SFB
SMARTFIREBLOCK

Smart Fire Block

www.smartfireblock.rs

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About us

SmartFireBlock Ltd is a company that manufactures Passive fire protection (PFP) products. Our business philosophy is to become a strategic and well-organized company that will provide novel technology products and eco-technological solution for the market. We manufacture next generation fire protection materials and ready-to-use solutions for the construction and automotive/public transportation industry.

We offer palette of 10+ passive fire protection products based on a unique formula. Extreme performance confirmed in field conditions. Our products are plug-and-play, extremely easy to install, premium passive performance (no maintenance needed), eco-friendly, time-efficient (easy installation), 1-stop-shop = modular and complementary products with competitive prices. So far we have an excellent feedback from the field – deployment in high-rise buildings. We are continuing our research efforts in order to comply with the goals for sustainable development, environmental protection and green economy.

SFB
SMARTFIRE BLOCK

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SMART FIRE COLLAR

Introduction

Smart fire collar is made of 0.8mm stainless steel housing with a flexible insert made of a graphite-based material which swells under the influence of temperature above 150°C.

Application

Smart Fire Collar is used for fire protection of penetrations with copper, plastic pipes (PVC, PVC-U, San+PVC, PE, HDPE, MDPE, PVC-U, PP, PP-RCT, and others) as well as combination of plastic/copper pipes and electric/network cables running through flexible or rigid wall and floors). EASY RETROFIT AT ANY TIME. Horizontal and vertical application. Performance unaffected by weathering (Type X Durability). Innovative technology.

Approvals: SRPS EN 1366-3; SRPS EN 13501/1-2; AS 4072.1-2005

Applicable to masonry walls and floors as well as speed panels with 90° and 45° pipe penetrations.

Basic tech data		
	Color and appereance	dark grey, black, red
	Reaction to fire (EN 13501-1)	Class E
	Density	1.1+/-0.2g/cm³
	Application and storage	**from -5°C to 80°C**
	Expansion rate (ratio) and pressure	unrestircted up to 1:17, 1.8 N/mm²
	Expansion temperature	>150
	Durability class	"X" (Performance unaffected by weathering)

| Pipe diameter	Collar inner diameter (mm)	Height mm	Art. No.	Description	Fire clesification
32	37		SFC-32	Smart fire collar, 32mm	
50	55		SFC-50	Smart fire collar, 50mm	
80	85		SFC-80	Smart fire collar, 80mm	
110	115	60	SFC-110	Smart fire collar, 110mm	-/90/90
160	165		SFC-160	Smart fire collar, 160mm	
200	210		SFC-200	Smart fire collar, 200mm	
250	260		SFC-250	Smart fire collar, 250mm	

SMART FIRE ACRYLIC SEALANT

Introduction

Smart fire AS is an acrylic-based, single component fire stopping sealant used for non-movement joints.

Application

- Construction walls and/or floor joints
- Gaps behind fire resistant door casings
- Seating of smart fire grill or collar
- Gaps around metallic pipes and cable penetrations

Approvals: SRPS EN 1366-3; AS 4072.1-2005
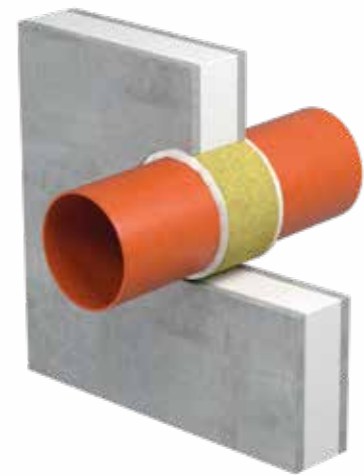
Applicable to all kinds of joints requiring fire resistance. Can be painted once is cured. Great unprimed adhesion characteristics. Bigger gaps should be filled with stone wool, fire wrap or strip.

