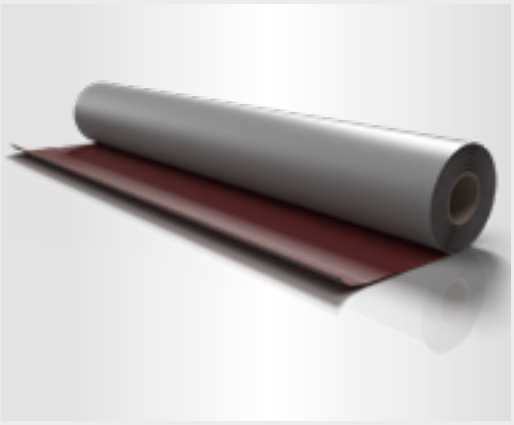
EU

FLAMRO®

# DG-CR 0.7 Cable bandage

**Intumescent fire protection cable bandage for cables and cable support systems**



# FLAMRO® – the strong quality brand for preventive structural fire protection solutions

As part of the Saverto Group, Flamro has long been recognised in Germany as a quality brand for holistic passive structural fire protection. FLAMRO® has now also established itself as a quality brand in this sector on the international market – still with the usual svt expertise

For over 50 years, Saverto and Flamro have ensured the safety of people and property. As an experienced developer and manufacturer of preventive fire protection solutions, Flamro offers an extensive range of products that protect human lives, limit property damage, prevent operational failures, and avoid environmental damage in case of fire. From cable, pipe, mixed, and joint penetration seals via cable ducts with special fitting pieces to fire protection bandages, coatings, and collars – when it comes to preventive fire protection solutions, the name FLAMRO® stands for quality worldwide.

# Made in Germany – with international certifications

Limiting property damage, preventing operational failures, avoiding environmental damage, and – above all – protecting human lives, health, and property; these are our goals, which can only be achieved with uncompromising quality. At Flamro, we manufacture all of our products in-house and adapt them to various international standards. This includes, for example, solutions certified according to UL 1479/ASTM E814, UL 2079/ASTM E1966, FM 3971, and EN 1366.

The high standards of our FLAMRO® products and systems are achieved through meticulous preliminary testing at our own fire testing facilities in Germany and recognised certification from renowned and accredited testing laboratories. In short: with Flamro, you can trust in “Made in Germany” quality.

# Increased safety – through our own research and development

As part of the Saverto Group, Flamro stands for innovation. Based on the latest findings of current research, all FLAMRO® products and systems do not only undergo rigorous fire protection tests, but are also constantly further developed. Besides safety, a diverse product range and practical user-friendliness also play an important role.

At Flamro, research and development therefore always go hand in hand in a forward-looking direction. This is why Flamro is now one of the world's major manufacturers in the field of passive structural fire protection. We can offer you both certified standard products and customised fire protection solutions.

With Flamro, you are always on the safe side.

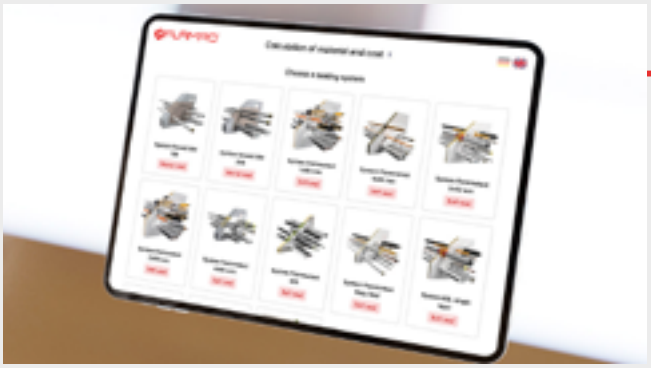
# Our Services for you

We offer customised solutions for penetration sealing, cable ducts, cable bandages and coatings as well as practical training for you and your employees. Using our know-how, we will assist you with any questions or issues you may have regarding preventive structural fire protection.

