walls, the pipe collars must be installed on both sides of the wall; when installed in floors they must be positioned on the underside of the floor. The smallest fitting pipe collar for the pipe outer diameter must be used. The sectional insulation must be coated on both sides of the combi seal over a length of 250 mm using FLAMRO BMA Ablation Coating. The dry layer thickness must be at least 2 mm.

The openings between the component soffits and inserted cables/lines/multicore tubes/cable supporting structures must be sealed using a single layer of fire protection plates. The outer edges of the plates must be coated with FLAMRO BMA / BMS Ablation Coating.

The coating thickness must be at least 2 mm. Cable bundles must not be filled inside with fire protection materials.



After the component opening has been sealed, all interstices and joints must be filled on the outer side using FLAMRO BMS / FLAMRO BMK Coating. The seal surfaces and the installations must then be coated on the outside using the ablation coating, so that the dry layer thickness is at least 2 mm.

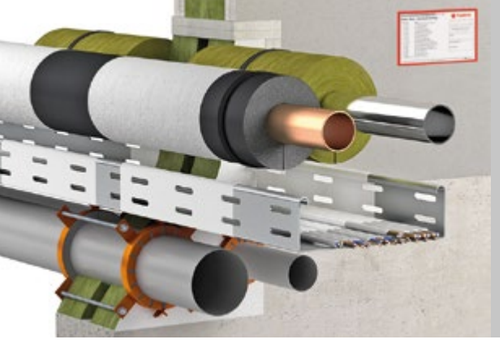


The seal must then be permanently labelledwith a sign. The identification plate must be attached to the component next to the seal and may be obtained from FLAMRO.

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 100 mm
Max. seal dimensions (W x H/L)	1000 x 600 mm 600 x 1000 mm	1000 x 600 mm[1)]	1000 x 600 mm 600 x 1000 mm
Seal thickness	60 mm	60 mm	60 mm
Coating length cable	double-sided 250 mm	double-sided 250 mm	double-sided 250 mm

[1)] Larger widths in accordance with the regulations of EN 1366-3, Section 13.5.2 are possible



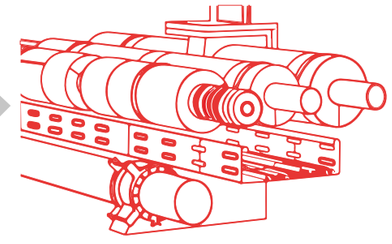
FLAMRO Multi Combi Seal EN

EI 90 / EI 120

ETA-13 | 0756
FM Global Approval No. 3044513

Description

The Combi Seal is used to preserve fire resistance at openings in lightweight partition walls, rigid walls and floors through which various types of cables and pipes are inserted.



Special Benefits

- Coating may be sprayed, brushed or spread with spatula
- No drops, clean working
- Easy installation and retrofitting
- Also approved for lightweight partition walls with steel and wooden stands
- Max. opening dimensions for walls 1400 x 2000 mm
- Short coating lengths for installations (200 mm)
- Coatable with aqueous emulsion paint
- Mineral fibre plates with external coating only
- High flexibility
- Area of application Y_2 in accordance with EOTA TR 024. The seals must be protected from rain and UV.
- The seal may also be installed in pressurised areas or in a vacuum
- Resistant to wind loads according to DIN EN 12211
- Air permeability according to DIN EN 1026

Permitted Configuration

- Non-combustible pipes made from steel, stainless steel, cast steel ≤ 168.3 mm
- CU pipes ≤ 88.9 mm
- Plastic pipes (PVC, PE) ≤ 160 mm in conjunction with Variant N II A Fire Protection Collar EI 120 U / U
- Sheathed cables up to Ø 80 mm
- Cable bundle up to Ø 100 mm
- Installation pipes ≤ 25 mm
- Synthetic rubber insulated pipes Armaflex Protect
- Ducts up to 25 mm, rigid | flexible | occupied | unoccupied | combustible | non-combustible | also as bundle
- Plastic pipes (PVC, PE) insulated with Arma Protect EI 120 U / C

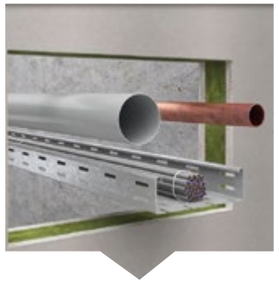
Sectional Insulation

- Mineral fibre shells ≥ 90 kg/m³
- Armaflex Protect

Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO BS system panel, single-sided coating	1000 x 625 x 60 mm	50060
FLAMRO BMS Putty	1 kg 5 kg 12.5 kg 25 kg	10010 10500 10125 10250
FLAMRO BMA Coating Material Airless	1 kg 5 kg 12.5 kg 25 kg	20010 20500 20125 20250
FLAMRO BMK from the cartridge	0,4 kg cartridge 1,0 kg cartridge	30004 30010
FLAMRO Variant N II A Fire Protection Collar	see page 54	Dependent on pipe diameter
FLAMRO UBB Strip	1000 x 60 x 2 mm	90050

How much material is required?



The component opening soffits must first be cleaned.

The inserted cables, lines, multicore tubes and cable supporting structures must be coated on both sides with FLAMRO BMA Ablation Coating. The dry layer thickness must be at least 2 mm.

When installing the Combi Seal in walls, the pipe collars must be installed on both sides of the wall; when installed in floors they must be positioned on the underside of the floor. The smallest fitting pipe collar for the pipe outer diameter must be used. The sectional insulation must be coated on both sides of the combi seal over a length of 250 mm using FLAMRO BMA Ablation Coating. The dry layer thickness must be at least 2 mm.

The openings between the component soffits and inserted cables/lines/multicore tubes/cable supporting structures must be sealed using a single layer of fire protection plates. The outer edges of the plates must be coated with FLAMRO BMA / BMS Ablation Coating.

The coating thickness must be at least 1 mm. Cable bundles must not be filled inside with fire protection materials.

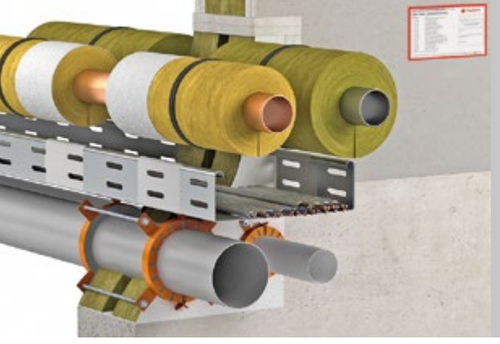
After the component opening has been sealed, all interstices and joints must be filled on the outer side using FLAMRO BMS / FLAMRO BMK Coating. The seal surfaces and the installations must then be coated on the outside using the ablation coating, so that the dry layer thickness is at least 2 mm.

The seal must then be permanently labelledwith a sign. The identification plate must be attached to the component next to the seal and may be obtained from FLAMRO.

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 122 mm	min. 150 mm	min. 122 mm
Max. seal dimensions (W x H/L)	970 x 1200 mm 1200 x 970mm	1200 x 970mm up to ∞ x 538 mm[1]	970 x 1200 mm 1200 x 970mm
Min. Seal thickness	130 mm	150 mm	130 mm
Coating length cable	double-sided 100 | 250 mm	double-sided 100 | 250 mm	double-sided 100 | 250 mm

[1] EN 1366-3, Section 13.5.2



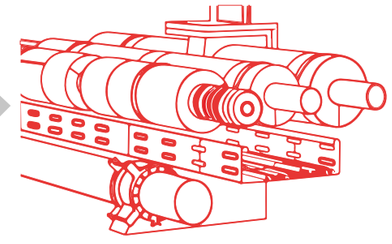
FLAMRO Multi Combi Seal S 90

EI 90

Exova Warringtonfire
(England - BS): No. Warres R10749
UL No. R25820

Description

Flexible combi seal consisting of mineral fibre plates and ablation coatings. The seal is used for sealing the openings in walls and floors through which the electric lines and pipes are inserted, thereby preventing flames and smoke from spreading.



Special Benefits

- Coating may be sprayed, brushed or spread with spatula
- No drops, clean working
- Easy installation and retrofitting
- Short coating length for cables from seal surface 100 mm
- Coatable with aqueous emulsions paint
- Interstices in the double panel seal do not require coating
- Coating overlap with the adjacent component not required
- High flexibility
- Sectional insulation with or without coating
- The dried out coatings are ageing and weather-resistant
- May be installed in pressurised areas or in a vacuum
- Use of threaded rods with crown bushing in the centre of the seal
- Resistant to wind loads according to DIN EN 12211
- Air permeability according to DIN EN 1026

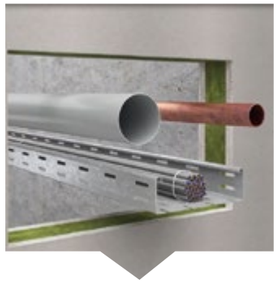
Permitted Configuration

- Electrical cable and lines of all types without Ø limit
- Cable bundle Ø ≤ 100 mm with single cables inside Ø ≤ 21 mm
- Cable supporting structures made from steel, aluminium or plastic
- Control cables Ø ≤ 15 mm
- RZD Multicore Tubes Ø ≤ 33 mm
- Plastic pipes Ø ≤ 160 mm
- Steel pipes Ø ≤ 168.3 mm
- Copper pipes Ø ≤ 88.9 mm

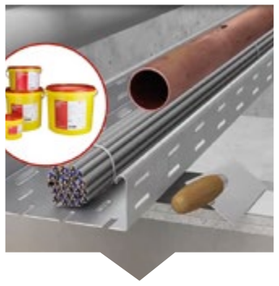
Form of Delivery

Article Description	Contents / Dimensions	Art.-No.
FLAMRO BS system panel, single-sided coating	1000 x 625 x 60 mm	50060
FLAMRO BMS Putty	1 kg 5 kg 12.5 kg 25 kg	10010 10500 10125 10250
FLAMRO BMA Coating Material Airless	1 kg 5 kg 12.5 kg 25 kg	20010 20500 20125 20250
FLAMRO Fire Protection Collar	see page 54	Dependent on Pipe diameter

How much material is required?



The component opening soffits must first be cleaned.

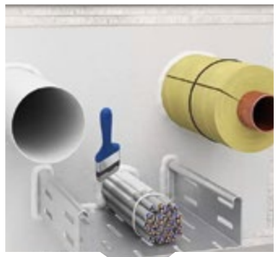


The inserted cables, lines, multicore tubes and cable supporting structures must be coated on both sides with FLAMRO BMA Ablation Coating. The dry layer thickness must be at least 2 mm.

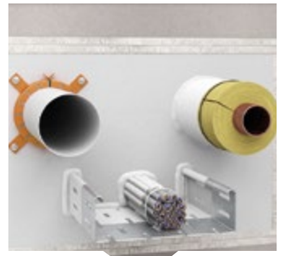
When installing the Combi Seal in walls, the pipe collars must be installed on both sides of the wall; when installed in floors they must be positioned on the underside of the floor. The smallest fitting pipe collar for the pipe outer diameter must be used. The sectional insulation must be coated on both sides of the combi seal over a length of 250 mm using FLAMRO BMA Ablation Coating. The dry layer thickness must be at least 2 mm.

The openings between the component soffits and inserted cables/lines/multicore tubes/cable supporting structures must be sealed using a single layer of fire protection plates. The outer edges of the plates must be coated with FLAMRO BMA / BMS Ablation Coating.

The coating thickness must be at least 1 mm. Cable bundles must not be filled inside with fire protection materials.



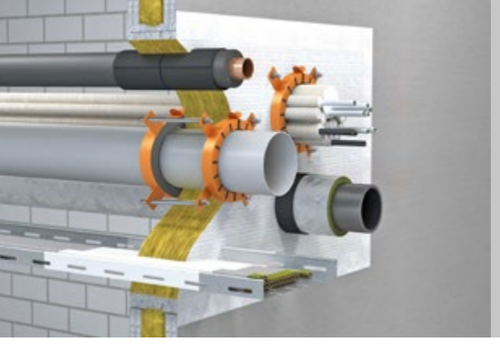
After the component opening has been sealed, all interstices and joints must be filled on the outer side using FLAMRO BMS / FLAMRO BMK Coating. The seal surfaces and the installations must then be coated on the outside using the ablation coating, so that the dry layer thickness is at least 2 mm.



The seal must then be permanently labelledwith a sign. The identification plate must be attached to the component next to the seal and may be obtained from FLAMRO.

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 100 mm
Max. seal dimensions (W x H/L)	1300 x 2000 mm	1500 x ∞ mm	1300 x 2000 mm
Min. Seal thickness	120 mm	120 mm	120 mm
Coating length cable	double-sided 100 mm	double-sided 100 mm	double-sided 100 mm



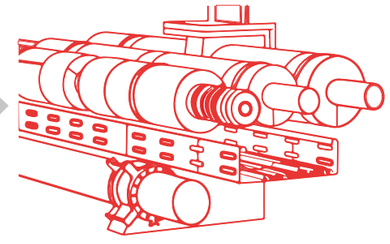
FLAMRO KSL Combi Seal

EI 90 / 120

ETA-16/0320

Description

Double-panel seal (soft seal) for sealing individual or bundled electric lines and cables and electrical installation pipes.