Basic tech data		
Color and appereance	white	
Reaction to fire	Class E	
Wet density	1.8g/cm³ (+/- 0.2g/cm³)	
Dry density	1.6g/cm³ (+/- 0.2g/cm³)	
Application and storage temperature	+5°C - +50°C	

Volume	Art. No.	Description	Packaging	Fire clasification
300 ml	SFAS 300	Smart fire acrylic sealant 300 ml	nylon cartrige	-/120/ 120 min

SMART FIRE MASTIC

Introduction

Smart Fire mastic is an acrylic based, intumescent, single component fire stopping sealant which creates high pressure on expansion allowing the sealing of combustible pipes (up to ø50 mm).

Application

Smart fire Mastic is a fire stopping sealant for walls and floors. It is designed for use with cable bundles, combustible and non-combustible pipes with combustible insulation.

Approvals: SRPS EN 1366-3; AS 4072.1-2005

Applicable to masonry walls and floors as well as speed panels with cable bundles, combustible and non-combustible pipes with combustible insulation and joints without movement.

Basic tech data		
Color and appereance	grey paste	
Reaction to fire	Class E	
Wet density	1.8g/cm³ (+/- 0.2g/cm³)	
Dry density	1.6g/cm³ (+/- 0.2g/cm³)	
Solid content	84 ± 5 wght.%	
Application and storage temperature	+5°C - +50°C	
Expansion ratio	1:11	

Volume	Art. No.	Description	Packaging	Fire clasification
300 ml	SFM 300	Smart fire mastic 300 ml	nylon cartrige	-/120/ 120 min

Introduction

Smart Fire putty is graphite based powder which swells under the influence of temperature above 150°C.
Smart Fire putty is used for fire protection of penetrations with plastic pipes, metal pipes (both combustable and non combustable insulation) in combination with collars, grills, plug/brick where annular or any other gap need to be closed. Innovative technology.

Application

Smart Fire Putty is used for wall penetration of combustile and non-combustile pipes as well as cables installed in flexibe pipes.

Approvals: SRPS EN 1366-3; AS 4072.1-2005

Applicable to masonry walls and floors as well as speed panels penetrations in possible combination with other fire stopping products (collar, wrap, strip etc.)

Introduction

Smart Fire Grill are made from galvanized metal sheets partly filled with graphite based material that expands under the influence of high temperatures. Intumescent inserts completely fill remaining gaps when exposed to temperatures above 150°C thus preventing the spread of flame and smoke. Innovative technology.

Application

Smart fire grills are installed in the ventilation holes in walls, floors and doors.

Approvals: SRPS EN 1364-5 (In progress); AS 4072.1-2005

Basic tech data		
	Color and appereance	grey powder
	Reaction to fire	Class E
	pH	>6,0
	Density	1 +/- 0.2 g/cm3
	VOC	0,0 g/l
	Application and storage temperature	+5 °C - +50 °C
	Expansion ratio	1:11

Volume	Art. No.	Description	Packaging	Fire clasification
300 ml	SFM 300	Smart fire mastic 300 ml	nylon cartrige	-/120/120 min
4 kg	SFP 4000	Smart fire putty 4000ml	nylon cartrige	-/120/120 min
10kg	SFP 10000	Smart fire putty 10000ml	plastic bucket	-/120/120 min