## FLAMRO® Product Guide

In just a few clicks, you will quickly find the best passive fire protection solution for your construction project.

The FLAMRO® Product Guide is available at:
**flamro.com/eu/services/product-guide**

## FLAMRO® Calculator

Provide just a few details to find out what material quantities you need to install a FLAMRO® penetration sealing system.

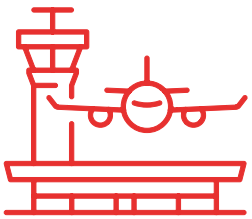
The FLAMRO® Material & Cost Calculator is available at:
**calc.flamro.com**

# DG-CR 0.7 – Areas of application

Cable systems with a wide range of functionalities and sizes are part of any building. Especially in public buildings, industrial sites and power plants these systems are installed in great numbers – often without cover, on cable support systems, in cable tunnels or behind wall and floor panelling. They are used to supply practically every single room on every floor.

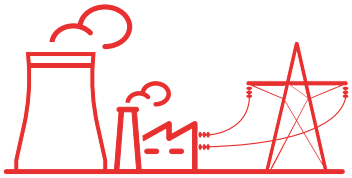
DG-CR 0.7 is a product that is successfully used worldwide to protect cable systems in building construction, industrial plants and offshore facilities. This includes hospitals, railway stations and airports, power plants and electrical substations as well as heavy industry and nuclear facilities.

**Industrial sites**



**Infrastructure projects**

**Public buildings**



**Energy supply & distribution**

DG-CR 0.7 is used for wrapping cables and conductors of all types without any limit to the size of the total conductor cross-section of the individual cables. It is possible to apply the bandage to single cables and cable bundles, which can be arranged vertically, horizontally or at an angle. The bandage can also be used to protect cable support systems (trays or ladders). Likewise it is possible to apply it to cables which are freely suspended or directly attached to the building element.

## Areas of application

| Services | | Application |
|---|---|---|
|  | **Electrical , data and telecommunication cables of all types** | Without limit to the size of the total conductor cross-section of the individual cables. Installed or arranged vertically, horizontally or at an angle. |
|  | **Cable bundles** | |
|  | **Cable support systems** | Non-combustible cable trays or cable ladders with construction material class DIN 4102-A or classes A1 and A2-s1, d0 in accordance with DIN EN 13501-1. Installed or arranged vertically, horizontally or at an angle. |

DG-CR 0.7 is always a valuable solution when it takes great effort or when it is not possible at all to clean the cables. With the bandage applied to the cables, cleaning them will not be necessary anymore.

Likewise DG-CR 0.7 is particularly efficient when cables need to be frequently changed. Subsequent installations, removals or substitution of cables is made easy by simply opening the bandage. Special applications such as airless devices will not be necessary.

These and many other benefits make DG-CR 0.7 a highly useful application for many specific requirements and also a perfect alternative to conventional cable coating.

# Fire protection for cable systems

Overheating and short circuits may cause electrical cables to combust spontaneously. They can also catch fire due to external circumstances. Since cable sheathing and insulation is generally combustible, the fire may spread along the cables with enormous speed.

Combustion of plastic insulation causes flaming droplets and releases fire gases which in turn can lead to potentially fatal smoke inhalation injuries. Moreover these gases have a highly corrosive effect and can destroy technical equipment and other material. Efficient protection is necessary to keep damage to a minimum.