Special Benefits

- Suitable for use in wet or dry areas
- Easy installation and retrofitting
- High flexibility

Permitted Configuration

- Electric cables max. Ø 80 mm
- Electric installation pipes max. Ø 63 mm individual diameter
- Bundles of electric installation pipes max. Ø 125 mm
- Synthetic rubber insulated copper pipes max. Ø 88.9 mm
- Combustible wastewater pipes (PE, PP, PVC) max. Ø ≤ 160 mm
- Copper pipes max. Ø 89 mm
- Steel pipes max. Ø 160 mm
- Multilayer composite pipes Geberit Mepla max. Ø 75 mm

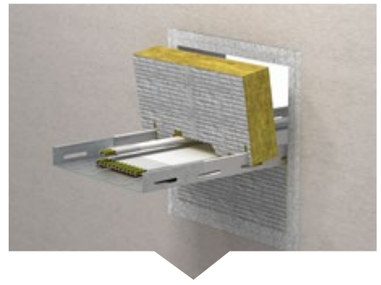
Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO Variant N II A Fire Protection Collar	see page 54	Dependent on pipe diameter
FLAMRO BMS Putty	1 kg 5 kg 12.5 kg 25 kg	10010 10500 10125 10250
FLAMRO BML	12.5 kg 25 kg	40125 40250
FLAMRO BSL Fire Protection Plate, single-side coating	D = 50 mm, 0.625 m^2	50050
FLAMRO Variant N-RM self-adhesive wrap	10000 x 100 x 1,5 mm	15015

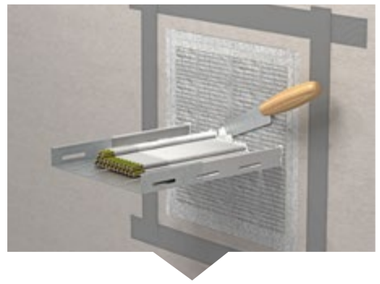
How much material is required?

The component opening soffits must first be cleaned. The soffit must be coated with FLAMRO BML Ablation Coating. The dry layer thickness must be at least 2 mm.

The inserted cables and the cable tray must be coated on both sides with FLAMRO BMA Ablation Coating.

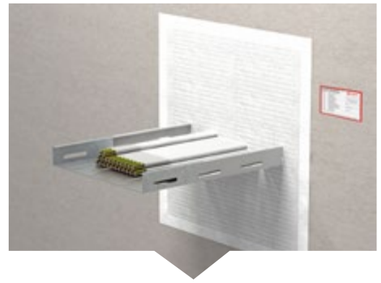


The openings must be sealed using fire protection plates cut to size and placed in two layers. Before the plates are fitted into the opening, the surrounding outer edges of the plates must be coated for bonding using FLAMRO BML Ablation Coating. The coating thickness must be at least 1 mm.



Once the component opening has been sealed, all interstices and joints must be filled on the outer side using FLAMRO BMS Ablation Coating, ensuring that the surface is even.

A strip of approx. 20 mm width of ablation coating must then be coated on the outside around the inserted installations so that the dry layer thickness is at least 1 mm.



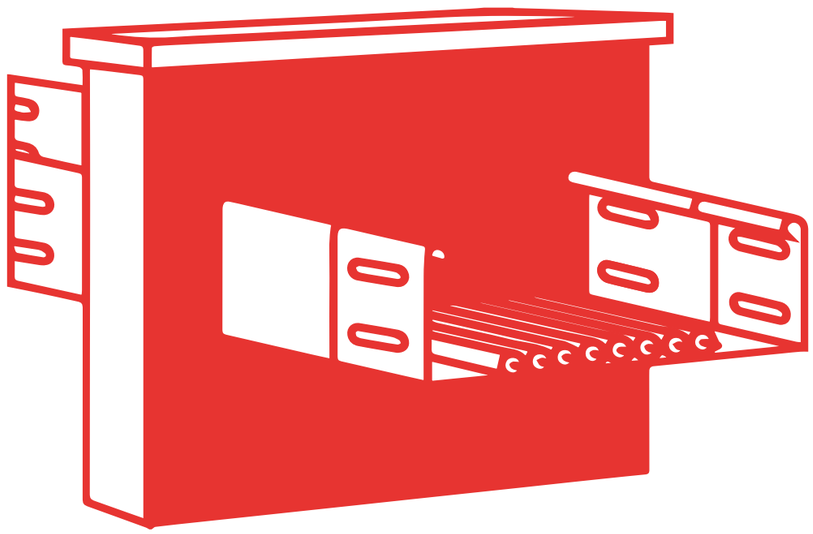
The seal must then be permanently labelled with a sign. The identification plate must be attached to the component next to the seal and may be obtained from FLAMRO.

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/Floor thickness	min. 100 mm	min. 150 mm	min. 94 mm
Max. seal dimensions (W x H/L)	1100 x 2200 mm	1000 x 2600 mm	1100 x 2200 mm
Min. Seal thickness	100 mm	150 mm	100 mm
Coating length cable	150 mm	150 mm	150 mm

04

Soft Seal Intumescent Paint

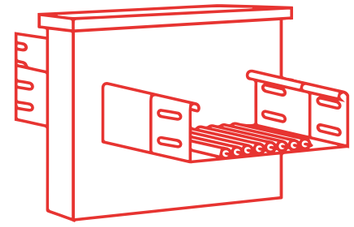


FLAMRO DSB-W
EI 120

ETA-16/0318

Special Benefits
- Rapid and easy installation of seal only with FLAMRO DSB-W
- Cable bundle up to Ø = 45 mm, single cable ≤ 5 x 1.5² and Ø ≤ 17 mm
- In the case of lightweight partition walls, no cladding is required for the opening soffits, if mineral wool insulation is present
- Minimum joint width between cable and opening soffit 1 mm
- No cable coating required
- Area of application Y_2 in accordance with EOTA TR 024. The seals must be protected from rain and UV.

Permitted Configuration
- Sheathed cables ≤ 5 x 1.5² and Ø ≤ 17 mm
- Bundle of telecommunication cables Ø ≤ 45 mm



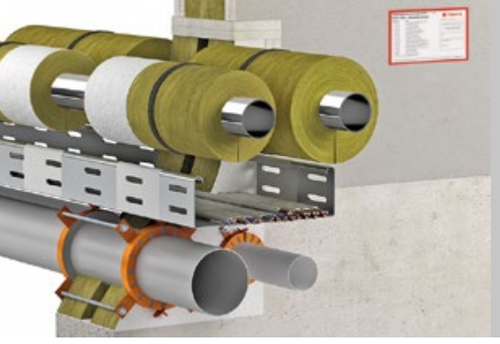
Description

FLAMRO DSB-W consists of an intumescent material that is used in structures for sealing remaining openings in small cable seals.

Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO DSB-W	310 ml	31004

How much material is required?



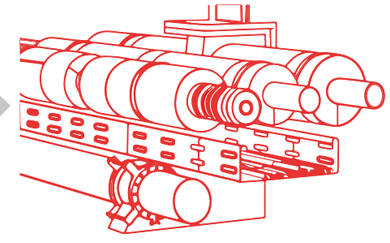
BC Seal 90 combi

EI 90

ETA-15/0556

Description

Combi seal consisting of 2 x 50 mm fire protection panels on an intumescent basis for cables, combustible pipes and non-combustible pipes.



Special Benefits

- Coating may be sprayed, brushed or spread with spatula
- No drops, clean working
- Easy installation and retrofitting

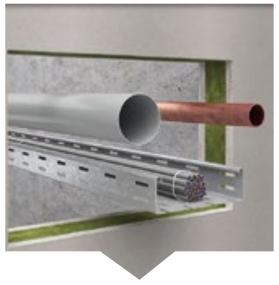
Permitted Configuration

- Electric cables ⩽ 80 mm
- Cable bundle ⩽ Ø 100 mm (with single cables ⩽ 21 mm)
- Waveguide cables
- Plastic pipes made from PVC, PE or PP ⩽ 110 mm
- Metal pipes ⩽ 168,3 mm with mineral wool

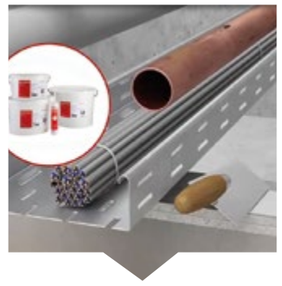
Form of Delivery

Article Description	Contents / Dimensions	Art. No.
BC Paint	6,0 kg 15,0 kg 22,5 kg 180,0 kg	20906 20915 20922 20918
BC Paint viscous	6,0 kg 15,0 kg 22,5 kg	21906 21915 21922
BC Putty	6,0 kg 15,0 kg 22,5 kg Disposable cartridge 400 g	10906 10915 10922 10904
BC Panel 50 mm - single-sided pre-coating 0,5 mm - single-sided coating 1,0 mm	0,6 m² 0,6 m²	51955 51951
Variant N II A Fire Protection Collar	see page 54	Dependent on pipe diameter

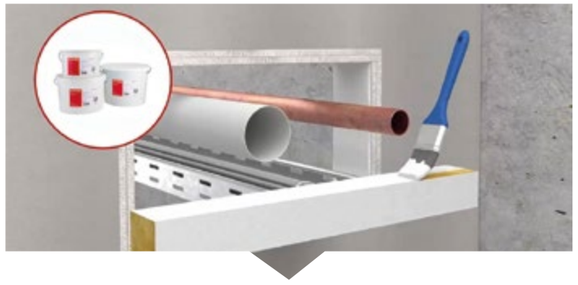
How much material is required?



The component opening soffits must first be cleaned.



The inserted cables, lines, multicore tubes and cable supporting structures must be coated on both sides with BC Paint / BC Putty.



When installing the Combi Seal in walls, the pipe collars must be installed on both sides of the wall; when installed in floors they must be positioned on the underside of the floor. The smallest fitting pipe collar for the pipe outer diameter must be used.

The sectional insulation must be coated on both sides of the combi seal over a length of 200 mm using BC Paint. The dry layer thickness must be at least 1 mm.

The openings between the component soffits and inserted cables / lines / multicore tubes / cable supporting structures must be sealed using a single layer of fire protection plates. The outer edges of the plates must be coated with BC Paint / BC Putty.

The coating thickness must be at least 1 mm. Cable bundles must not be filled inside with fire protection materials.

After the component opening has been sealed, all interstices and joints must be filled on the outer side using BC Paint. The seal surfaces and the installations must then be coated on the outside using the ablation coating, so that the dry layer thickness is at least 1 mm.

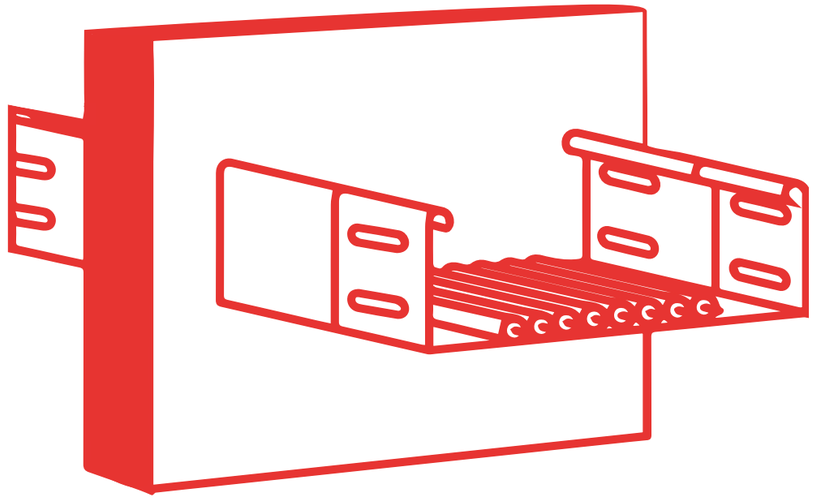
The seal must then be permanently labelledwith a sign. The identification plate must be attached to the component next to the seal and may be obtained from FLAMRO.

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 100 mm
Max. seal dimensions (W x H/L)	1200 x 2000 mm	800 x 2200 mm	1200 x 2000 mm
Min. Seal thickness	100 mm	100 mm	100 mm
Coating length cable	double-sided 200 mm	double-sided 200 mm	double-sided 200 mm

05

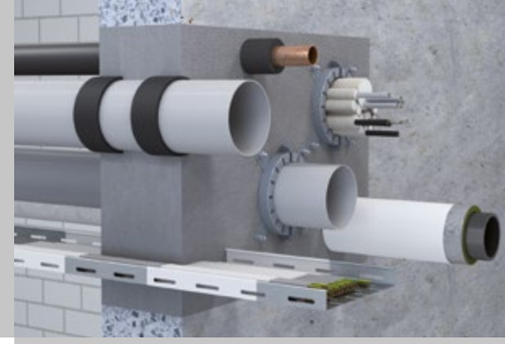
Mortar Seal



BC Seal S 90 FM I Combi

EI 120

ETA submitted



Special Benefits

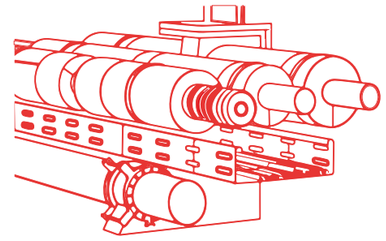
- No coating required
- Easy installation
- Retrofitting using retrofitting wedges
- Cables must be combined into cable layers

Permitted Configuration

- Electric cables and lines of all types
- Fibre optic cable
- Waveguide cable HELIFLEX
- Cable supporting structures made from steel, aluminium, plastic
- Non-combustible pipe conduits made from steel, stainless steel and cast iron up to 168.3 mm; Copper up to 88.9 mm
- Combustible pipe conduits made from types of plastic (standard B1 and B2 qualities) up to 110 mm
- Individual lines made from steel or plastic pipes for control purposes up to max. 15 mm
- Electric installation pipes up to 40 mm (bundles up to 100 mm)
- Retrofitting safeguard consisting of PP pipe 110 x 2.7 mm

Description

The Combi Seal FM I can be used for fireproof ducts in a rigid wall and storey floors. The main components therefore represent the pumpable FM I Fire Protection Compound, through which the single cables, cable bundles, cables, cable layers and cable supporting structures must be inserted.



Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FM I - Fire Protection Compound	10 kg 20 kg	90910 90920
BC Putty	6,0 kg 15,0 kg 22,5 kg Disposable cartridge 400 g	10906 10915 10922 10904
BC paint	6,0 kg 15,0 kg 22,5 kg 180,0 kg	20906 20915 20922 20918
Variant N II A Fire Protection Collar	see page 54	Dependent on pipe diameter
N III Wrap Fire Protection Wrap, self-adhesive	12500 x 50 x 2 mm	15512
BC Bandage KVB cutting	5200 x 250 mm	31007

BC Brandschutz Systeme

How much material is required?

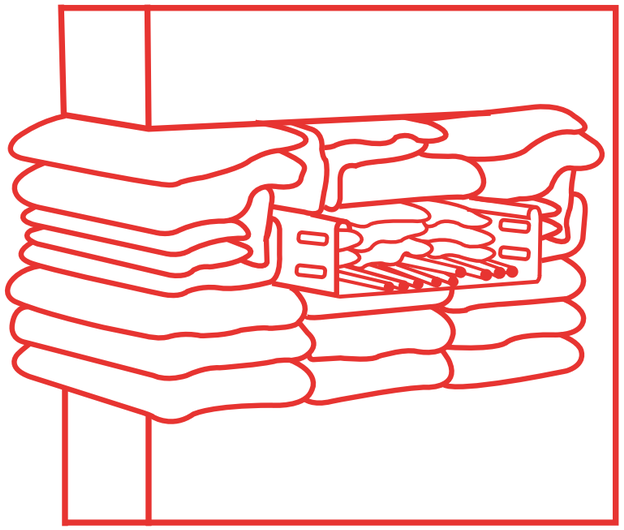
The products are manufactured at our site in Leiningen – close to Coblenz – and sold extensively throughout Germany and the world.

As a developer and manufacturer of flexible fire protection solutions for more than 35 years we have provided for the safety of our customers.

Continuous internal production monitoring ensures consistent quality, which is also confirmed by external quality controls.

06

Fire Protection Pillows



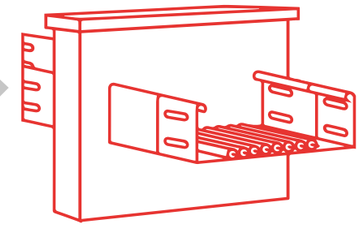
FLAMRO BK pad seal S 90

S 90

Exova Warrington Fire (England) No. J90150|1
TNO (Netherlands) No. 97-CVB-R1327

Description

Pillow seal for wall and floor/ceiling penetrations, designed to protect single and bunched electrical cables of all types, including optical fibre cables – without restrictions imposed on each cable's overall conductor cross-section – as well as their supporting structures (cable troughs, trays and ladders) made of steel, aluminium or plastics. Also permitted for single steel and plastic pipes < 15 mm.



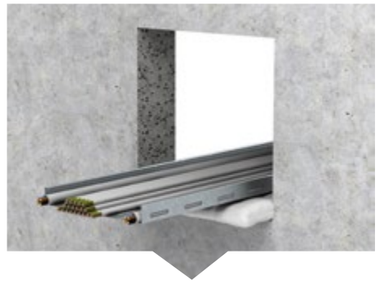
Special Benefits

- High flexibility thanks to fast installation and removal of the seal assembly
- Low seal thickness
- Easy retrofitting
- Insensitive to moisture
- Reusable for on-site applications, suitable for temporary sealing requirements
- No additional coating, sealing compound or packing material is required to fill cable interstices
- Even for floor penetration seals, the pillows are inserted horizontally instead of vertically
- Dirt and noise-free installation
- Impervious to smoke in accordance with DIN 4102, Part 9
- Easy installation thanks to 4 different pillow sizes
- Approved as a permanent firestop seal

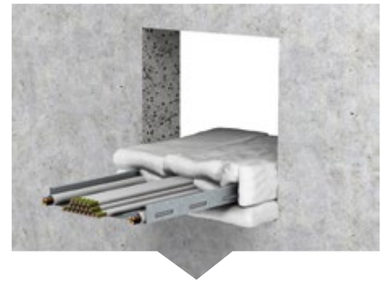
Permitted Configuration

- Electrical cables of any thickness and material, as well as cable trays made of steel, aluminium or plastic profiles
- Single steel and plastic pipes Ø ≤ 15 mm
- No filling of cable interstices required

Clean the aperture and remove all loose parts.



If possible, provide one layer of pillows underneath the cable bundle or cable reck.



Stuff all other layers of fire protection pillows very tightly around the cables. For that purpose the use of pillows in different sizes is recommended.

Make sure to stuff the fire protection pillows in a staggered pattern.

Press slightly on the fire protection pillows and shove into the sealing. The fire protection pillows are provided with a tab on one of the long sides.

The seal must then be permanently labelled with a sign. The identification plate must be attached to the componentnext to the seal and may be obtained from FLAMRO.

Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO BK 1 firestop pillows	250 x 220 x 15 mm	12001
FLAMRO BK 2 firestop pillows	250 x 145 x 15mm	12002
FLAMRO BK 3 firestop pillows	250 x 60 x 10 mm	12003
FLAMRO BK 4 firestop pillows	250 x 220 x 45 mm	12004

How much material is required?

Installation Data

	Rigid wall	Solid floors
Wall/floor thickness	min. 150 mm	min. 150 mm
Max. seal dimensions (W x H/L)	700 x 400 mm	400 x ∞ mm
Min. seal thickness	250 mm	240 mm

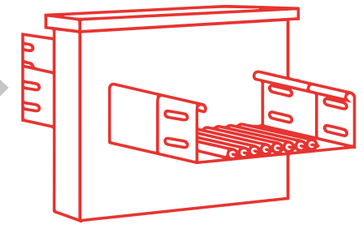
FLAMRO BK-N pad seal

EI 90 / 120 / 180

ETA submitted

Description

FLAMRO BK-N pillow seal consists of the high performance cooling FLAMRO BK-N fire protection pillows. The system features a very low effort in mounting. The fire protection pillows can be used for permanent and temporary sealing. They can be used several times without losing their technical properties.



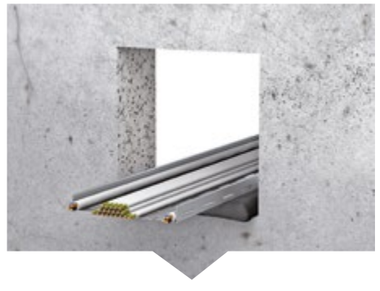
Special Benefits

- Can be used for permanent and temporary sealing
- Easy and excellent usability
- High flexibility
- Easy installation and subsequent installation
- No additional sealing necessary

Permitted Configuration

- Cables and electrical lines up to max. 80 mm single diameter

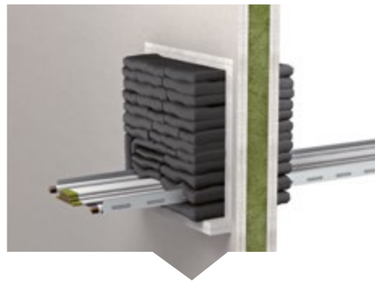
Clean the aperture and remove all loose parts. Check the correct installation of the cable reck on wall and floor which should be fixed by at least 25 cm after leaving the surface on the floor or wall.



If possible, provide one layer of pillows underneath the cable bundle or cable rack.

Stuff all other layers of fire protection pillows very tightly around the cables. For that purpose the use of pillows in different sizes is recommended.

At a component thickness < 250 mm the building component must be doubled with non-combustible building panels to the minimum thickness of 250 mm. The steel grid at the bottom side of the opening is for installation of the fire protection pillows.



The application in drywall partitions ≥ 100 mm is possible.

Make sure that the fire protection pillows are installed in a staggered pattern. Finally apply the label.

Form of Delivery

Article Description	Dimensions	Content	Art. No.
Firestop pillows BK - N Size 1 Firestop pillows BK - N Size 2 Firestop pillows BK - N Size 3	250 x 60 x 30 mm 250 x 130 x 35 mm 250 x 180 x 35 mm	30 pieces | box 20 pieces | box 15 pieces | box	12060 12130 12180

Available only in packaging units.
All packaging units are delivered including an intumescent fire protection wrap and a piece of fabric.

How much material is required?

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 100 mm
Max. seal dimensions (W x H/L)	600 x 600 mm	600 x 600 mm	600 x 600 mm
Min. seal thickness	250 mm	250 mm	250 mm

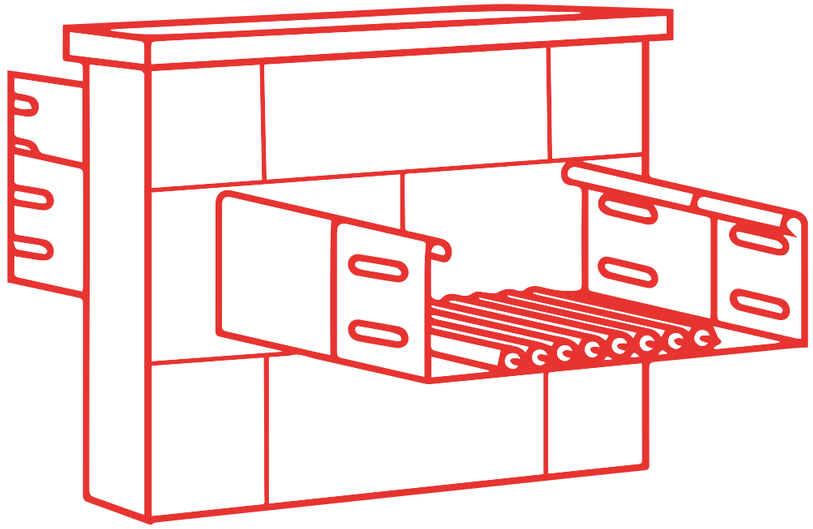
Our products are manufactured and developed in-house. The systematic development of our product range by our own research and development department makes it possible for us to provide innovative and practical solutions of the highest quality.

FLAMRO offers you and your employees practice-oriented instruction with installation examples and tips. Our training courses provide the knowledge for selecting the suitable fire protection measures and products quickly and easily. FLAMRO range. Register for one of our courses at:
www.flamro.de/unternehmen/schulungen

We will also provide you with information regarding:
- The current state of fire protection requirements in the individual German Federal States
- Current requirements from the Pipeline System Directives (LARs) of the German Federal States
- Information on the General Building Supervisory Authorisations (AbZ) and European Technical Assessment (ETA / ETB)

07

Fire Protection Bricks / Plugs



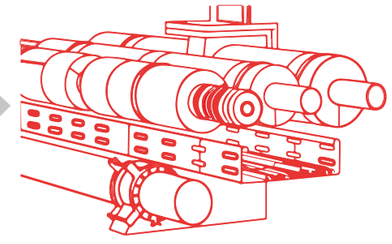
FLAMRO BSB-K Combi Seal EN

max. EI 180

ETA-15/0710

Description

Flexible combi seal for sealing of cables and pipes consisting of FLAMRO BSB-K Fire Protection Bricks. Its fire resistance prevents heat transfer and prevents fire from spreading in the event of a fire



Special Benefits

- Low overall depth of only 160 mm
- Condensation and moisture-resistant
- Area of application Y_2 in accordance with EOTA TR 024 (the seals must be protected from rain and UV.)
- Bricks must not be glued together during installation
- The bricks are flexible and will retur to the original shape after compression
- Easy application by trimming the Fire Protection Bricks to size
- No additional coating of fire protection bricks required
- Dust and fibre-free handling
- Smoke-proof
- Highly flexible sealing system for various types and specifications of openings

Permitted Configuration

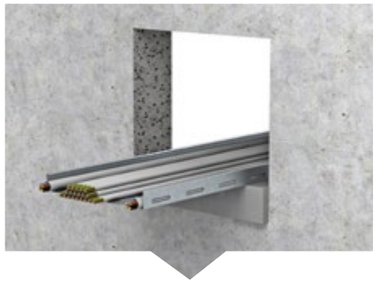
- Cable bundle ≤ Ø 100 mm
- Cable supporting structures
- Sheathed cables ≤ Ø 80 mm
- Non sheated cables ≤ Ø 24 mm
- Conduits made of plastic or steel ≤ Ø 25 mm
- Plastic pipes ≤ Ø 75 mm
- Copper pipes ≤ Ø 54 mm

Form of Delivery

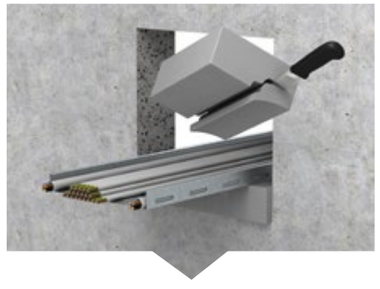
Article Description	Contents / Dimensions	Art. No.
FLAMRO BSB-K Fire Protection Bricks	160 x 130 x 60 mm	33160
FLAMRO BSB-KL Compound	0.5 kg 5.0 kg	70050 70500
FLAMRO UBB Strip	1000 x 60 x 2	90050

How much material is required?

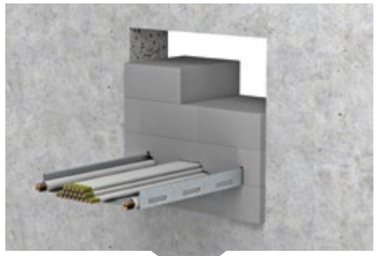
The component opening soffits must first be cleaned.



The first layer of bricks should be placed under the cable tray. The supporting constructions may also be supported if an intumescent strip is positioned between the supporting structure and soffit. The cables and the cable routes must be coated uniformly with FLAMRO-KL to a length of 360 mm.



The Fire Protection Bricks must be cut precisely to fit so that there is a tight connection with the component.



The Fire Protection Bricks must be pushed in during installation.