Basic tech data	
Thickness	46mm
Free area	55% aprox.
Fire ressistance	UP TO 120min
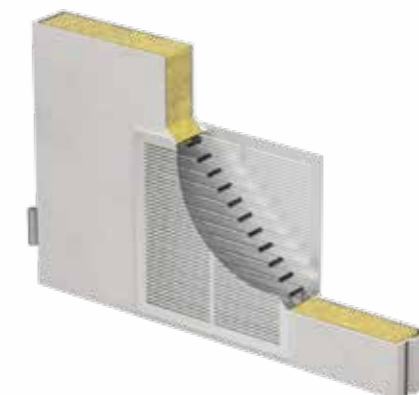
Height (mm)	Width (mm)										
	150	200	225	250	300	350	400	450	500	550	600
100	SFG-HW-100x150	SFG-HW-100x200	SFG-HW-100x225	SFG-HW-100x250	SFG-HW-100x300	SFG-HW-100x350	SFG-HW-100x400	SFG-HW-100x450	SFG-HW-100x500	SFG-HW-100x550	SFG-HW-100x600
150	SFG-HW-150x150	SFG-HW-150x200	SFG-HW-150x225	SFG-HW-150x250	SFG-HW-150x300	SFG-HW-150x350	SFG-HW-150x400	SFG-HW-150x450	SFG-HW-150x500	SFG-HW-150x550	SFG-HW-150x600
200	SFG-HW-200x150	SFG-HW-200x200	SFG-HW-200x225	SFG-HW-200x250	SFG-HW-200x300	SFG-HW-200x350	SFG-HW-200x400	SFG-HW-200x450	SFG-HW-200x500	SFG-HW-200x550	SFG-HW-200x600
225	SFG-HW-225x150	SFG-HW-225x200	SFG-HW-225x225	SFG-HW-225x250	SFG-HW-225x300	SFG-HW-225x350	SFG-HW-225x400	SFG-HW-225x450	SFG-HW-225x500	SFG-HW-225x550	SFG-HW-225x600
250	SFG-HW-250x150	SFG-HW-250x200	SFG-HW-250x225	SFG-HW-250x250	SFG-HW-250x300	SFG-HW-250x350	SFG-HW-250x400	SFG-HW-250x450	SFG-HW-250x500	SFG-HW-250x550	SFG-HW-250x600
300	SFG-HW-300x150	SFG-HW-300x200	SFG-HW-300x225	SFG-HW-300x250	SFG-HW-300x300	SFG-HW-300x350	SFG-HW-300x400	SFG-HW-300x450	SFG-HW-300x500	SFG-HW-300x550	SFG-HW-300x600
350	SFG-HW-350x150	SFG-HW-350x200	SFG-HW-350x225	SFG-HW-350x250	SFG-HW-350x300	SFG-HW-350x350	SFG-HW-350x400	SFG-HW-350x450	SFG-HW-350x500	SFG-HW-350x550	SFG-HW-350x600
400	SFG-HW-400x150	SFG-HW-400x200	SFG-HW-400x225	SFG-HW-400x250	SFG-HW-400x300	SFG-HW-400x350	SFG-HW-400x400	SFG-HW-400x450	SFG-HW-400x500	SFG-HW-400x550	SFG-HW-400x600
450	SFG-HW-450x150	SFG-HW-450x200	SFG-HW-450x225	SFG-HW-450x250	SFG-HW-450x300	SFG-HW-450x350	SFG-HW-450x400	SFG-HW-450x450	SFG-HW-450x500	SFG-HW-450x550	SFG-HW-450x600
500	SFG-HW-500x150	SFG-HW-500x200	SFG-HW-500x225	SFG-HW-500x250	SFG-HW-500x300	SFG-HW-500x350	SFG-HW-500x400	SFG-HW-500x450	SFG-HW-500x500	SFG-HW-500x550	SFG-HW-500x600
550	SFG-HW-550x150	SFG-HW-550x200	SFG-HW-550x225	SFG-HW-550x250	SFG-HW-550x300	SFG-HW-550x350	SFG-HW-550x400	SFG-HW-550x450	SFG-HW-550x500	SFG-HW-550x550	SFG-HW-550x600
600	SFG-HW-600x150	SFG-HW-600x200	SFG-HW-600x225	SFG-HW-600x250	SFG-HW-600x300	SFG-HW-600x350	SFG-HW-600x400	SFG-HW-600x450	SFG-HW-600x500	SFG-HW-600x550	SFG-HW-600x600

Introduction

Smart Fire Grill are made from galvanized metal sheets partly filled with graphite based material that expands under the influence of high temperatures. Intumescent inserts completely fill remaining gaps when exposed to temperatures above 150°C thus preventing the spread of flame and smoke. Innovative technology.

Application

Smart fire grills are installed in the ventilation holes in walls, floors and doors.

Approvals: SRPS EN 1364-5 (In progress); AS 4072.1-2005

Introduction

Smart fire wrap/strip is made of a graphite based material which swells under high temperature influence and fills the entire space left after burnt-out combustible installations. Innovative technology.

