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What is Fire Knock Out?

Fire Knock Out (FKO) is a new revolutionary fire extinguishing product from The Netherlands. FKO starts working at lightning speed upon contact with fire - throttling the fire before it has a chance to grow, minimizing follow-up damage.

FKO makes it possible for everyone to effectively protect themselves from fire. Its contents are not harmful to people, animals or the environment and can be used for fires both indoors and outdoors. FKO requires no maintenance and comes with a 5 year guarantee.

Figure 1.1
Fire Knock Out 1.6 Model

Models

The Fire Knock Out is supplied in various versions and models. The most common version is based on a foam basis and suitable for fighting Class A fires (solids, usually of organic origin, in general with a glow development), Class B fires (fluids or substances becoming fluid) and Class C (gaseous) fires. Almost all versions can be used in closed areas and with outside fires.

The FKO Fire Knock Out products are supplied, among others, in a 1.6 and 5.6 packing. This allows flexibility in terms of coverage and/or accessibility depending on the potential hazardous area. These models are very suitable for mobile use due to their light weight and small size. The 5.6 version has a plastic handle (*as seen in Figure 1.2*), so that it can be carried easily by the user or hung somewhere as prevention.

How does Fire Knock Out work?

The Fire Knock Out (FKO) has a special feature: it automatically starts to operate when it comes into contact with open fire and then fights the seat of a fire within a few seconds. The plastic container is filled with a harmless fire extinguishing fluid and activation (powder) material, on which a quick fuse is fitted.

Figure 1.2
Fire Knock Out 5.6 Model

As soon as the fuse comes into contact with open fire, the container splits open. During a short moment all oxygen in and around the seat of the fire is removed, as a result of which the fire is fought immediately.

The fire extinguishing fluid that has been atomized into water vapour cools down the heat source, while the added delaying substance reduce the chances that the seat of the fire will be ignited again to a minimum. All this only takes a few seconds. The plastic residuals that remain after use can be collected easily and

fully recycled.

Fire Knock Out Step by Step

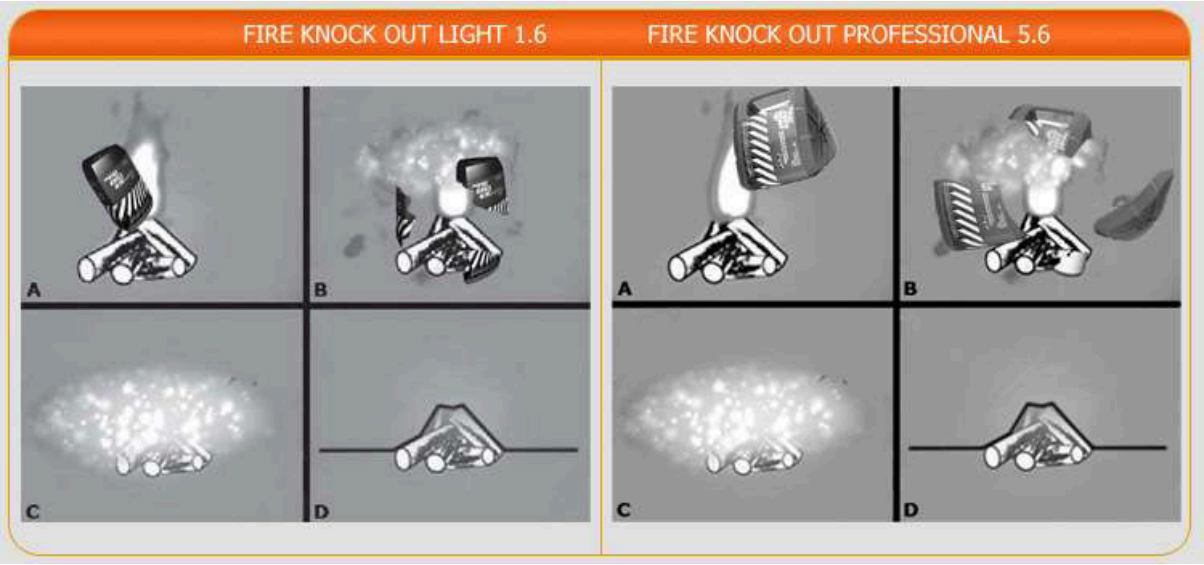

Figure 2.1

Table of the process in which Fire Knock Out operates in order to combat fire.