The residual joint interstices must be sealed using Fire Protection Coating FLAMRO-KL.

The seal must then be permanently labelled with a sign. The identification plate must be attached to the componentnext to the seal and may be obtained from FLAMRO.

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 100 mm
Max. seal dimensions	0,36 m²	0,60 m²	0,36 m²
Min. seal thickness	160 mm	160 mm	160 mm
Coating length cable	double-sided 100 mm	double-sided 100 mm	double-sided 100 mm

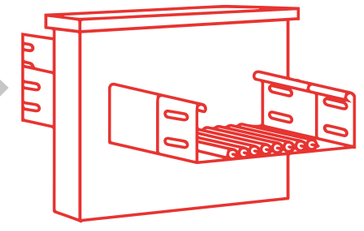
FLAMRO BSB-K Fire Protection Plug

max. EI 120

ETA-15/0816

Description

The kit composed of FLAMRO BSB-K plug and FLAMRO-KL for use in cable penetration seals. Penetrated by sheathed cables, cable bundles, control lines and conduits.



Special Benefits

- Low overall depth of only 160 mm
- Condensation and moisture-resistant
- The plugs must not be glued together during installation
- Ageing-resistant
- The plugs are flexible
- Easy handling
- No additional coating of fire protection plug required
- Dust and fibre-free handling
- Smoke-proof
- Highly flexible sealing system for various types and specifications of openings

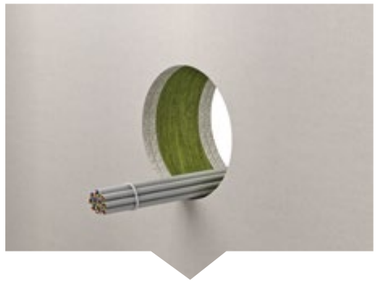
Permitted Configuration

- Sheathed cable ≤ Ø 21 mm
- Cable bundle ≤ Ø 50 mm
- Control lines ≤ Ø 16 mm made from steel or plastic
- Conduits made of steel or plastic, rigid or flexible, filled or not filled with cables Ø 20 mm
- Sheathed cables Ø ≤ 21 mm, optionally put together in layers

Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO BSB-K Fire Protection Plug	Ø 62 mm	33062
FLAMRO BSB-K Fire Protection Plug	Ø 70 mm	33070
FLAMRO BSB-K Fire Protection Plug	Ø 76 mm	33076
FLAMRO BSB-K Fire Protection Plug	Ø 104 mm	33104
FLAMRO BSB-K Fire Protection Plug	Ø 129 mm	33129
FLAMRO BSB-K Fire Protection Plug	Ø 154 mm	33154
FLAMRO BSB-K Fire Protection Plug	Ø 182 mm	33182
FLAMRO-KL Compound	0,5 kg 5,0 kg	70050 70500

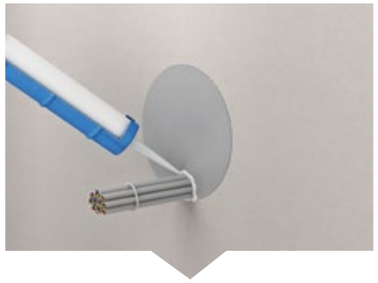
How much material is required?



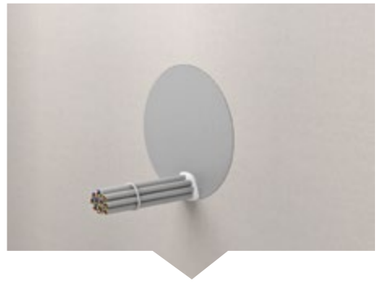
The component opening soffits must first be cleaned.

The plugs should be placed under the cable tray. The supporting structures may also be supported if an intumescent strip is positioned between the supporting structure.

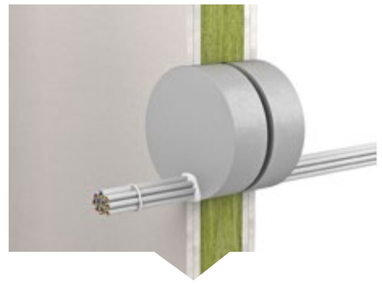
The Fire Protection Plugs must be cut precisely to fit so that there is a tight connection with the component.



The residual joint interstices must be sealed using Fire Protection Coating FLAMRO-KL.



All joints must be sealed airtight.



The seal must then be permanently labelled with a sign. The identification plate must be attached to the componentnext to the seal and may be obtained from FLAMRO.

Installation Data

	Rigid wall	Lightweight partition walls
Wall/floor thickness	min. 122 mm	min. 122 mm
Max. seal dimensions (W x H/L)	Ø 180 mm	Ø 180 mm
Min. seal thickness	122 mm	122 mm

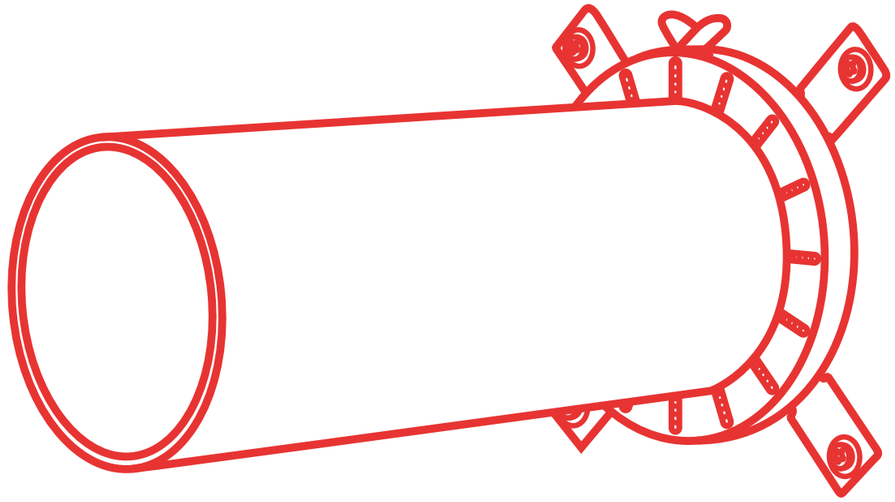
Manage and organise your projects using our calculation programme. After entering the details of your construction situation the programme rapidly calculates your seal, provides all of the data and permits required, generates the offer quickly and smoothly and provides a schedule of the relevant material requirements.
www.flamro.de/services/kalkulationsprogramm

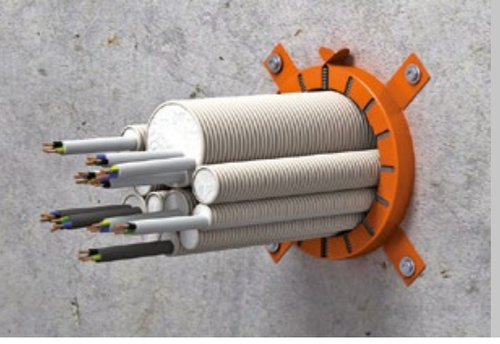
Every year we exhibit at as many as 5 fairs, two of which we support as sponsor and partner.

More than 30 people are currently employed at our site in Leiningen. Leiningen is a community in the Rhein-Hunsrück district of the German state of Rhineland Palatinate and belongs to the Emmelshausen local authority group.

08

Pipe seals





FLAMRO Variant N II KS fire protection collar

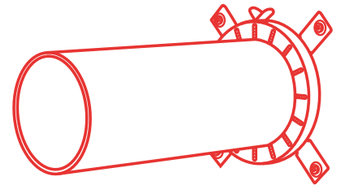
EI 120

ETA-13/0792

Description

Fire protection collar, filled with conduits or conduit bundles

- Wall penetration: collar mounted on both sides
- Foor penetration: one collar bottomside



Special Benefits

- Ideal for installation ducts, e.g. building refurbishments
- Limited space requirement due to low installation height
- Approved for lightweight partition walls
- Sealing of remaining openings using standard materials possible, e.g. concrete, cement mortar, gypsum
- Usable with previously installed pipes due to simple sealing technology
- Collar casings may adjoin when installing floor (zero clear ance)
- Filled or not filled conduits (spares for subsequent retrofitting provided)
- Limited space requirement due to low installation height
- The total cross-section of the cables and electric lines must not exceed 60 % of the seal surface, i.e. maximum occupation of opening
- Intumescent insertion area of application X in accordance with EOTA TR 024

Permitted Configuration

- Conduits made of PVC or Polyolefin, filled or not filled with cables Ø 21 mm
- Individual tube up to max. 63 mm outer diameter
- In bundle up to max. 125 mm outer diameter

Collar type	Outer diameter	Internal diameter	Installation height	Number of metal plates
N II A, Ø 32 mm	50 mm	36 mm	26 mm	2
N II A, Ø 40 mm	58 mm	44 mm	26 mm	2
N II A, Ø 50 mm	68 mm	54 mm	26 mm	2
N II A, Ø 63 mm	94 mm	67 mm	26 mm	4
N II A, Ø 75 mm	106 mm	79 mm	26 mm	4
N II A, Ø 90 mm	132 mm	94 mm	27 mm	4
N II A, Ø 110 mm	155 mm	114 mm	27 mm	4
N II A, Ø 125 mm	172 mm	129 mm	40 mm	4

Form of Delivery

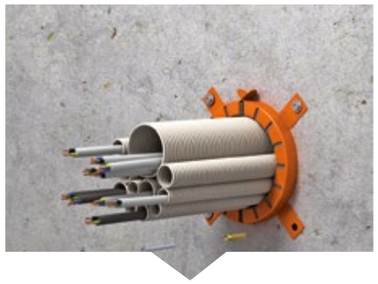
Article Description	Contents / Dimensions	Art. No.
FLAMRO Variant N II A Fire Protection Collar	see page 54	Dependent on Pipe diameter
BC Putty for smokegas-impermeable sealing of installation pipe	400 g cartridge	10904

How much material is required?

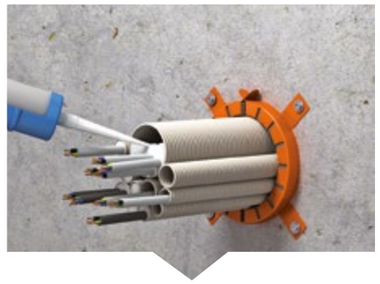
Insert the installation tube into the opening with or without cable occupancy. The conduits must protrude out of both sides of the wall / floor by at least 200 mm.

The remaining openings in the wall or floor must be filled in with FLAMRO M3 or FLAMRO KMO or plaster, e.g. FLAMRO Filler so that there are no cavities.

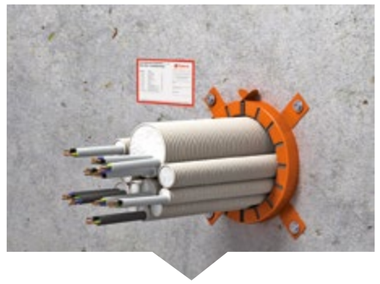
The appropriate fire protection collar must be selected. The internal diameter of the collar used must be no more than 30 mm greater than the diameter of the pipe or bundle.



All of the available fixing holes must be used.



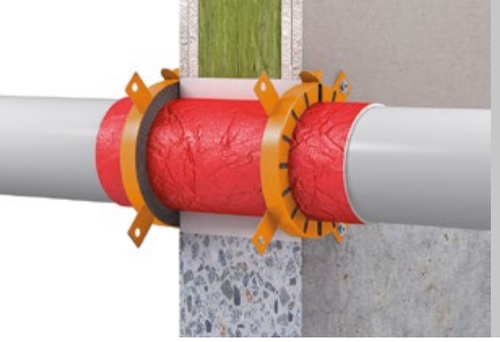
Fill the conduits with fire protection putty for smoke-proof sealing.



The seal must then be permanently labelled with a sign. The identification plate must be attached to the component next to the seal and may be obtained from FLAMRO.

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 100 mm
Max. seal dimensions (W x H/L)	Ø ≤ 125 mm	Ø ≤ 125 mm	Ø ≤ 125 mm



FLAMRO Variant N II A Fire Protection Collar

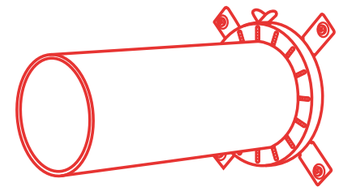
EI 90 / 120 / 240

ETA-13/0922, EI 120-U/U and EI 240-U/C

Description

Fire Protection Collar for sealing various types of pipes.

- Wall duct: Two Fire Protection Collars
- Floor duct: On floor underside a Pipe collar

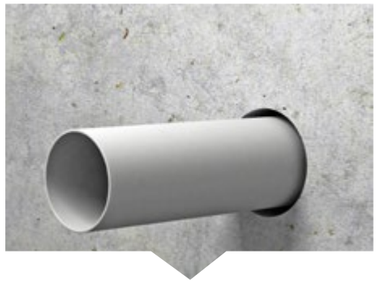


Special Benefits

- Low installation height of the collars especially for large dimensions

Permitted Configuration

- Plastic pipes (PVC, PE, PP)



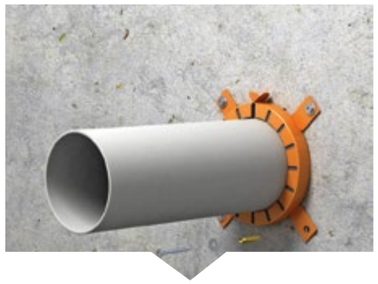
The Fire Protection Collar FLAMRO Variant N II A may be fitted around insulated or uninsulated pipes.

The remaining openings in the wall or floor must be filled in with mortar, e.g. FLAMRO M3 or FLAMRO KMO, or plaster, e.g. FLAMRO filler so that there are no cavities.