Application

Smart Fire Wrap/Strip is used for fire protection of penetrations with plastic pipes (PVC, PVC-U, San+PVC, PE, HDPE, MDPE, PVC-U, PP, PP-RCT, and others) running through flexible or rigid walls horizontal and vertical application. Performance unaffected by weathering (Type X Durability). It is applied in a single or multiple wraps depending on a pipe diameter.

Approvals: SRPS EN 1366-3; AS 4072.1-2005

Applicable as a part of HVAC systems in round pipes as well as masonry walls ventilation grill.

Smart fire wrap is applicable as metal pipes or cables penetration gap fill wrap. Smart Fire Strip is used for plastic pipes.

Basic tech data	
Color and appereance	dark grey
Reaction to fire	Class E
Density	1.1+/-0.2 g/cm³
Application and storage	+5°C +60°C
Expansion rate and pressure	1:20, 0.13N/mm²
Expansion temperature	above 150°C
Durability class	"X" (Performance unaffected by weathering)

Diameter (mm)	fire clasification
100	
125	
150	
160	
200	
225	UP TO
300	-/120/120 min.
315	
350	
400	
500	
550	
600	

Basic tech data	
Thickness	46mm
Free area	55% aprox.
Fire ressistance	UP TO 120min

Pipe type	Pipe diameter	Wall//Floor/ceiling
PVC		
PP		
HDPE	32-160mm	-/120/120 min
PEX/Al/PEX		
PE-RT/Al/PE-RT		
PP-R/Al/PP-R		

Description	Art. No.	Dimensions
Smart fire wrap 450x855x7.5mm	SFW-4585	450x855x7.5mm
Smart fire wrap 350x805x7.5mm	SFW-3580	350x805x7.5mm
Smart fire wrap 350x605x7.5mm	SFW-3560	350x605x7.5mm
Smart fire wrap 855x6x2.5mm	SFS-85	855x6x2.5mm
Smart fire wrap 605x6x2.5mm	SFS-60	605x6x2.5mm

SMART FIRE BRICK

Introduction

Smart fire brick is graphite based seal which swells under high temperature influence and fills the entire space left after burnt-out of combustible installations. Horizontal application.

Application

Smart fire brick is used as a seal for wall/floor/ceiling penetration of single cables as well as smaller cable bundles or small diameter pipes. It can be stacked to a maximum area of 1,4m²

Approvals: SRPS EN 1366-3 (In progress); AS 4072.1-2005

Applicable to masonry walls and speed panels on area up to 1,4m².

SMART FIRE BRICK		
Dimensions (mm)	Art No	Fire classification
200x140x60	SFB-200.140	UP TO -/120/120 min

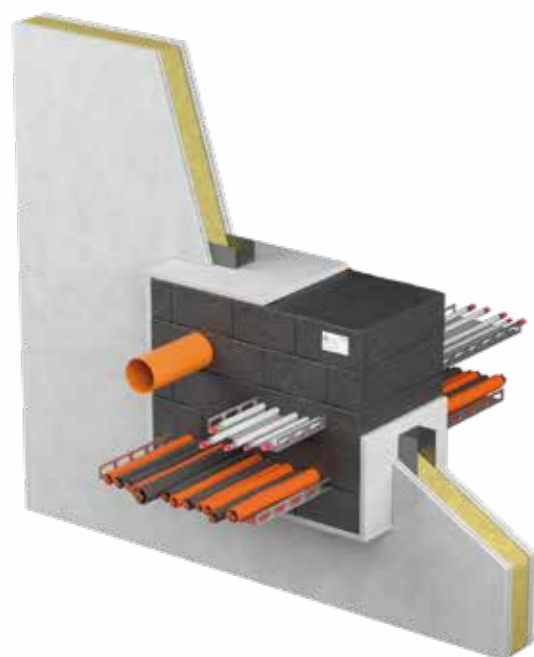| Basic tech data	
Color and appereance	dark grey, brick red
Reaction to fire	Class E
Density	0.25+/-0.05 g/cm³
Application and storage	-5°C +60°C
Expansion rate under load	1:2
Expansion temperature	150°C