Figure 2.1 displays the workings of Fire Knock Out in which both models can be explained in the following steps:

A. The Fire Knock Out reacts within a few seconds once the fuses come in contact with a fire.
B. Through the energy released by this activation, the container splits open.
C. The high force opening helps vaporise the extinguishing agent that in contact with a burning surface forms steam, which dissipates the oxygen.
D. Course mist cools off the surface and leaves behind a fire retardant layer to help minimise the risk of a fire re-igniting.

Contents of Fire Knock Out

Figure 3.1
Table of contents within Fire Knock Out

Figure 3.1 displays the contents within the Fire Knock Out Models. Due to the packing being hermetically dust-proof and moisture-proof, maintenance on the Fire Knock Out models is limited to a periodical visual inspection.

Using the Fire Knock Out

The Fire Knock Out models are designed and to be used as a fire prevention product. This is achievable by using the Fire Knock Out in two methods which consist of passive and active usage.

Passive Usage:

The Fire Knock Out is mounted near a hazardous area in which a fire may occur. If a fire occurs the FKO then detects a fire by itself and extinguishes without any manual support or human intervention.

Figure 4.1
A Fire Knock Out 1.6 model mounted in a electrical box
(Passive Usage)

Active Usage:

When a fire occurs in a non-protected area, The FKO can be thrown or rolled (in a controlled manner) into the fire from a safe distance. Entering an area in which a fire has taken place is very dangerous and difficult; FKO can be thrown without having to enter the area. When the FKO gets thrown or rolled into the flames, it will activate by itself without any more human intervention. The FKO is easy to carry. Due to this characteristic, the reaction time to fight a fire is significantly shortened, limiting the risk of a fire causing greater damage.

Figure 5.1
A Fireman extinguishes a car fire with the Fire Knock Out 5.6 model
(Active Usage)

Applications

The FKO Fire Knock Out is a new and effective instrument to fight fire and protect, which can be used with a large range of applications, both preventively and actively. For example, with fires in houses, offices, caravans, garages, sheds and ships, but also with cattle and storage sheds, petrol stations and forest fires. Because the system activates itself, the product is very suitable to immediately fight seats of a fire, which may develop in unguarded rooms.

The FKO is complementary product to existing standard fire extinguishers, and not to replace them.

Figure 6.1
Fire Knock Out 1.6 model mounted in the engine room of a boat

Extinguisher Comparison

The following table displays the different characteristics between the Fire Knock Out and other fire extinguishing systems.

Attribute	Fire Knock Out	Sprinkler System	Pressure Cylinder Extinguisher	
			Water Type	***Powder Type***
Usage	Automatic & Manuel	Automatic	Manuel Only	Manuel Only
Training	No Training Required	Not Manually Operated	Training Required	Training Required
Maintenance	Maintenance free	Routine/Complex	Routine (6 Monthly)	Routine (6 Monthly)
Activation Time	3-10 seconds	10-15 seconds	N/A	N/A
Malfunction Rate	None (no moving parts/hose/pressure)	Minimal	High	High
Activation Method	Open Fire	Heat	N/A	N/A
Installation Time & Costs	Minimal	High	Medium	Medium
Extinguishing Effect	Moist	Wet	Wet	Dry
Cleaning Effort	Minimal	Very High	High	Extremely High
Weight	1.6 or 5.6 Kg	N/A	5-10 Kgs	2-10 Kgs
Mobility	Yes	No	Yes	Yes
Health and Environment Implications	Harmless	Harmless	Harmless	Harmful
Aesthetics	Good	Good	Poor	Poor
Reaction Time	Fast	Medium	Slow	Slow
Method of Action	Cooling, extracting Oxygen & Retardant Blanketing	Cooling	Cooling & Blanketing	Blocks Chemical Reaction
Probability of Fire Re-igniting	Low	Low	Low	Medium
Usage Distance	Safe Distance	N/A	Close/High Risk Distance	Close/High Risk Distance

Fire Class Comparison

The following table displays the different characteristics between the Fire Knock Out and other fire extinguishing systems if applied to different types of fires. This includes:

- Class A fires (solids, usually of organic origin)
- Class B fires (fluids or substances becoming fluid)
- Class C fires (gaseous)
- Class E fires (electrical).