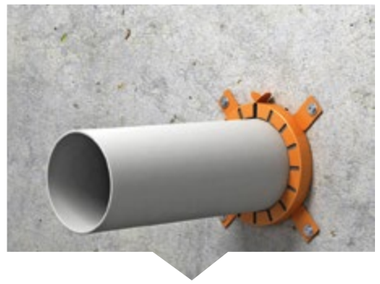
The appropriate fire protection collar must be selected.

Variant N II pipe collar

Diameter (mm)	Art. No.	Diameter (mm)	Art. No.	Diameter (mm)	Art. No.
32	15032	125	15125	280	15280
40	15040	140	15140	300	15300
50	15050	160	15160	315	15315
63	15063	180	15180	355	15355
75	15075	200	15200	400	15400
90	15090	225	15225		
110	15110	250	15250		



All of the available fixing holes must be used.



The collar must be fixed to the wall or floor using approved dowels or to lightweight partition walls using threaded rods.

The seal must then be permanently labelled with a sign. The identification plate must be attached to the component next to the seal and may be obtained from FLAMRO.

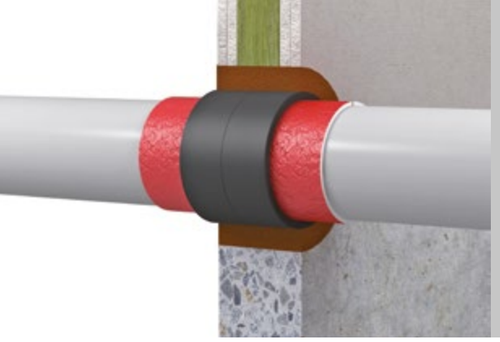
Form of Delivery

Article Description	Content / Dimensions	Art. No.
FLAMRO Variant N II A Fire Protection Collar	See upper table	Dependent on Pipe diameter

How much material is required?

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 100 mm
Max. pipe diameter	Ø ≤ 400 mm	Ø ≤ 400 mm	Ø ≤ 200 mm



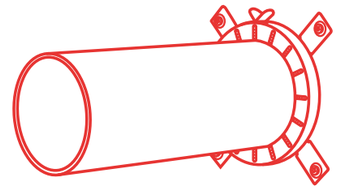
FLAMRO Variant N III Wrap

EI 90 / 120 / 240

ETA-16-0056
Certificate of constancy of performance 0761 - CPR - 0500
UL approved

Description

The FLAMRO Variant N III Wrap consists of a high performance intumescent material, which is wrapped in one or more layers around the plastic pipe or the insulation. The wrap must be inserted into the annular gap flush with the surface. In the event of a fire, the intumescent material expands with high pressure and thus seals the opening hermetically against flames and smoke. For wall installations one wrap on each side of the wall and for floor installations one wrap on the underside of the floor must be provided.

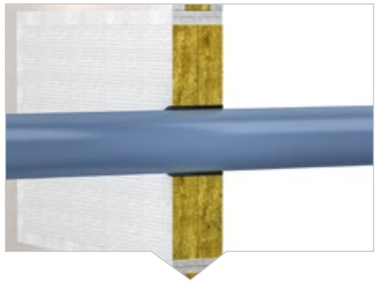


Special Benefits

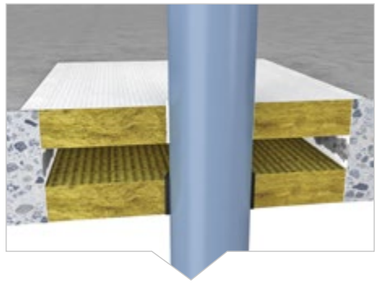
- Only one product for a wide range of pipes
- Easy and excellent usability
- Flexibel and easy installation
- Suitable for the application in wet and humid areas

Permitted Configuration

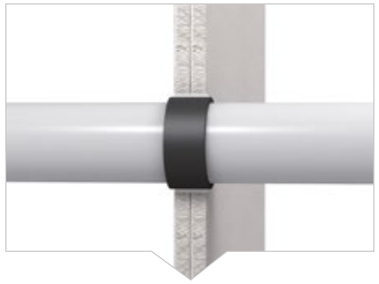
- Plastic pipes up to Ø 200 mm
- Insulated and uninsulated combustible pipes and sound-isolated sewer pipes
- Uninsulated plastic pipes
- Synthetic rubber insulated plastic pipes up to Ø 110 mm



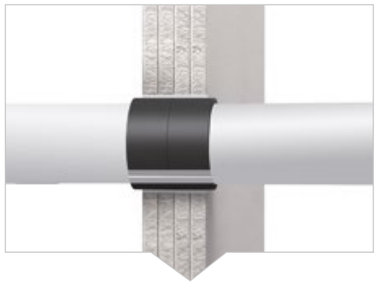
For the application in the BC Seal FM I Combi Seal in walls, the intumescent material must be wrapped around the pipe on both sides.



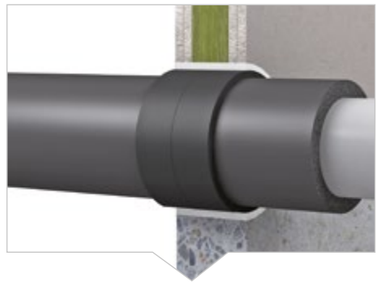
For floor installations, the intumescent material must be provided only on the underside.



For installations in shaft walls ≥ 2 x 20 mm, the intumescent material must be wrapped around the pipe only once.



For EI 120 requirements in shaft walls, the intumescent material must be wrapped around the pipe on both sides.



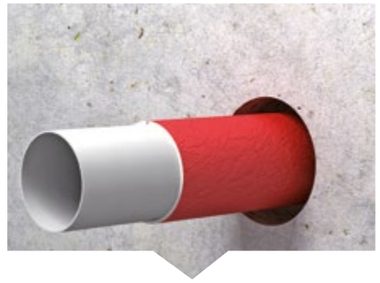
For drywall partitions and solid wall installations, the intumescent material must be provided on both sides.

For floor installations, the intumescent material must be provided only on the underside.

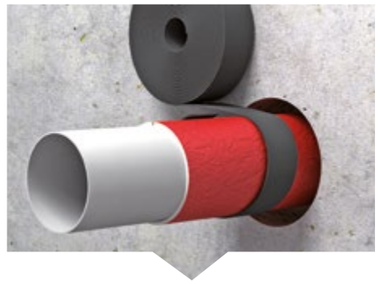
Form of Delivery

Article Description	Content / Dimensions	Art. No.
FLAMRO Variant N III Wrap, self-adhesive	12500 x 50 x 2 mm	15512

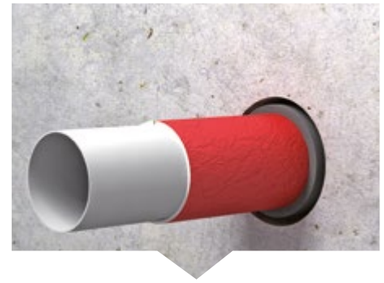
How much material is required?



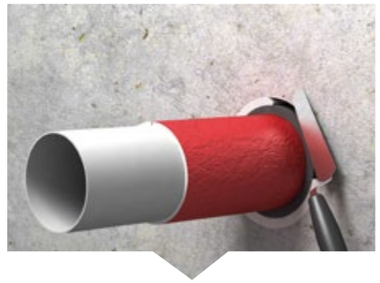
The strip, which will foam in case of fire, is wrapped around the pipe with the necessary number of layers (see tables below) around the pipe and mounted flush with the outer wall surfaces or bottom side of the floor.



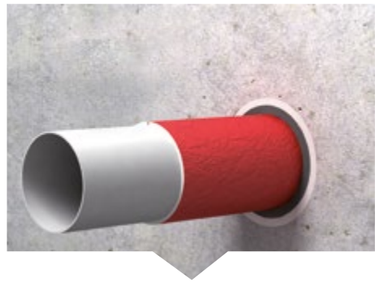
The strip is wrapped around the pipe, before the opening, and the individual layers of the strip are affixed to each other by pull off the self-adhesive protective film. With the non-self-adhesive variant, the end of the strip must be secured with adhesive tape.



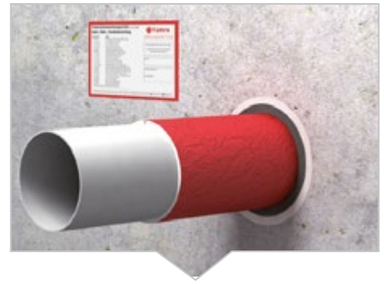
Then, the strip is pushed into the respective component opening as deep as possible so it is flush with the component.



Remaining annular gaps/joins in the component openings must be filled with mortar or gypsum to fill any gaps.



The length of the intumescent strip or the number of coils is defined according to the table below and the strip is cut to length using scissors or a knife.



The seal must then be permanently labelled with a sign. The identification plate must be attached to the component next to the seal and may be obtained from FLAMRO.

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 100 / 94 mm
Max. pipe diameter	Ø ≤ 110 / 200 mm	Ø ≤ 100 / 200 mm	Ø ≤ 110 / 200 mm

Number of layers Variant N III Wrap

Type of pipes	Pipe diameter (mm)	Pipe wall thickness (mm)	Insulation	Number of layers (wall)	Number of layers (floor)	Fire resistance rating
PVC	≤ 50	1,8 - 5,6	without	2	2	EI 120 / 240 U/C
PVC	> 50 ≤ 110	1,8 - 12,3	without	3	3	EI 120 / 240 U/C
PVC	≤ 160	4,7	without		6	EI 120 / 240 U/C
PVC	≤ 110	1,8 - 12,3	PE acoustic insulation ≤ 4 mm	3	3	EI 90 / 120 U/C
PVC	≤ 50	1,8 - 5,6	Synthetic rubber insulation ≤ 31,5 mm	3	3 / 4 / 5	EI 90 / 120 U/C
PVC	> 50 ≤ 110	1,8 - 12,3	Synthetic rubber insulation ≤ 31,5 mm	4	3 / 4 / 5	EI 90 / 120 U/C

Type of pipes	Pipe diameter (mm)	Pipe wall thickness (mm)	Insulation	Number of layers (wall)	Number of layers (floor)	Fire resistance rating
PE-HD	≤ 50	1,8	without	2	2	EI 120 / 240 U/C
PE-HD	> 50 ≤ 110	1,8 - 10,0	without	3	3	EI 120 / 240 U/C
PE-HD	≤ 110	1,8 - 10,0	PE acoustic insulation ≤ 4 mm	3	3	EI 90 / 120 U /C
PE-HD	≤ 50	1,8	Synthetic rubber insulation ≤ 9,5 mm	3	3	EI 90 / 120 U /C
PE-HD	> 50 ≤ 110	1,8 - 10,0	Synthetic rubber insulation ≤ 9,5 mm	3	3	EI 90 / 120 U /C
PE-HD	≤ 110	1,8 - 10,0	Synthetic rubber insulation ≤ 31,5 mm	4	4	EI 90 / 120 U /C

Type of pipes	Pipe diameter (mm)	Pipe wall thickness (mm)	Insulation	Number of layers (wall)	Number of layers (floor)	Fire resistance rating
PP	≤ 50	1,8	without	2	2	EI 120 U/C
PP	> 50 ≤ 110	1,8 -10,0	without	3	3	EI 120 U/C
PP	≤ 50	1,8	PE acoustic insulation ≤ 4 mm	2	2	EI 120 U/C
PP	> 50 ≤ 110	1,8 - 10,0	PE acoustic insulation ≤ 4 mm	3	3	EI 120 U/C
PP	≤ 50	1,8	Synthetic rubber insulation ≤ 9,5 mm	3	3	EI 120 U/C
PP	> 50 ≤ 75	1,8 - 10,0	Synthetic rubber insulation ≤ 9,5 mm	3	3	EI 120 U/C
PP	≤ 110	1,8 - 10,0	Synthetic rubber insulation ≤ 31,5 mm	4	4	EI 120 U/C

Type of pipes	Pipe diameter (mm)	Pipe wall thickness (mm)	Insulation	Number of layers (wall)	Number of layers (floor)	Fire resistance rating
REHAU RAUPIANO PLUS, Wavin SiTech, POLO-KAL NG, Geberit Silent-PP	≤ 50		PE acoustic insulation ≤ 4 mm	2	2	EI 120 U/C
	> 50 ≤ 75			3	3	EI 120 U/C
	> 75 ≤ 90			4	4	EI 120 U/C
	> 90 ≤ 110			5	5	EI 120 U/C

Type of pipes multi-layer composite pipes e.g.:	Pipe diameter (mm)	Pipe wall thickness (mm)	Insulation	Number of layers (wall)	Number of layers (floor)	Fire resistance rating
aquatherm green pipe, Uponor MLC pipe white, alpex-duo multilayer	≤ 40	3,5 - 15,2	without	2	2	EI 90 / 120 U/C
	> 40 ≤ 75		PE acoustic insulation ≤ 4 mm	3	3	EI 90 / 120 U/C
	> 75 ≤ 110		Synthetic rubber insulation ≤ 31,5 mm	4	4	EI 90 / 120 U/C

Type of pipes	Pipe diameter (mm)	Pipe wall thickness (mm)	Sealing type	Number of layers (wall)	Number of layers (floor)	Fire resistance rating
PVC	≤ 50	2,4	Flamro KSL Combined Penetration Seal	2	2	EI 60/120 U/U
PVC	≤ 75	3,6		3	3	EI 120 U/U
PVC	≤ 110	5,3		4	4	EI 90/120 U/U
PVC	≤ 160	7,7			6	EI 90 / 120 U/U
PP	≤ 50	2,9		2	2	EI 60/120 U/U
PP	≤ 75	4,3		3	3	EI 120 U/U
PP	≤ 110	6,3		4	6	EI 90/120 U/U
PP	≤ 160	9,1		6	6	EI 90 / 120 U/U

Type of pipes	Pipe diameter (mm)	Pipe wall thickness (mm)	Sealing type	Number of layers (wall)		Fire resistance rating
PVC	≤ 50	3,7	Shaft walls ≥ 2 x 20 mm	2		EI 90 U/U
PE	≤ 50	4,6		2		EI 90 U/U
PP	≤ 50	4,6		2		EI 90 U/U
PVC	≤ 110	5,3		4		EI 90/120 U/C
PE	≤ 110	6,3		4		EI 90/120 U/C
PP	≤ 110	6,3		4		EI 90/120 U/C

For more details please have a look at the ETA-16-0056.