SMART FIRE PLUG

Introduction

Smart fire plug is graphite based shaped seal which swells under high temperature influence and fills the entire space left after burnt-out of combustible installations. Horizontal application. Innovative technology.
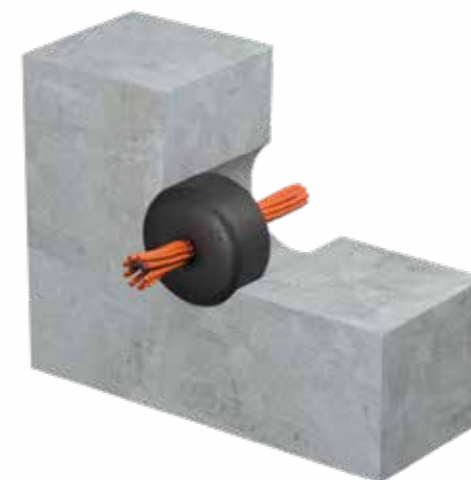
Application

Smart fire brick is used as a seal for wall/floor/cealing penetration of single cables as well as smaller cable bundles or small diameter pipes.

Approvals: SRPS EN 1366-3 (In progress); AS 4072.1-2005

Applicable to cable bundle and pipe penetrations in masonry walls.

Basic tech data	
Color and appereance	dark grey, brick red
Reaction to fire	Class E
Density	0.25+/-0.05 g/cm³
Application and storage	-5°C +60°C
Expansion rate under load	1:2
Expansion temperature	150°C

SMART FIRE PLUG		
Bottom/Top Diameter (mm)	Art No	Fire classification
67/77	SFP-67.77	
82/92	SFP-82.92	
112/122	SFP-112.122	
127/137	SFP-127.137	UP TO -/120/120 min
142/152	SFP-142.152	
172/182	SFP-172.182	
212/222	SFP-212.222	
222/272	SFP-262.272	

Introduction

The mineral fibre board with pre-applied SFAC (Smart Fire Ablative Coating) on one or two sides is used as system boards for cable, pipe and mixed penetration seals. It is pressure-resistant and water-repellent, heat and sound insulating, and open to diffusion.
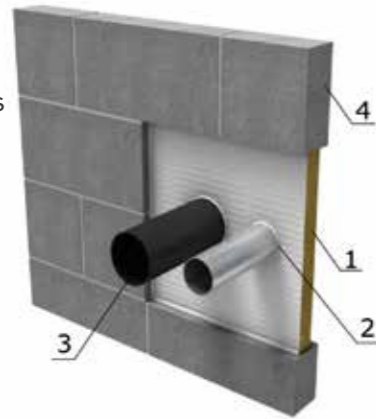
Application

Smart Fire Batt is used for indoor closing of cable, pipe and mixed penetration seals.

Approvals: EN 1366-3; ETAG 026-2 (2011) according EN 1366-3 Penetration Seals AS 1530.4-2014; AS 4072.1¬2005

1. Smart Fire Batt
2. Smart fire Mastic
3. Combustible pipes
4. Wall

1. Smart Fire Batt
2. Smart fire Putty
3. Cable tray
4. Combustible pipes

Figure 1. Smart Fire Batt with combustible pipes sealed with Smart Fire Mastic

Figure 2. Smart Fire Batt with combustible pipes and cable tray (sealed with Smart Fire Putty)

Art. No.		Description
SFB-1	Two sides pre-applied SFAC	1200x600x60mm two sides covered with SFAC
SFB-2		1200x600x50mm two sides covered with SFAC
SFB-3	One side pre-applied SFAC	1200x600x60mm one side covered with SFAC
SFB-4		1200x600x50mm two sides covered with SFAC

Basic tech data		
	Reaction to fire (EN 13501-1)	Class E
	Rock wool melting point	1000 °C
	Nominal bulk density	≥ 150 kg/m³
	Thermal conductivity [W/(m-K)]	λD 0.040 (acc. to DIN EN 13162)
	Water vapour diffusion resistance factor	µ 1 (acc. to DIN EN 12086)
	Dry film thickness od pre-applied Smart Fire Ablative Coating	approx. 0.5 mm–0.7 mm

Introduction

Smart Fire Door Stip(SDFS) is made of intumescent material which swells under high temperature and fills the entire space left after burnt-out combustible installations.

