FIRE ISOLATOR

EV FIRE PROTECTION

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The well known risk of lithium-ion batteries — used in smartphones, e-scooters, e-bikes, and electric vehicles (EVs) — catching fire or even exploding is significant. While the hazards and potential damage caused by EV battery fires are widely recognized, effectively extinguishing these fires continues to be a challenge.

Imagine such a fire happening in a carpark, on the cardeck of a ferry or in a building. The consequences could be disastrous. The methods for extinguishing a lithium-ion battery fire are depending on the location and size of the fire. However, as a general rule, using only water will not do the job. Special strategies & methods are needed to fully and safely extinguish or isolate an EV car fire.

KEY FACTS ABOUT EV-FIRES

Here are a few key facts that everyone dealing with electric vehicles (EVs) on ferries or in car parks should know about and act upon:

1. EV car fires can reach peak temperatures of over 1500°C
2. Proper training in handling different fire situations is essential for effectively managing EV fires

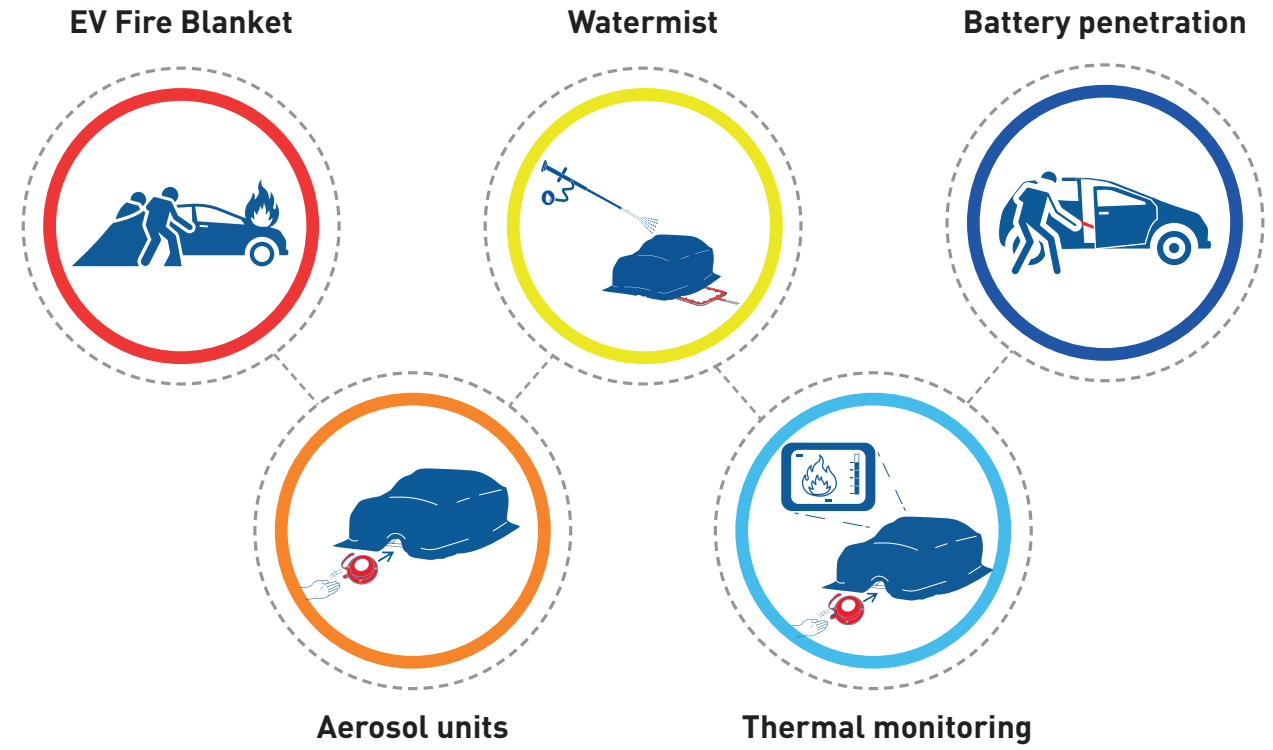
ABOUT THE FIRE ISOLATOR CONCEPT

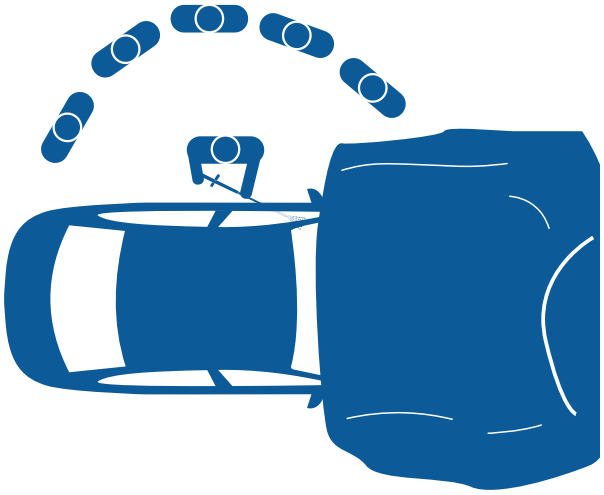
In general, there is no single solution to extinguish EV car fires, and/or lithium battery fires. Most specialists agree that more than one solution should be available. Once an EV fire occurs on board a ferry or car carrier, the shipowner/captain must be able to reach the nearest port as soon as possible to keep damages to an absolute minimum. In case of an EV on fire in a car park, charging station, workshop, the goal must be to minimize the collateral damage. Specialists with a long track record of fighting E-fires invented a concept based on live tests and best practices for the best method to fight an EV fire is in order to have minimum damages towards a building or ship construction and humans. The conclusion was that a combination of different extinguishing methods delivers the best results. With this best practice, the concept of Fire Isolator was born.

The Fire Isolator Concept holds 5 elements that, when used together, deliver the best results when fighting EV-fires on board ferries or in car parks:

1. The use of a High Temperature resistant Fire Blanket
2. The use of water mist to cool and minimize the toxic vapors