Floors	Plastic									
Pipe diameter (mm)	32	40	50	63	75	90	110	125	140	160
Number of layers	2	2	2	3	3	3	3	6	6	6
Total length for floors (mm)	220	276	345	680	780	940	1150	2600	2890	3250

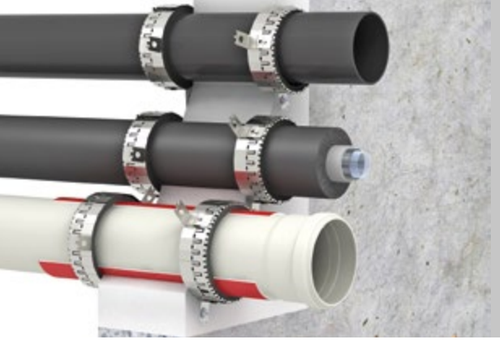
Walls	Plastic									
Pipe diameter (mm)	32	40	50	63	75	90	110	125	140	160
Number of layers	2	2	2	3	3	3	3	6	6	6
Total length for walls (mm)	2 x 220	2 x 276	2 x 345	2 x 680	2 x 780	2 x 940	2 x 1150	2 x 2600	2 x 2890	2 x 3250

Floors	Type of pipes	Plastic						
For floors	Pipe diameter (mm)	32	40	50	63	75	90	110
Uninsulated pipes	Number of layers	2	2	2	3	3	3	3
	Total length for floors (mm)	220	276	345	680	780	940	1150
with synthetic rubber for floors	Number of layers	3 (*4)	3 (*4)	3 (*4)	3 (*4)	3 (*4)	3 (*4)	3 (*4)
	Total length for thickness 9 mm	520	600	705	840	965	1120	1330
	Total length for thickness 13 mm	605	690	790	925	1050	1205	1420
	Total length for thickness 19 mm (*4)	1015	1130	1280	1460	1640	1850	2140
	Total length for thickness 25 mm (*4)	1190	1310	1450	1640	1810	2030	2320
	Total length for thickness 32 mm (*4)	1390	1510	1650	1840	2010	2230	2520

Walls	Type of pipes	Plastic						
For walls	Pipe diameter (mm)	32	40	50	63	75	90	110
Uninsulated pipes	Number of layers	2	2	2	3	3	3	3
	Total length for walls (mm)	2 x 220	2 x 276	2 x 345	2 x 680	2 x 780	2 x 940	2 x 1150
with synthetic rubber for walls	Number of layers	3 (*4)	3 (*4)	3 (*4)	2 x 3 (*4)	3 (*4)	3 (*4)	3 (*4)
	Total length for thickness 9 mm	2 x 520	2 x 600	2 x 705	2 x 840	2 x 965	2 x 1120	2 x 1330
	Total length for thickness 13 mm	2 x 605	2 x 690	2x 790	2 x 925	2 x 1050	2 x 1205	2 x 1420
	Total length for thickness 19 mm (*4)	2x 1015	2 x 1130	2 x 1280	2 x 1460	2 x 1640	2 x 1850	2 x 2140
	Total length for thickness 25 mm (*4)	2 x 1190	2x 1310	2 x 1450	2 x 1640	2 x 1810	2 x 2030	2 x 2320
	Total length for thickness 32 mm (*4)	2x 1390	2 x 1510	2 x 1650	2 x 1840	2 x 2010	2 x 2230	2 x 2520

Floors	Type of pipes	Composite Pipe											
For floors	Pipe diameter (mm)	14	16	18	20	26	32	40	50	63	75	90	110
Uninsulated pipes	Number of layers	2	2	2	2	2	2	2	3	3	3	4	4
	otal length for floors (mm)	97	111	125	138	180	220	276	520	680	780	1300	1590
with synthetic rubber for floors	Number of layers	2	2	2	2	2	2	2	2	3	5	5	5
	Total length for thickness 9 mm	220	235	250	400	445	485	540	610	850	2040	2320	2680
	Total length for thickness 13 mm	280	290	305	320	360	405	460	530	930	1830	2100	2460
	Total length for thickness 19 mm	360	380	390	402	445	485	540	610	1050	2045	2220	2680
	Total length for thickness 25 mm	445	460	470	485	530	570	625	700	1180	2260	2530	2900

Walls	Type of pipes	Composite Pipe											
For walls	Pipe diameter (mm)	14	16	18	20	26	32	40	50	63	75	90	110
Uninsulated pipes	Number of layers	2	2	2	2	2	2	2	3	3	3	4	4
	Total length for walls (mm)	2 x 97	2 x 111	2 x 125	2 x 138	2 x 180	2 x 220	2 x 276	2 x 520	2 x 680	2 x 780	2 x 1300	2 x 1590
with synthetic rubber for walls	Number of layers	2	2	2	2	2	2	2	2	3	5	5	5
	Total length for thickness 9 mm	2 x 220	2 x 235	2 x 250	2 x 400	2 x 445	2 x 485	2 x 540	2 x 610	2 x 850	2 x 2040	2 x 2320	2 x 2680
	Total length for thickness 13 mm	2 x 280	2 x 290	2 x 305	2 x 320	2 x 360	2 x 405	2 x 460	2 x 30	2 x 930	2 x 1830	2 x 2100	2 x 2460
	Total length for thickness 19 mm	2 x 360	2 x 380	2 x 390	2 x 402	2 x 445	2 x 485	2 x 540	2 x 610	2 x 1050	2 x 2045	2 x 2220	2 x 2680
	Total length for thickness 25 mm	2 x 445	2 x 460	2 x 470	2 x 485	2 x 530	2 x 570	2 x 625	2 x 700	2 x 1180	2 x 2260	2 x 2530	2 x 2900



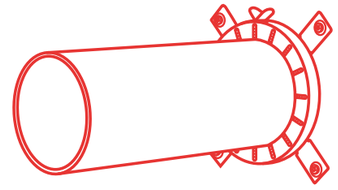
FLAMRO Variant N EC

EI 30 / 60 / 90 / 120 / 180 / 240

ETA-15-0802

Description

The FLAMRO Variant N EC consists of the high performance intumescent material which is wrapped in one or more layers around the pipe or the insulation and fixed with a stainless steel strap and hooks at the wall or floor. In the event of a fire, the intumescent material expands with high pressure and thus seals the opening hermetically against flames and smoke. For wall installations one pipe collar on each side of the wall and for floor installations one collar on the underside of the floor must be provided.



Special Benefits

- Flexible solution for individual applications
- Very low installation height of the collar
- One sealing serves for maximum 3 pipes side by side
- Suitable for the application in wet and humid areas
- Slim collar
- For plastic pipes in corner constructions only 2/3 of the pipe sealing may be applied
- Delivery in a practical dispenser box

Permitted Configuration

- Plastic pipes up to Ø 160 mm
- Sound-isolated sewer pipes up to Ø 160 mm
- Multi-layer composite pipes ≤ 110 mm
- Plastic pipes, copper pipes and steel pipes with synthetic rubber

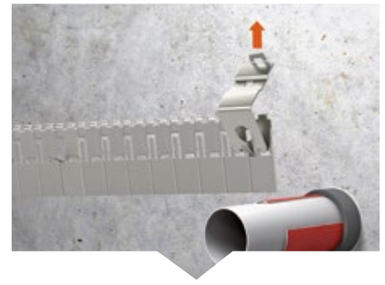
Form of Delivery

Article Description	Content / Dimensions	Art. No.
Dispenser box	10 m ROKU® Strip fire protection wrap, 3 m stainless steel strap, 18 hooks, 6 labels, 1 assembly instruction	15103
Stainless steel strap	3 m	15007
Hooks	18 pieces	15008

How much material is required?

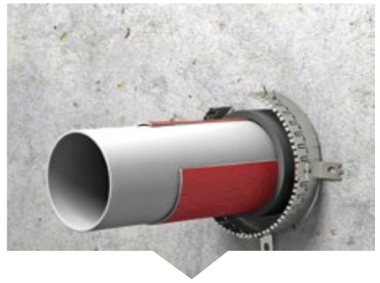
The collar could be installed around insulated and uninsulated pipes. Wrap the 40 mm wide intumescent wrap with appropriate layers depending on pipe diameter around the pipe or the insulation. Through taking-off the self-adhesive protection foil the layers of the strip will be glued together.

Count the number of required links according to the indications of the chart. Clip the clamp in the stainless steel strap at the required length. Make sure it is flush with the strap. Bend the stainless steel strap to and fro so that it splits. No additional tool required.



Push the long nose of the clamp through the stainless steel strap and fix the clamp in its place by pushing the clamp and finally bending by a 90º angle.

Clip the clamp in its position, push the 90º bended tab through the aperture and bend again by 90º so that the clamp is fixed.

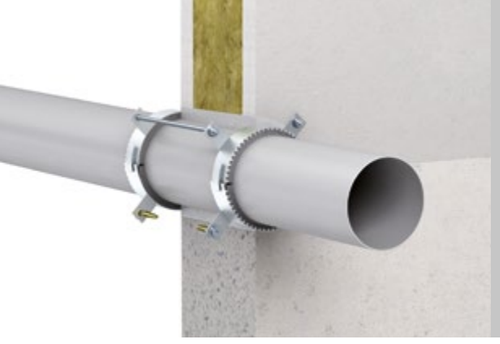


Bend the two noses at the end of the stainless steel strap by a 90° angle. Join the other end of the strap by pushing the bended tabs in the horizontal notches of the other side of the stainless steel strap. Finally, bend the tabs so that both ends of the strap are joined together.

Fix to the wall or floor with approved rawlplugs. In drywall partitions and mineral fiber sealings use threaded rods M6 or M8. After that, the sealing can be signed permanently with a label.

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 94 mm
Max. pipe diameter	Ø ≤ 160 mm	Ø ≤ 160 mm	Ø ≤ 160 mm



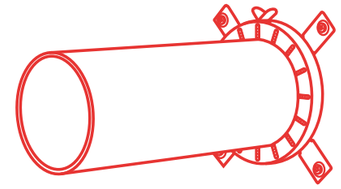
FLAMRO Variant N-B

EI 120 / 240

ETA-15/0907

Description

FLAMRO Variant N-B consists of a solid metal sleeve which is equipped with several layers of an intumescent material. In the event of a fire, the intumescent material expands and thus seals the opening hermetically against flames and smoke. For wall installations one pipe collar on each side of the wall and for floor installations one collar on the underside of the floor must be provided.



Special Benefits

- Fire resistance rating up to EI 240
- Easy and excellent usability

Permitted Configuration

- Plastic pipes up to Ø 160 mm

Form of Delivery

Article Description	Content / Dimensions	Art. No.
FLAMRO Variant N-B 50 Fire Protection Collar	Ø 50 mm	19050
FLAMRO Variant N-B 63 Fire Protection Collar	Ø 63 mm	19063
FLAMRO Variant N-B 75 Fire Protection Collar	Ø 75 mm	19075
FLAMRO Variant N-B 90 Fire Protection Collar	Ø 90 mm	19090
FLAMRO Variant N-B 110 Fire Protection Collar	Ø 110 mm	19110
FLAMRO Variant N-B 125 Fire Protection Collar	Ø 125 mm	19125
FLAMRO Variant N-B 140 Fire Protection Collar	Ø 140 mm	19140
FLAMRO Variant N-B 160 Fire Protection Collar	Ø 160 mm	19160

How much material is required?

Application walls			
Type of pipes	**Pipe diameter (mm)**	**Pipe wall thickness (mm)**	**Fire resistance rating**
PVC	≤ 160	1,8 - 12,3	EI 120 U/C
PE	≤ 110	1,8 - 10,0	EI 120 U/C
PP	≤ 160	1,8 - 14,6	EI 90/120 U/C
COES Bluepower	≤ 110		EI 120 U/C
Wavin SiTech	≤ 110		EI 90/120 U/C
Geberit Silent-PP	≤ 110		EI 90/120 U/C
POLO-KAL NG	≤ 160		EI 90/120 U/C
REHAU RAUPIANO PLUS	≤ 160		EI 120 U/C
TRIPLUS 3 layer soundproof pipe	≤ 110		EI 120 U/C
aquatherm green pipe MS	≤ 110		EI 120 U/C

Application floors			
Type of pipes	**Pipe diameter (mm)**	**Pipe wall thickness (mm)**	**Fire resistance rating**
PVC	≤ 160	1,8 - 12,3	EI 120/240 U/C
PE	≤ 160	1,8 - 14,6	EI 120/240 U/C
PP	≤ 110	1,8 - 10,0	EI 180/240 U/C
Wavin SiTech	≤ 160		EI 60/120 U/C
Geberit Silent-PP	≤ 110		EI 120 U/C
POLO-KAL NG	≤ 110		EI 90/120 U/C
aquatherm green pipe MS	≤ 110	2,2 - 15,2	EI 120 U/C
Uponor MLC pipe white	≤ 110	4,5 - 10,0	EI 90/120 U/C

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 94 mm
Max. pipe diameter	Ø ≤ 160 mm	Ø ≤ 160 mm	Ø ≤ 160 mm

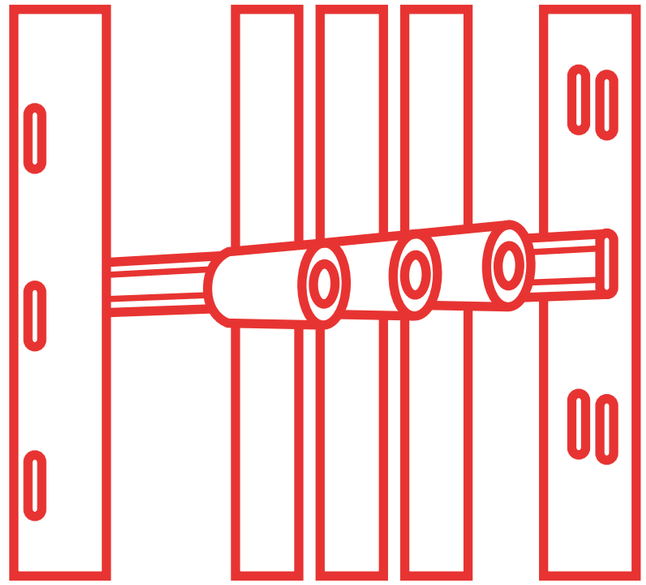
Since BC Brandchemie GmbH was founded in 1982, rigorously tested systems for structural fire protection, authorised for use throughout most of the world, have been developed and manufactured at the company head office in Egelsbach.