Application

Smart Fire Intumescent Door Strip is used on:
• Fire protection doors of wood, steel or aluminium
• Special application areas of fire protection doors, e. g. lock case insulations and hinges
• Safety storage cabinets, control cabinets
• In drywall construction: inspection flaps, separating wall and floor constructions
• Component joints
• Fire protection flaps

Odobrenja: EN 1366-3; ETAG 026-2 (2011) according EN 1366-3 Penetration Seals AS 1530.4-2014; AS 4072.1¬2005

Installation

1. Surface must be dry and free from dust, oil, fat, oxides, release agents and other contaminations. Avoid moisture on the surface as caused by condensation on cold materials in warm surroundings. Best bonding results on closed surfaces.

2. For cleaning the surface use clean and lint-free one-way cloths only. When using solvents such as benzine, alcohol, ester or ketones make sure they do not leave residues on the surface or do not affect it.

3. Best temperature for bonding is between 18 °C and 25 °C in dry rooms. Temperature of the material and the surroundings should be the same to avoid condensation. Avoid temperatures beneath 10 °C. Low temperatures make glue too hard for bonding, high temperatures make it too soft.

4. Adhesion of an adhesive is depending on the contact with the surface. Good surface contact is achieved by using a castor, coating knife or a squeezer. Hard adhesives require more pressure than soft ones.

5. Make sure to apply the whole contact area of the adhesive on the surface. Intumescent strips or pre-cut parts should not be laid around or in corners.

Art. No.	Description
SFDS1	FIRE DOOR INTUMESCENT STRIP 50 m X 10 mm X 2 mm
SFDS2	FIRE DOOR INTUMESCENT STRIP 100 m X 15 mm X 2 mm
SFDS3	FIRE DOOR INTUMESCENT STRIP 100 m X 20 mm X 2 mm
SFDS4	FIRE DOOR INTUMESCENT STRIP 100 m X 30 mm X 2 mm

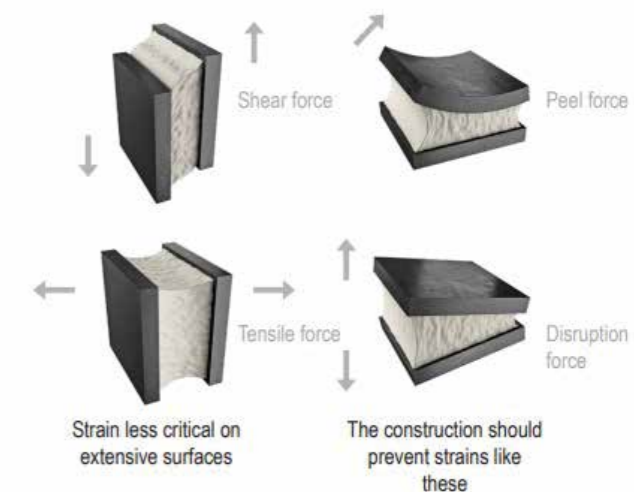| Basic tech data		
	Color and appearance	Dark grey
	Reaction to fire (EN 13501-1)	Class E
	Density	
	Application and storage	from +5°C to +60°C
	Expansion rate (ratio) and pressure	
	Expansion temperature	>150
	Durability class	" X " (Performance unaffected by weathering)

Figure 1. Adhesion tape force types

Introduction

Smart Fire Ablative Coating is fire protection coating for indoor and outdoor use. It is used for cable, pipe or combined penetration sealings.