Comparison of fire damage to cable support systems
(from left to right):

Coating FLAMMOTECT-A,
wrapping with DG-CR 0.7, unprotected cables

**DG-CR 0.7 is widely certified and approved for a large scope of applications in various countries and industries.**

# Highlights at a glance

## Easy and clean application

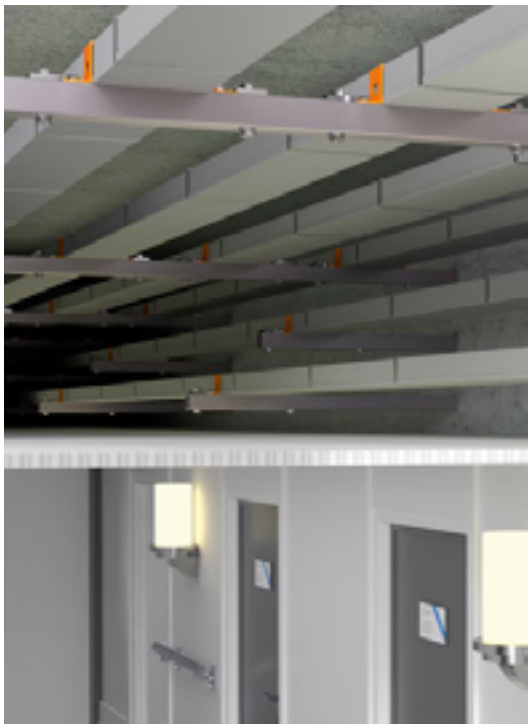
- No need for time-consuming measures to protect the working environment
- No prior cleaning of cable systems required
- Only one workstep necessary – no need to observe drying times
- Simple application has a positive effect on installation quality and safety – no risk of a coating that might be too thin
- No need to measure film thickness
- No need for special equipment such as airless devices
- Subsequent installation, removal or change of cables made easy by simply opening the bandage

## High resilience

- High resistance to weathering – suitable for indoor and outdoor use
- Resistance to moisture, freeze-thaw cycles, UV radiation as well as various oils and chemicals

## High quality fire protection product – Made in Germany

- Solvent-free, halogen-free
- Free of asbestos, lead, mercury, hexavalent chromium and polybrominated biphenyl ether
- Does not release toxic fumes
- Non-hazardous material in acc. with the German Ordinance on Hazardous Substances (GefStoffV)
- Supervised by national and international accredited certification bodies



# References

### Tanjong Kiderong Power Plant
### Malaysia

Project: 400 MW combined cycle gas turbine plant
Product: DG-CR 0.7 cable bandage
Application: Strengthening of high and medium voltage cables
Standard: IEC 60332-3-22

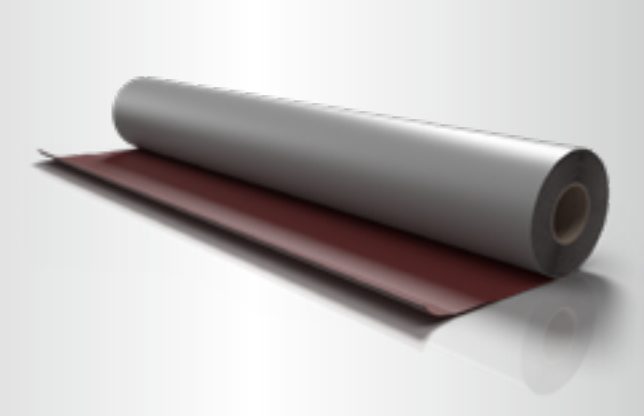
### Exchange 106 Tower, Kuala Lumpur
### Malaysia

Project: Construction of a skyscraper with 106 floors
Product: DG-CR 0.7 cable bandage
Application: Strengthening of high and medium voltage cables as well as control cables
Standard: IEC 60332-3-22

# DG-CR 0.7 – Product data, tests and certificates

The intumescent material DG-CR 0.7 is based on expandable graphite. When exposed to reaction temperature (starting from 150 °C) it will expand with high pressure and substantially increase its volume. Additional components form an insulating layer, which will wrap itself tightly around the cables, seal the cross section of the support system and extinguish the fire.