In order to satisfy the increasing demands in fire protection and the high standards we set for ourselves, we have introduced a special quality management system for the future, which has been certified by TÜV Rheinland and fulfils the requirements of DIN EN ISO 9001:2000.

BC and FLAMRO
Together, stronger, global – For your safety!
FLAMRO Brandschutz-Systeme GmbH and Brandchemie GmbH have been working together officially since 2016 and will distribute their products under one name in the near future.

08

Coatings



FLAMRO ABA Cable Coating

Fire expansion prevention

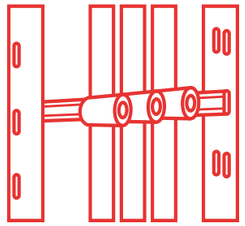
IEC Test EN 60332 | 60331

Description

- Expanding ablation coating for indoor use in the event of a fire
- Flame propagation along the cable is prevented for at least 40 minutes in accordance with IEC 60332-3-22 Category A verification
- Flame propagation along the cable is prevented for at least 30 minutes (Investigation Report U 99059 IBMB BS)

Special Benefits

- The coating may be painted or sprayed. Treatment may be carried out using an airless appliance
- Ideal for interiors (FLAMRO BMA is more suited for use in the open air)
- Limited coating thickness (dry layer thickness only 1 mm). No additional measures are required in the area of the cable clamps (vertical routes)
- Does not affect the internal heat behaviour of the cable



Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO ABA Ablation Coating	20 kg 0.5 kg	20020 20050

How much material is required?

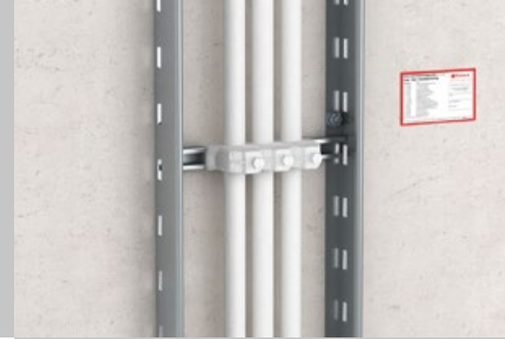
FLAMRO BMA Cable Coating

Fire expansion prevention

IEC Test EN 60332 | 60332
FM No. 3971

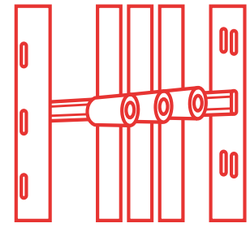
Special Benefits

- Coating may be painted and sprayed on
- Suitable for use in the open air
- Water-based, non-toxic
- Mould and rot-resistant (BMA A+F)
- Chemically neutral for the substrate
- Asbestos and solvent-free, virtually odourless
- Does not emit any toxic or corrosive gases in the event of a fire
- Permanently flexible, does not drip during work
- Water-resistant, suitable for indoor and outdoor use
- Ageing and weather-resistant
- May be overcoated (colour-matched)
- Thickened compound may be diluted with water and stirred again
- Resistant against radiation and UV radiation
- Does not affect the internal heat behaviour of the cable



Description

- Ablative coating material for electric cables
- May be used indoors and outdoors (refineries, Industrial facilities etc.)
- Prevents flames from spreading along cable (DIN EN 60332-1-2, DIN EN 60332-3-22 - Type of test A, 180 minutes)
- Insulation integrity in accordance with I IEC 60331-11 and IEC 60331-21



Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO BMA Coating Material Airless	1 kg 5 kg 12.5 kg 25 kg	20010 20500 20125 20250

How much material is required?

Cable Coating System 1

- Prevents fire from spreading
- Fire load enclosure
- Performance extension

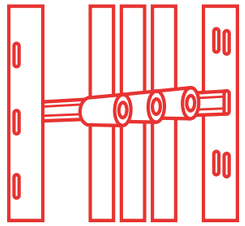
IEC 332-3
IEC 331-1

Description

BC Paint is a cable fire protection coating that prevents or delays cable fires on horizontally and vertically installed electric, cables, cable bundles and cable routes. In the event of a fire, the intumescent product forms a microporous, heat-insulating foam layer, which protects the various types of substrate from the effects of flames.

Special Benefits

- Coating may be painted and sprayed on
- Water-based, non-toxic
- Mould and rot-resistant
- Chemically neutral for the substrate
- Asbestos and solvent-free, virtually odourless
- Does not emit any toxic or corrosive gases in the event of a fire
- Does not drip during work
- Ageing-resistant
- May be overcoated with suitable colours (colour-matched)
- Thickened compound may be diluted with water and stirred again
- Resistant against radiation and UV radiation
- Does not affect the internal heat behaviour of the cable
- Cable coating with BC Paint
- Optional topcoat



Dry Layer Thickness

- Minimal requirement 550 µm
- Increased protective effect 900 µm
- High protective effect 1350 µm

Area of application

In all interiors with high protection requirement, e.g.:

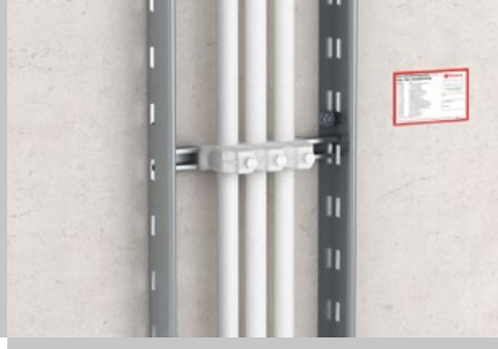
- Garages
- Safety areas
- Escape and exit routes
- Power stations / nuclear power stations
- Hospitals
- Schools
- Special structures
- etc.

Form of Delivery

Article Description	Contents / Dimensions	Art. No.
BC Paint	6.0 kg 15.0 kg 22.5 kg 180.0 kg	20906 20915 20922 20918

How much material is required?

BC Brandschutz Systeme



Cable Coating System 2

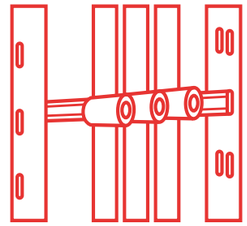
U 96 055 IBMB, TU BS
U 97 056 IBMB, TU BS

Description

BC Paint is a cable fire protection coating that prevents or delays cable fires on horizontally and vertically installed electric, cables, cable bundles and cable routes. In the event of a fire, the intumescent product forms a microporous, heat-insulating foam layer, which protects the various types of substrate from the effects of flames.

Special Benefits

- Coating may be painted and sprayed on
- Water-based, non-toxic
- Mould and rot-resistant
- Chemically neutral for the substrate
- Asbestos and solvent-free, virtually odourless
- Does not emit any toxic or corrosive gases in the event of a fire
- Does not drip during work
- Ageing-resistant
- May be overcoated with suitable colours (colour-matched)
- Thickened compound may be diluted with water and stirred again
- Resistant against radiation and UV radiation
- Does not affect the internal heat behaviour of the cable
- Cable coating with BC Paint
- Optional topcoat



Form of Delivery

Article Description	Contents / Dimensions	Art. No.
BC Paint	6.0 kg 15.0 kg 22.5 kg 180.0 kg	20906 20915 20922 20918

How much material is required?

FLAMRO ST-I steel fire protection

R 240

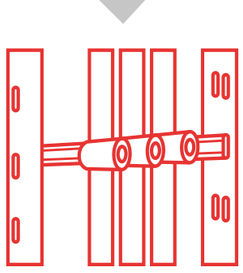
ETA 13/0837

Description

Reactive fire protection coating for steel components consisting of a primer, the intumescent building material FLAMRO ST-I, and an optional topcoat.

Special Benefits

- Fire resistance up to R240
- Topcoat available in more than 8000 colours
- Application by brush, roller, or spraying process



Areas of Application

- Indoor use
- For vertical and horizontal load-bearing steel profiles
- For open steel profiles, H / I- beams and columns
- Storage temperature between 5 and 30 °C

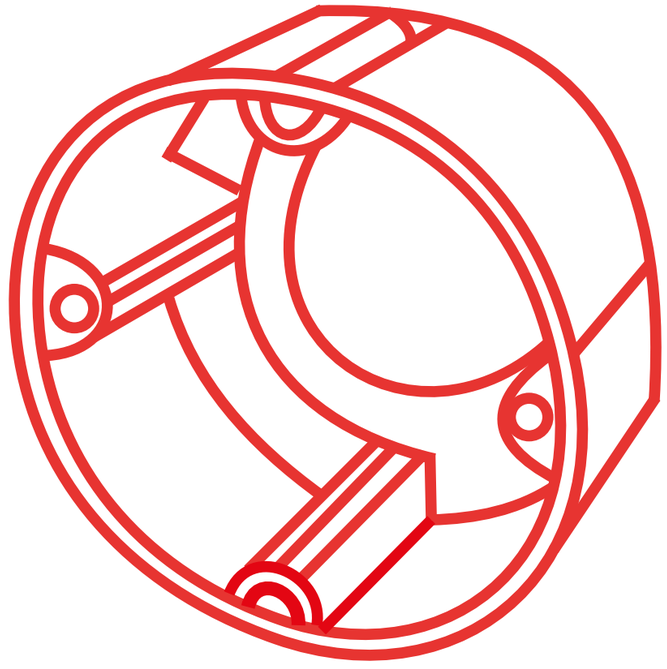
Form of Delivery

Article Description	Content / Dimensions	Art. No.
FLAMRO ST-I Fire protection coating	20 kg compound	22000

How much material is required?

09

Other Seals



FLAMRO BaGe fire protection bandage

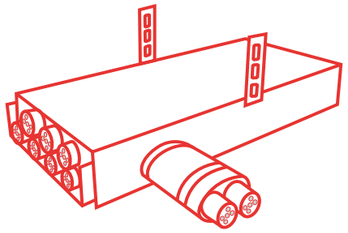
Z-56.217-3570

Description

FLAMRO fire protection wrap system is an effective cable fire protection sheath, which prevents or delays cable combustion along horizontally and vertically laid electrical cables, cable bundles and cable trays. In case of a fire the product forms a micro-porous, thermally insulating, two-sided layer of foam which provides an extremely effective cable fire protection even on the inside of the wrap. This system is often the only alternative in tight spaces or special applications.

Special Benefits

- Ideal for difficult installation scenarios
- Prevents fire propagation
- Encapsulates fire loads



Area of application

In all interiors with high protection requirement, e.g.:

- Garages
- Safety areas
- Escape and exit routes
- Power stations / nuclear power stations
- Hospitals
- Schools
- Special structures
- etc.

Form of Delivery

Article Description	Content / Dimensions	Art. No.
FLAMRO BaGe	1,04 m²	31005
Mounting kit	1 x 30 m strap 100 x metal straps	31006

How much material is required?

FLAMRO AC Kitt

EI 90 / 120 / 180 / 240

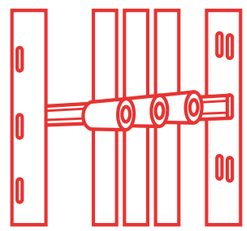
ETA-14/0014
ETA-14/0017

Special Benefits

- Easy installation and subsequent installation
- Dripless installation
- High flexibility
- Fire resistance rating up to 240 Min.

Areas of Application

- Sealing of building joints and connecting joints and in lightweight partition walls and solid components
- Sealing of individual cables with max. Ø 21 mm
- Sealing of individual cables with max. Ø 80 mm, telecommunications cable with max. Ø 21 mm or cable harnesses with max. Ø 100 mm
- Steel and stainless steel pipes with max. Ø 219 mm insulated with mineral wool insulation
- Plastic pipes with max. Ø 32 mm



Description

FLAMRO AC Kitt is used for the sealing of construction joints, cable and pipe insulation in solid walls, drywall partitions and solid floors. The system is characterized by a high fire resistance rating of up to 240 minutes.

Form of Delivery

Article Description	Content / Dimensions	Art. No.
FLAMRO AC Kitt	310 ml	30005

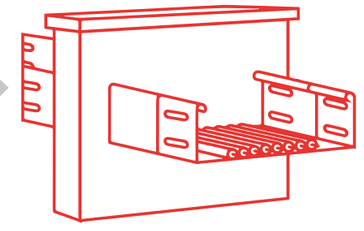
How much material is required?

FLAMRO BSS Foam Seal

Exova Warringtonfire
(England - BS): No. 189516

Description

Cable seal consisting of elastic fire stop foam. It is used for sealing openings in walls and floors, thereby preventing flames and smoke from spreading.



