

# Flamauto

Automatic fire extinguisher 580 ml

heavy and professional industry



**FLAMARK®**  
wins over fire

## 1. Preface, general statements

Most fires can be stopped if reaction to fire is fast enough, which means, in the initial stage of fire. Quick reaction is the most important matter in fire fighting. However, it happens very often that people are not present when a fire outbreaks. In such situations, only automatic fire extinguishers can help.

Classical sprinkler systems fire extinguishers are very expensive, demands regular maintenance and makes extensive collateral damages when operates. Therefore it is very important to protect people, valuable industrial facilities, infrastructure and items with automatic fire extinguisher that provides immediate response and have great extinguishing power along with ecologically features.

Flamauto automatic fire extinguisher meets all heavy and professional industry demands and even more.

It is specially developed as a part of fire protection systems for professional electrical equipment, like transformers, coils, electric motors and other devices, and to protect heating, ventilation and air conditioning system (HVAC system), without collateral damages.



### • **Easy to place**

Flamauto automatic fire extinguisher is primarily designed and intended for passive protection of people and equipment in closed spaces: transformer substations, server halls, offices, storages, industrial halls and so on. It is small (diameter 60 mm, length 307 mm), light weight, and can easily be mounted in a suitable place to provide optimal protection in a case of fire.

### • **Reliable automatic activation**

Flamauto automatic fire extinguisher does not require any preparation for use. When temperature in environment exceeds 84°C it activates automatically. Glass ampoule bursts, fire extinguishing active liquid agent covers the protected area, and extinguishes the fire. Participation of operator is completely unnecessary.

### • **Easy and economical to maintain**

Flamauto automatic fire extinguisher delivers professional extinguishing technology to different areas of use, sometimes on places difficult to access.

Periodic maintenance or surveillance is unnecessary. Products

lifetime and warranty is 10 years from date of production.

### • **Safe to use**

Flamauto automatic fire extinguisher is automatically activated, so fire can be extinguished without any danger to the persons who eventually happen to be in area, which is especially important when extinguishing electric installations and devices.

Flamauto automatic fire extinguisher heavily eliminates smoke in area of extinguishing, so if there are any persons in the room, they can breathe without problems.

### • **Great extinguishing power and wide scope of operation**

Thanks to its extinguishing agent and extinguishing techniques, Flamauto automatic fire extinguisher, works with great efficiency when extinguishing starting fires, don't give them a chance to develop into large fires.

Flamauto fire extinguishing liquid agent forming the protecting thin layer at surface of a burning area, which does not allow re-ignition.

Furthermore it has wide scope of operation – it extinguishes fires of classes: A, B, C, F and fires on electrical installations and



devices. So it is not necessary to purchase different fire extinguishers for different kinds of fires.

### • **No collateral damages**

There are no any side effects or significant collateral damages for the persons, equipments or for the rooms when Flamauto automatic fire extinguisher operates.

### • **Eco-friendly product**

Flamauto automatic fire extinguisher is an Eco-friendly product, which means that it is not toxic or harmful for people, animals, ozone layer or environment, and its content and packaging is easily recyclable and biodegradable. Most of the ingredients are completely natural.

It is suitable for use in natural parks, water intake areas for drinking water, drinking water plants and other nature or water protected areas.



## 2. Specification

Extinguishing power of Flamauto automatic fire extinguisher

for solid – fire class A (wood, paper, textiles...) and liquid substances – fire class B (gasoline, diesel fuel ...) – fire class C (natural mains gas, liquid petroleum gases...) and – fire class F (cooking oil...), was widely proved in practice in different situations. Fire classification A, B, C and F, according to EN2:1992 + A1 2004 and EN3-7:2004 + A1 2007.

Flamauto automatic fire extinguisher can be used to extinguish fire at live electrical equipment.

### 3. Technical Data

Diameter:	_____	60 mm
Length:	_____	307 mm
Weight approx.:	_____	1.025 g
Total volume:	_____	600 ml
Volume (net):	_____	580 ml
Container material:	_____	glass (ampoule) + metal (holder)
Extinguishing agent:	_____	Fire extinguishing liquid agent Flamauto
Extinguishing fire classes:	_____	A, B, C and F
Protected area:	_____	up to 16 m <sup>3</sup> closed space per unit depending of fire _____ protection demands
Storage Temperature:	_____	-20 °C to 70 °C
Minimum durability:	_____	10 years
Production date:	_____	Printed at declaration sticker on glass container (ampoule)

### 4. Description of function

Extinguishing agent is released when glass ampoule bursts, fire extinguishing active liquid agent covers the protected area, and extinguishes the fire. Participation of operator is completely unnecessary.

### 5. Mode of functioning

Active fire extinguishing agent is water based liquid agent enriched by chemical compounds which removes or blocks the 3 basic fire triangle elements: heat – oxygen – fuel.

Flamauto active liquid saponified the burning fuel, so reignite becomes impossible.

**Flamauto fire fighting mechanisms** activates and removes the 3 basic fire triangle elements (Heat – Oxygen – Fuel):

- Flamauto liquid droplets evaporations process removes heat.
- Flamauto Inert Steam creating lack of oxygen supply to fuel

but in same time the oxygen is not removed for people (operators).