## Product data



## Delivery and packaging

| Product name | Item number | Form of delivery | Rolls/pallet | Net weight/pallet |
|---|---|---|---|---|
| **DG-CR 0.7** | 01260201 | 20 m roll (22 m²), width 110 cm | 22 pcs. | 572 kg |
| **Metal strap** | 01234000 | 100 m roll, width 15 mm, thickness 0.2 mm | – | – |
| **Locking clamp** | 01234100 | 1000 pcs. box | – | – |

- Store indoors in a dry place.
- Horizontal rolls must be protected from pressure loads.
- Unlimited storage is possible as long as appropriate conditions are observed.

## Basic physical and chemical properties

| | |
|---|---|
| **Colour** | grey outside / red inside |
| **Material** | fabric coated on the inside with intumescent layer |
| **Nominal thickness** | 0.7 mm |
| **Weight per unit area** | approx. 700 – 950 g/m$^2$ |
| **Reaction temperature** | from approx. 150 °C |
| **Expansion rate** | 15.5 to 22.0 times (tested on 2 mm thick samples at 550 °C for 30 min. with superimposed load) |
| **Expansion pressure** | 1.00 N/mm$^2$ to 1.65 N/mm$^2$ |

# Design variants

| | | | |
|---|---|---|---|
|  | **Wrapping for entire cable support structures** |  | **Wrapping for cables in support structures** |
|  | **Wrapping for cable systems placed directly on solid components** |  | **Wrapping for cable systems fastened with clamps or on brackets** |
|  | **Wrapping for freely suspended cable systems** | | |

# Fire protection and reaction to fire

| | | |
|---|---|---|
| **Reaction to fire** | Class B-s1, d0 | • in acc. with EN 13501-1 |
| **Flame spread** | Cat. A: 2018 für 120 min. | • in acc. with IEC 60332-3-22 (DNV GL Certificate No. TAE00003BR) |
| | Cat. A: 2018 für 120 min. | • GOST IEC 60332-3-22 |
| **Maintenance of functional integrity** | Tests up to 180 min. for various cable types and voltage ranges. | • in acc. with IEC 60331-21 |
| **Smoke density** | $D_S$ (4) = 12, VOF4 = 31 min., $D_S$ (max) = 18 | • in acc. with DIN EN ISO 5659-2 |
| **Smoke toxicity** | CITG = 0.20 (Conventional Index of Toxicity)<br>No HCl, HF, HBr or HCN emission | • EN 45545-2 Annex C and ISO 5659-2 |

# Resistances

| | | |
|---|---|---|
| **Ageing resistance** | Ageing does not have an effect on the general properties of DG-CR 0.7 | |
| | **Artificial ageing without impairment**<br>**Indoor/outdoor areas:**<br>extreme temperature changing from +71 °C to -40 °C, UV radiation and humidity | • in acc. with FM 3971<br>• in acc. with EOTA TR024 |
| | **Long-term ageing without impairment**<br>**Indoor areas:** the material was stored for 10 years in an indoor area without any resulting changes in its reaction to fire (MPA Braunschweig (notified body 0761), report no. 3224/821/11). | |
| **Weather resistance** | Use category X (product suitable for use in areas exposed to weathering). | • in acc. with EOTA TR024 |
| **Chemical resistance** | Exposure to solvents (butyl acetate, butanol, white spirit and heating oil).<br>Exposure to subsequently applied coatings (acrylic dispersions, alkyd resins, polyurethane acrylic and epoxy resins). | • in acc. with EOTA TR024 |

# Installation steps

Measure the cable support system and cut the bandage to fit support areas. Allow for the bandage overlapping by ≥ 50 mm in longitudinal and transverse directions.

Wrap the bandage strips with the coated side facing inwards around the support system in the supported areas and restrain them temporarily with duct tape.

Wrap the bandage around protruding cables.

Wrap the bandage around all other areas.

Secure the bandage with metal straps against slipping.
Use at least two straps per bandage strip.

Clean the workplace and attach a label if required.

# Installation video

Watch the full installation **video** for DG-CR 0.7 and other fire protection systems.

# We welcome your inquiries!

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