Special Benefits

- Foam does not drip during application
- Seal must not be additionally coated
- Easy retrofitting, hardened foam can e.g. be penetrated and cut using a knife
- 180 g cartridges are usable with a standard caulking gun
- 480 g cartridges may be used with appropriate 2K guns
- Easy handling because the material is mechanically expelled
- Any cut-off remainder can be used again
- No preliminary work required
- Dust and fibre-free installation
- Highly flexible sealing system for various types and specifications of openings
- Highly effective at appropriate working temperature (23 °C)
- Reinforcements for S 90 only, on one side or on both sides for wall openings / above or below floor.

Permitted Configuration

- Electric cables and lines of all types Ø ≤ 32 mm
- Cable supporting structures made from steel, aluminium or plastic
- Control cables Ø ≤ 15 mm
- RZD Multicore tubes Ø ≤ 30 mm
- Fibre optic cable

The cartridge must be shaken well before use.

The bottom cap must be removed and the mixing tube must be screwed onto the cartridge.

Use only properly fitting tappets on the cartridge and for loading in the standard gun.

Keep the cartridge vertical and pointing upwards, press until the mixing tube is 3/4 full.

Insert FLAMRO BSS Firestop Foam in the openings. The guns can now be held in any position required. When foaming, work slowly from the back to the front.

The seal must then be permanently labelled with a sign. The identification plate must be attached to the component next to the seal and may be obtained from FLAMRO.

Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO BSS Firestop Foam	180 g 480 g	32004 32010

How much material is required?

Installation Data

	Rigid wall	Solid floors	Lightweight partition walls
Wall/floor thickness	min. 100 mm	min. 150 mm	min. 100 mm
Max. seal dimensions (W x H/L)	220 x 220 mm	220 x 220 mm	220 x 220 mm
Min. seal thickness	min. 200 mm	min. 200 mm	min. 200 mm

FLAMRO BSD fire protection socket

EI 90

ETA-15/0598

Description

Ready assembled fire protection socket for the sealing of electrical installations. The core inside of the FLAMRO BSD fire protection socket is foaming up in a case of fire and seals the installation opening reliable for at least 90 minutes.

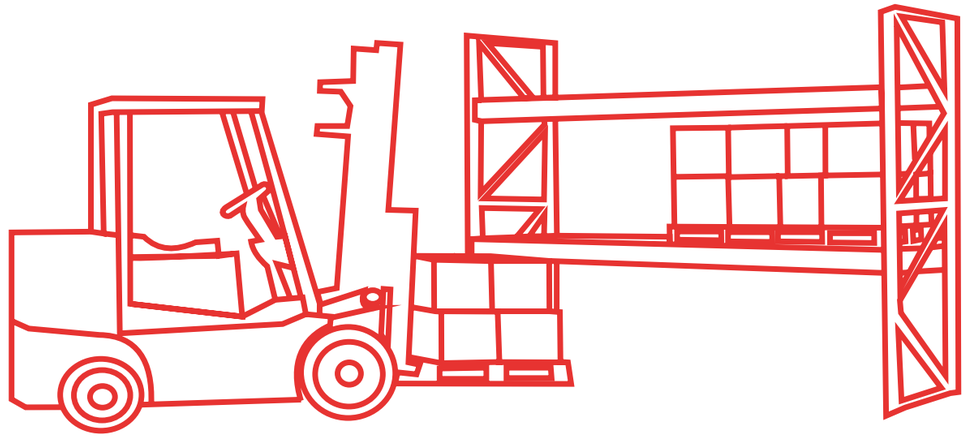
Special Benefits

- Fire resistance class EI 90
- Different versions: shallow, deep and double
- Simple assembly with low effort
- Up to 5 socket boxes can be mounted
- Dust- and fibre-free processing

Form of Delivery

Article Description	Contents / Dimensions	Art. No.
FLAMRO BSD 118 Fire protection socket	Ø 2 x 74 mm Depth = 54 mm	16118
FLAMRO BSD 117 Fire protection socket	Ø 74 mm Depth = 54 mm	16117
FLAMRO BSD 115 Fire protection socket	Ø 74 mm Depth = 45 mm	16115

How much material is required?



Article	Order No.	Contents | Dimensions
FLAMRO BMS Filler	10010	1 kg compound
	10500	5 kg compound 90 compounds = 1 pallet
	10125	12.5 kg compound 39 compounds = 1 pallet
	10250	25 kg compound 24 compounds = 1 pallet
FLAMRO BMA Airless Coating Material May be painted or sprayed	20010	1 kg compound
	20500	5 kg compound 90 compounds = 1 pallet
	20125	12.5 kg compound 39 compounds = 1 pallet
	20250	25 kg compound 24 compounds = 1 pallet
FLAMRO BS Fire Protection Panel single-sided coating 1000 x 625 x 60 mm **FLAMRO BS 60** 2 Fire Protection Panels double-sided coating 1000 x 625 x 60 mm	50060	1 panel = 0.625 m² 2 items = 1 packet 60 items = 360 kg = 1 pallet
	50036	1 plate = 0.625 m² 60 items = 480 kg = 1 pallet
	Fire protection plates may only be sent in a minimum of 2 items.	
FLAMRO BSL 50-1 single-sided coating	50050	1 panel = 0,625 m2 60 items = 1 pallet
FLAMRO BML	40060	6 kg compound 80 compounds = 1 pallet
	40125	12,5 kg compound 39 compounds = 1 pallet
	40250	25 kg compound 24 compounds = 1 pallet

Contents | Dimensions	Order No.	Article
1000 x 60 x 2 mm	90050	**FLAMRO UBB** Universal Fire Protection Strip for FLAMRO KMO and Multi Combi Seal
6 kg compound	20906	**BC Paint**
15 kg compound	20915	
22.5 kg compound	20922	
180 kg compound	20918	
6 kg compound, viscous	21906	
15 kg compound, viscous	21915	
22.5 kg compound, viscous	21922	
400 g cartridge	10904	**BC Putty**
6 kg compound	10906	
15 kg compound	10915	
22.5 kg compound	10922	
50 mm, single-sided pre-coating	51955	**BC Platte**
50 mm, single-sided coating	51951	
60 mm, double-sided pre-coating	52965	
60 mm, double-sided coating	52961	
80 mm, double-sided pre-coating	52985	
80 mm, double-sided coating	52981	

Article	Order No.	Contents | Dimensions
FLAMRO DSB-W Intumescent paint 	31004	310 ml cartridge 20 items = 1 box 36 boxes = 1 pallet The DSB cartridges may be used with normal standard caulking guns. This material is used for sealing individual cables in accordance with LAR
FM I Fire Protection Compound Mortar 	90910	10 kg tub
	90920	20 kg bag
	90903	Mortar gun 2.0 VAK incl. carrying strap and base

FLAMRO BK Fire Protection Pillows 			
FLAMRO BK 1 (250 x 220 x 15 mm)	12001	15 Pieces | Box	
FLAMRO BK 2 (250 x 145 x 15 mm)	12002	20 Pieces | Box	
FLAMRO BK 3 (250 x 60 x 10 mm)	12003	50 Pieces | Box	
FLAMRO BK 4 (250 x 220 x 45 mm)	12004	10 Pieces | Box	
	Available only in packaging units.		

FLAMRO BK-N Fire Protection Pillows 			
BK-N G Size 1 (250 x 60 x 30 mm)	12060	30 Pieces | Box	
BK-N Size 2 (250 x 130 x 35 mm)	12130	20 Pieces | KBox	
BK-N Size 3 (250 x 180 x 35 mm)	12180	15 Pieces | Box	
	Available only in packaging units. All packaging units are delivered including an intumescent fire protection wrap and a piece of fabric.		

Contents | Dimensions	Order No.	Article
0.4 kg cartridge 20 items = 1 box 36 boxes = 1 pallet	30004	**FLAMRO BMK Putty** Caulking gun for putty 
1 kg cartridge 10 items = 1 box 28 boxes = 1 pallet Special caulking gun Art. No.: 30100 required	30010	
1 caulking gun for 1 kg cartridge	30100	

FLAMRO BSB-K Fire Protection Bricks		**Flamro BSB-K** Fire Protection Bricks for combustible pipes
L | W | H 160 x 130 x 60	33160	
FLAMRO BSB-K Plug Ø 62 mm	33062	
FLAMRO BSB-K Plug Ø 70 mm	33070	
FLAMRO BSB-K Plug Ø 76 mm	33076	
FLAMRO BSB-K Plug Ø 104 mm	33104	
FLAMRO BSB-K Plug Ø 129 mm	33129	
FLAMRO BSB-K Plug Ø 154 mm	33154	
FLAMRO BSB-K Plug Ø 182 mm	33182	

Contents | Dimensions	Order No.	Article
FLAMRO BSB-KL Compound 0.5 kg cartridge 20 items | box	70050	**FLAMRO BSB-KL Compound** for Fire Protection Bricks BSB-K 
FLAMRO BSB-KL Compound 5.0 kg compound	70500	

Article	Order No.	Contents | Dimensions
FLAMRO Variant N II A Fire Protection Pipe Collar for combustible pipes and Electric installation pipes including 1 seal plate	15032	N II A 32
	15040	N II A 40
	15050	N II A 50
	15063	N II A 63
	15075	N II A 75
	15090	N II A 90
	15110	N II A 110
	15125	N II A 125
	15140	N II A 140
	15160	N II A 160
	15180	N II A 180
	15200	N II A 200
	15225	N II A 225
	15250	N II A 250
	15280	N II A 280
	15300	N II A 300
	15315	N II A 315
	15355	N II A 355
	15400	N II A 400

Article	Order No.	Contents | Dimensions
FLAMRO Fixing Set for Flamro Variant N II A		Equipment fixing set consisting of metal Multipurpose dowels and screws
	15001	to Variant 50
	15002	Variant 63 to 125
	15003	Variant 140 to 160
	15004	Variant 180 to 200
	15005	Variant 225 to 250
	15006	Variant 280 to 400

Contents | Dimensions	Order No.	Article
Dispenser box 10 m ROKU® Strip fire protection wrap, 3 m stainless steel strap, 18 hooks	15103	**FLAMRO Variant N EC**
Single articles 3 m stainless steel strap	15007	
Single articles 15 hooks	15008	

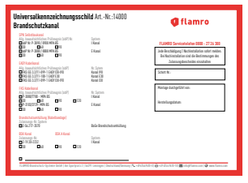
Contents | Dimensions	Order No.	Article
12.500 x 50 x 2 mm self-adhesive	15512	**FLAMRO Variant N III Wrap**

Contents | Dimensions	Order No.	Article
10000 x 100 x 1,5 mm self-adhesive	15015	**FLAMRO Variant N-RM**

Contents | Dimensions	Order No.	Article
Variant N-B Ø 50 mm	19050	**FLAMRO Variant N-B**
Variant N-B Ø 63 mm	19063	
Variant N-B Ø 75 mm	19075	
Variant N-B Ø 90 mm	19090	
Variant N-B Ø 110 mm	19110	
Variant N-B Ø 125 mm	19125	
Variant N-B Ø 140 mm	19140	
Variant N-B Ø 160 mm	19160	

Article	Order No.	Contents | Dimensions
FLAMRO BSS Firestop Foam 180 g 	32004	180 g cartridge incl. ejection tappet and 2 mixing tubes 12 packs = 1 box 36 boxes = 1 pallet Our BSS cartridges may be used with the ejection tappet in standard caulking guns. Foam volume at 18 °C/23 °C 180 g cartridge approx. 650 | 1000 ml
FLAMRO BSS Firestop Foam 480 g 	32010	480 g cartridge* 12 items = 1 box 36 boxes = 1 pallet The 480 g cartridges must used with a special caulking gun. (FLAMRO Article 32100) FLAMRO BSS Fire Stop Foam Foam volume at 18 °C/23 °C 480 g cartridge approx. 1750 | 2500 ml *Each cartridge is delivered with 2 mixing tubes.
Special caulking gun for 480 g cartridges for BSS 	32100	Special caulking gun for 480 g cartridge, 1 item
	32205	Mixing tube 10 item = 1 PU
	32210	Mixing tube extension 200 mm

Contents | Dimensions	Order No.	Article
0.5 kg compound	20050	**FLAMRO ABA** Coating Material Expanding ablation fire protection coating material for electric cables 
20 kg compound 27 comp. = 540 kg = 1 pallet	20020	
20 kg compound	22000	**FLAMRO ST-I** Fire protection coating 
5,4 m² | roll 1,04 m wide	31005	**FLAMRO BaGe** Fire protection bandage 
Mounting kit 1 roll = 30 m strap + 100 pieces metal straps	31006	
5200 x 250 mm	31007	**FLAMRO BaGe** Fire protection bandage cutting 
310 ml cartridge	30005	**AC Kitt** 
BSD 115, Ø 74 mm, depth= 45 mm 12 pieces | box	16115	**FLAMRO BSD** Fire protection socket 
BSD 117, Ø 74 mm, depth= 54 mm 12 pieces | box	16117	
BSD 118, Ø 2 x 74 mm, depth= 54 mm 6 pieces | box	16118	

Article	Order No.	Contents | Dimensions
FLAMRO Retrofitting Set Replacement parts available for order 	80100	Contents:
	10005	2 x 0.5 kg BMS
	20005	0.5 kg BMA
	30004	0.4 kg BMK
	80108	Brush
	80111	Folding ruler
	80109	Knife
	80106	Filler
	80101	BS Fire Protection Plates 4 items 310 x 115 x 60 mm
		4 identification plates
FLAMRO A Identifcation plate Printed on both sides 	14000	Universal identification plate
BC Identifcation plate 	14900	Universal identification plate

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