3. The use of aerosol units that lower the temperature of the fire by interrupting the chemical chain reactions occurring in the flames
4. Training
5. The use of a thermal imaging camera to monitor the temperature of the fire is strongly advised

FIRE ISOLATOR CONCEPT: EV FIRE CONTAINMENT





Training

FIRE ISOLATOR as a concept is the outcome of our professional tests of different extinguishing methods of (EV) car fires. This concept consists of several tested and proven elements that, when used together, deliver the best results when fighting EV-fires. One of our most sold products in this concept, are the EV Fire Blankets. Fire blankets in itself can not stop the thermal runaway in lithium-ion battery powered vehicle. Blanket provide control of the situation, prevent the fire from spreading and provide the confined space that the aerosol units need to be effective in killing the flames and bringing down the temperature.

THE ULTIMATE EV FIRE BLANKET FI-BL0906

The FI-BL0906 Fire Blanket is a very efficient and high temperature-resistant blanket, specially designed to control and isolate electric car fires. Due to depriving the oxygen inlet, the blanket reduces smoke and toxic fumes, creating an enclosed space that aerosol units need to effectively kick down the flames. The fire will not spread any further, preventing collateral damage to the surroundings.

Features and benefits:

- Made of open weave structured, silica-grade materials, for a temperature resistance of up to 1600 °C/2900 °F (peak temperatures) and eco-friendly.
- 9 x 6 meters in size
- The blanket can stand temperatures of 1200 °C/2200 °F. continuously
- Tested according to ISO EN 13501-1 (A1 classification), NFPA701, DIN SPEC 91489 and ASTMD6413.
- Datasheet and Safety Datasheet available
- The Fire Blanket is reusable and can be cleaned.
- Easy to deploy, equipped with colored loops.
- Protects the surroundings and prevents collateral damage.
- Suitable from small cars to large pick-ups.
- Different sizes are available upon request, as well as for small electric vehicles (LEVs) like e-scooters/e-bikes.

View our animated instruction video

THE ULTRA EV FIRE BLANKET FI-BLULTRA0806

The FI-BLUTRA0806 is a very efficient and strong Fire blanket for professional use, designed for even higher temperatures up to 1700°C. This blanket is made of ultra-high silica grade with a silicone coating, meaning it has a double coating.