Application

Smart Fire Ablative Coating is used for indoor or outdoor protection of
• Horizonal or vertical cables
• Supporting structures

Approvals: EN 1366-3; ETAG 026-2 (2011) according EN 1366-3 Penetration Seals AS 1530.4-2014; AS 4072.1¬2005

Installation

1. Surface must be dry and free from dust, oil, fat, oxides, release agents and other contaminations. Avoid moisture on the surface as caused by condensation on cold materials in warm surroundings.
2. For cleaning the surface use clean and lint-free one-way cloths only. When using solvents such as benzine, alcohol, ester or ketones make sure they do not leave residues on the surface or do not affect it.
3. Smart Fire Ablative Coating must be stirred thoroughly before application by a slow running stirrer.
4. Apply Smart Fire Ablative Coating with Brush, roller or airless spraying machine. For spraying method use nozzle 0.5mm. Mixing with max. 2% water.
5. Drying time as follows refers to a temperature of + 20 °C and a relative humidity of 65 %:
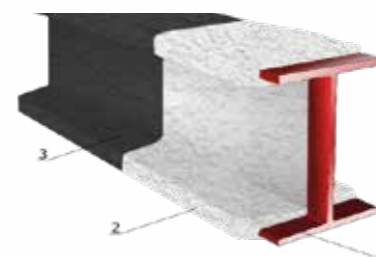   • Dust dry after approx. 3 hours
    • Touch dry after approx. 6 hours
    • Fully dried after approx. 24 hours

Calculation of Consumption per Metre

Calculation scenario	Formula
Single cable	d x 3.14 x 1.05 x 1.8 = kg/m
Cable loom:	d x 3.14 x 1.4 x 1.05 x 1.8 = kg/m
Cable loom on cable tray	((4 x h) + (2 x b) + (d x 1.4)) x 1.05 x 1.8 = kg/m

Legend

• d = diameter of cable or cable loom in m
• 3.14 = Pi (π)
• 1.05 = factor for spraying loss (exemplary for 5 % spraying loss)
• 1.8 = coverage rate kg/m²
• 1.4 = factor for increase of surface based on crotches
• h = height of cable tray in m
• b = width of cable tray in m

Art. No.	Description
SFAC-5	Smart Fire Ablative Coating 5kg pail
SFAC-10	Smart Fire Ablative Coating 10kg pail
SFAC-25	Smart Fire Ablative Coating 25kg pail

Basic tech data

Color	White
Reaction to fire (EN 13501-1)	Class E
Density	1.34 – 1.48 g/cm³
Application and storage	from +5°C to +60°C
Volatile Content	< 140g/l
Expansion temperature	>150 °C
Durability class	" X " (Performance unaffected by weathering)

Introduction

Smart Fire Mortar (SFMO) is a fire-resistant mortar with thermo-insulating properties for passive fire protection in case of horizontal and vertical penetrations of electric cables, alone or in combination with supports / racks, as well as penetrations of steel and copper pipes, plastic pipes, plastic pipes with insulation made of stone wool, as well as for self-sealing penetrations. The product consists of light aggregates, hydraulic binders, fire-fighting additives and additives to improve mechanical properties. Easy application is possible manually or mechanically, which makes the product suitable for installation in inaccessible places for the protection of minor penetrations. SFMO can also serve as an excellent heat and sound insulator. Does not contain asbestos. It contains bio fibers and is therefore not harmful to health and the environment.

Application

Smart Fire Mortar is used:
• Independently
• In combination with Smart Fire Wrap / Strip / Collar / Ablative coating / Mastic / Acrylic Sealant / Putty

Approvals: EN 1366-3; ETAG 026-2 (2011) according EN 1366-3 Penetration Seals AS 1530.4-2014; AS 4072.1¬2005

Osnovni tehnički podaci:

Colour and finnish	White, beige color, it is possible to apply the final acrylic polymer in different colors. Slightly embossed appearance after mechanical application. By manual alignment, precise desired contours are obtained.
Mixing	Mechanical and manual
Application method	Mechanical and manual (for higher aesthetic effectiveness)
Theoretical coverage	7.11 Kg/m²/cm ± 10%
Base	Pure steel, steel with AK protection, stainless steel, concrete, alkyd and epoxy resins
Hardening	By hydraulic reaction, independently
Initialy	10 to 15 hours at 20°C and 50% RH without acceleration
Compressive strength	0.12Mpa / 1.20 kg/cm²
Mechanical strength – pressure resistance	>1 N/mm² (>1MPa)
Application, storage temperatures	Do not apply at temperatures below 5°C and above 40°C and high humidity. Protect from excessive heat (over 45°C) and strong sunlight
Shelf life of the packaged product	Maximum 12 months, protected from direct sunlight
Mix ratio: SFMO / Water	1:1,3 do 1:1,7
Thermal conductivity	0.09 W/mK
pH value after application	8-11 (different water content depending from the SFMO application conditions)
Reaction to fire	A1
Fire resistance	FRL -/120/120
Asbestos content	None
Content of volatile organic substances - VOC	None
Bulk density	450-550 Kg/m³
Hardening of materials without additives	10 – 15h at humidity > 50%
Hardening of materials with the addition of additives (conditional applicability)	5 - 8h depending on air humidity and deposit thickness