Fire Class	Fire Knock Out	Sprinkler System	Pressure Cylinder Extinguisher	
			Water Type	***Powder Type***
A	Good	Good	Good	Bad
B	Good	Bad	Bad	Good
C	Good	Bad	Bad	Good
E	Extinguishing Good/Low Consequential Damage	Extinguishing Good/High Consequential Damage	Danger of Electrocution/High Consequential Damage	Extinguishing Good/High Consequential Damage

International Certificates & Approvals

CE: Certificate of Verification of Compliance with and fulfilment of the requirements of the (European) Directive 94/62/EC.
Issuing Authority: SGS Taiwan Ltd, EC Laboratory, 134 Wu Kung Road, WuKu Ind. Zone, Taipei, Taiwan.

Certification for Safe Transport of Dangerous Goods (Class 9: Miscellaneous Dangerous Substances and Articles) (UN no. 3072).
Issuing Authority: Chemicals Testing Centre of Nanjing University of Science and Technology.

Determination of performance characteristics of “FKO Fire Knock Out” products in accordance with Annex I of standard EN 3-7: 2004.
Issuing Authority: Instituto Giordano S.p.A, Via Rossini, 2 - 47814 Bellaria (RN) Italy.

Frequently Asked Questions

How effective is FKO?

The FKO Light 1.6 has a coverage area of 2 sq. m creating a water vapour of 1,500 litres and FKO Pro 5.6 covers an area of 5sq.m creating 5,500 litres of water vapour. It is most effective next to high risk objects. FKO blocks the supply of two out of three components required for fire - oxygen and heat.

For what kind of fires is the FKO suitable?

Fire Knock Out can be used on class A fires (solids, usually of organic origin, in general with a glow development), class B fires (fluids or substances becoming fluid), class C (gaseous) fires and Electrical fires.

Who can use it?

Anyone can use the two models without needing any training. Both models can be used in closed areas and with outside fires. The two models are very suitable for mobile use because of their light weight and small size. The 5.6 version has a plastic handle, so that it can be carried easily by the more experienced or explained user or hung somewhere as prevention.
FKO Light 1.6 is for domestic and small fires and can be used actively i.e. by throwing it into the fire or passively i.e. it is placed near fire prone areas and is activated automatically on contact with fire and extinguishes the fire. FKO pro 5.6 is the professional model and used for bigger fires and to be used actively.

What is the difference between the two models?

As mentioned above, the area covered and the sizes of the models are what make them different. The contents, functionality, way they work etc are exactly the same.

Is maintenance required and what are the costs of maintenance?

No maintenance is required for the 5 years warranty Fire Knock Out comes with. The packing is hermetically dust-proof and moisture-proof, so that the maintenance is limited to a periodical visual inspection.

What is the possibility of defects?

Almost nil. Every unit of FKO goes through an extensive quality check which makes defects almost impossible.

Can an FKO get activated without contacting fire?

No. FKO is activated only by Fire flames and not by temperature or any other external factors eliminating chances of false alarms.

Can it be used in the vicinity of sensitive equipment, like computer servers?

FKO can be used near electrical boards, air conditioners, and other electrical appliances, however it is not advisable to use it near sensitive electronic gadgets, as the moisture might be harmful to the small circuits.

At what temperature will an FKO get activated?

It is not sensitive to temperature. The FKO is activated only when there is a contact of the fuse with the fire.

Can I fix an FKO to a wall or object?

The 1.6 version comes with a hook which can be used to hang on the wall. The 5.6 version has a plastic handle, so that it can be carried easily by the professional user or hung somewhere as prevention.

What happens when FKO is in one corner of a room and the fire in the other corner?

90% of fires occur in places where they are usually expected like electrical boards, electronic appliances etc in a room. So if a place is equipped with FKO, it needs to be placed close to these areas prone to fire. For the remaining 10% of fires, FKO can be used in active form, where the user has to throw the FKO into the fire.

What happens when the container gets damaged?

The container should be regularly visually checked for leaks or external damages. In case of leaks, the dealer should be informed about it.

Which country is FKO from?

FKO is developed in The Netherlands.

Can the FKO be installed on the outside of the building?

FKO can be used in closed areas as well as outside areas as long as they are placed away from direct sunlight and rains.

What size fire can the FKO extinguish?

Fire Knock Out is available in two models, FKO Light 1.6 and FKO Pro 5.6. FKO Light 1.6 is covers an area of 2 sq m and FKO Pro 5.6 an area of 5-6 sq m.