- Flamauto liquid agent saponifies the burning fuel (surface protecting film is created) and does not allow free radicals and gases to become airborne and bond with oxygen in air.

Detailed description of the action:

**A. Rapid cooling down effect** – here the liquid droplets cool burning material by rapidly absorbing heat from burning material, turns to inert steam and evaporates.

**B. Inert steam** – it bounds free burning radicals and toxic gases with Flamauto Inert Steam, so if there are any persons in the area, they can breathe without problems. That way creates an operator friendly environment, which is especially important effect.

**C. Adiabatic cooling process** – demonstrate unique effective process which is cooling the air by evaporation of Flamauto liquid agent. Evaporation is the process by which Flamauto liquid agent is quickly converted from liquid form to its vaporized form, transferring its liquid mass to the atmosphere and removing heated air away from burning materials. During Flamauto liquid solutions droplets evaporations, three simultaneous processes are going on:

- Transfer of heat to the Flamauto liquid droplet surface.
- Transfer of liquid mass from the Flamauto droplet surface.
- Flamauto droplets liquid mass with heat becomes airborne steam (effect name: Latent heat of evaporation, which we meet every day in nature: sun-rain-sun).

**D. Saponification-Foaming process** – Flamauto liquid agent possesses strong controlled chemical and mechanical processes of forming the protecting thin layer at surface of a burning fuel, which does not allow re-ignition. Flamauto liquid agent, through mechanical dispersion, mixes large amount of inner gases with liquid, and by the agitation of liquid and inner chemical compounds creates a type of foam similar to the agitation of seawater (Ocean foam) derived from surface to offshore breakdown. Flamauto liquid agent chemical compounds act as surfactants to lower the surface tension between two liquids, to create protecting thin layer and prevent re-ignition of fuel.

### 6. Application areas

Flamauto automatic fire extinguisher uses for extinguishing of solids – fire class A (wood, paper, textiles...) and liquids – fire class B (gasoline, diesel fuel...) as well as for flammable gases – fire class C, and – fire class F (cooking oil...) primarily in closed spaces.

Cooling effect of Flamauto automatic fire extinguisher can be used to cool surfaces and protect from fire, some valuable items, which are not yet affected by fire, but only with participation of operator.

## 7. Operation

Flamauto automatic fire extinguisher does not require any preparation for use. Glass ampoule bursts, fire extinguishing active liquid agent covers the protected area, and extinguishes the fire. Participation of operator is completely unnecessary.

If necessary, in a case of advanced fire, it is recommended to dilute Flamauto content in the water with ratio of 1:20 (content of one Flamauto fire extinguisher ampoule in ca 10-12 litres of water), and then throw the solution in the direction of the roots of fire, which extinguishes the fire. In that case some smaller collateral damages are possible.

## 8. Storage

Flamauto automatic fire extinguisher should be stored at a temperature between -20 °C and +70 °C. It should be protected

against direct sunbeams.

The fire extinguisher should be stored at a dry place, easy to access.

## 9. Maintenance

Special maintenance or surveillance is not required. The minimal product lifetime is ten years from the date of production.

## 10. Execution and delivery

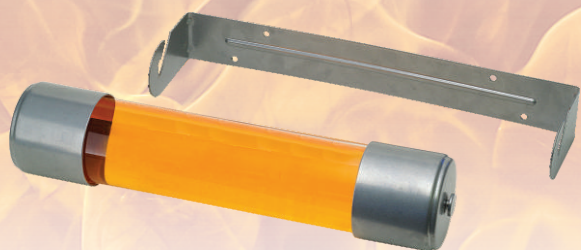
Flamauto automatic fire extinguisher is designed and delivered in a simple 600 ml glass ampoule with tin holders for mounting of unit close to high fire risk place.

## 11. Article packing

Article no.	Product - description	Quantity of units	Approximate dimension (L x W x H)	Approximate cube	Approximate shipping weight
FA581	Flamauto – automatic fire extinguisher - Single unit	1	37,7 x 11,2 x 9 cm	-	0,5 kg (1.1 lb)
FA582	Flamauto – automatic fire extinguisher - Cardboard	10	57 x 38,5 x 18,5 cm	0,041 m <sup>3</sup>	12 kg (26,45 lb)
FA590	Flamauto – automatic fire extinguisher - Euro Palette	240	120 x 80 x 125,4 cm	1,204 m <sup>3</sup>	265 kg (584,22 lb)

10  
years

## Certificate of Warranty



## 12. Miscellaneous

You can watch Flamauto automatic fire extinguisher in action in a video at web address:

[www.flamark-international.com](http://www.flamark-international.com)



# FLAMARK®

Flamark d.o.o./Flamark Ltd., Ante Topića Mimare 40, 10090 Zagreb, Croatia (HR)

Phone: +385 (0)1 77 91 700 • Mobile: +385 (0)98 994 2000

[www.flamark.hr](http://www.flamark.hr) • E-mail: [info@flamark.hr](mailto:info@flamark.hr)