Šifra proizvoda	Opis
SFLS100	SMART FIRE LIGHWEIGHT SPRAY, 20kg papirni džak ili posuda 240l (vakum ili transportno nanošenje)

SMART FIRE MORTAR - SFMO

Introduction

Smart Fire Mortar (SFMO) is a fire-resistant mortar with thermo-insulating properties for passive fire protection in case of horizontal and vertical penetrations of electric cables, alone or in combination with supports / racks, as well as penetrations of steel and copper pipes, plastic pipes, plastic pipes with insulation made of stone wool, as well as for self-sealing penetrations. The product consists of light aggregates, hydraulic binders, fire-fighting additives and additives to improve mechanical properties. Easy application is possible manually or mechanically, which makes the product suitable for installation in inaccessible places for the protection of minor penetrations. SFMO can also serve as an excellent heat and sound insulator. Does not contain asbestos. It contains bio fibers and is therefore not harmful to health and the environment.

Application

Smart Fire Mortar is used:
• Independently
• In combination with Smart Fire Wrap / Strip / Collar / Ablative coating /
  Mastic / Acrylic Sealant / Putty

Approvals: EN 1366-3; ETAG 026-2 (2011) according EN 1366-3 Penetration Seals
AS 1530.4-2014; AS 4072.1¬2005

<table>
<tr><td rowspan="18">Basic tec data:</td><td>Colour and finnish</td><td>White, beige color, it is possible to apply the final acrylic polymer in different colors. Slightly embossed appearance after mechanical application. By manual alignment, precise desired contours are obtained.</td></tr>
<tr><td>Mixing</td><td>Mechanical and manual</td></tr>
<tr><td>Application method</td><td>Mechanical and manual (for higher aesthetic effectiveness)</td></tr>
<tr><td>Hardening</td><td>By hydraulic reaction, independently</td></tr>
<tr><td>Substrate</td><td>Pure steel, steel with AK protection, stainless steel, concrete, alkyd and epoxy resins</td></tr>
<tr><td>Initialy</td><td>12 to 18 hours at temprerature 20°C and 50% RH without additives</td></tr>
<tr><td>Compressive strength</td><td>1.20 kg/cm2</td></tr>
<tr><td>Application, storage temperatures</td><td>Do not apply at temperatures below 5°C and above 40°C and high humidity. Protect from excessive heat (over 45°C) and strong sunlight</td></tr>
<tr><td>Shelf life of the packaged product</td><td>Maximum 12 months, protected from direct sunlight</td></tr>
<tr><td>Mix ratio: SFMO / Water</td><td>1 : 1,3 do 1 : 1,6</td></tr>
<tr><td>Thermal conductivity</td><td>0.09 W/mK</td></tr>
<tr><td>pH value after application</td><td>8-11 (different water content depending from the SFMO application conditions)</td></tr>
<tr><td>Fire resistance</td><td>FRL to -/120/120</td></tr>
<tr><td>Asbestos content</td><td>None</td></tr>
<tr><td>Content of volatile organic substances - VOC</td><td>None</td></tr>
<tr><td>Hardening of materials without additives</td><td>10 – 15h at humidity > 50%</td></tr>
<tr><td>Hardening of materials with the addition of additives (conditional applicability)</td><td>5 - 8h depending on air humidity and deposit thickness</td></tr>
</table>

Art. nr.	Description
SFMO100	**SMART FIRE MORTAR, 20kg paper bag or a 20l can**