Features and benefits:

- Made of ultra-high silica-grade materials, for a temperature resistance of up to 2050 °C.
- 8 x 6 meters in size
- The blanket can stand temperatures of 1400 °C/2500 °F. continuously
- Tested according to ISO EN 13501-1, NFPA701, DIN SPEC 91489 & ASTMD6413.
- Datasheet and Safety Datasheet available
- The Fire Blanket is reusable up to 30 times and can be cleaned.
- Easy to deploy, equipped with colored loops.
- Protects the surroundings and prevents collateral damage.
- Suitable from small cars to large pick-ups.
- Different sizes are available upon request, as well as for small electric vehicles (LEVs) like e-scooters/e-bikes.

Visit our website to learn more about our fire blankets

THE ECONOMY FIRE BLANKET FI-BLECON0806

The FI-BLECON0806 Fire Blanket can withstand continuous temperatures of up to 800°C (peak around 1100°C) , making this blanket more suitable for normal combustion-engine car fires or one-time use on EV car fires. Therefore, the Economy Fire Blanket Fire Blanket is more affordable.

Features and benefits:

- Made of open weave structured, silica-grade materials, for a temperature resistance of up to 800 °C.
- 8 x 6 meters in size
- Tested according to ISO EN 13501-1 (A1 classification), DIN SPEC 91489 & ASTMD6413.
- The Fire Blanket is reusable and can be cleaned.
- Datasheet and Safety Datasheet available
- Easy to deploy, equipped with colored loops.
- Protects the surroundings and prevents collateral damage.
- Suitable from small cars to large pick-ups.
- Different sizes are available upon request, as well as for small electric vehicles (LEVs) like e-scooters/e-bikes.

Visit our website to learn more about our fire blankets

FIRE ISOLATOR PRODUCTS - LITHIUM BATTERY & EBIKES FIRE

We have developed a range of smaller blankets of the same quality as our large car blankets, which are deployed on lithium-ion battery fires, fires in e-bikes and e-scooters. These fires can have great impact on the environment and cause extensive damage. We have developed a series of smaller blankets for this purpose.

LITHIUM FIRE BLANKET 2 X 2 – FI-BL0202

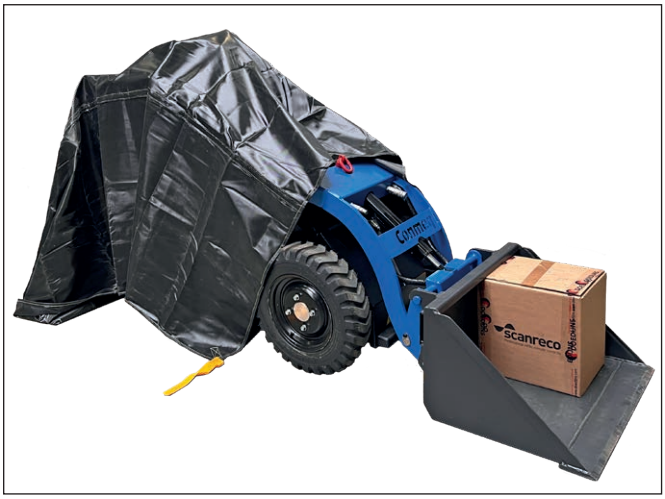
- Made of open weave structured, silica-grade materials, for a temperature resistance of up to 1600 °C/2900 °F (peak temperatures) and eco-friendly.
- 2 x 2 meters in size
- The blanket can stand temperatures of 1200 °C/2200 °F. continuously.
- Tested according to ISO EN 13501-1 (A1 classification), DIN SPEC 91489, NFPA701 & ASTMD6413.
- Datasheet and Safety Datasheet available
- The Fire Blanket is reusable and can be cleaned.
- Easy to deploy, equipped with colored loops.
- Protects the surroundings and prevents collateral damage.

LITHIUM FIRE BLANKET 3 X 3 – FI-BL0303

- Made of open weave structured, silica-grade materials, for a temperature resistance of up to 1600 °C/2900 °F (peak temperatures) and eco-friendly.
- 3 x 3 meters in size
- The blanket can stand temperatures of 1200 °C/2200 °F. continuously.
- Tested according to ISO EN 13501-1 (A1 classification), NFPA701, DIN SPEC 91489 & ASTMD6413.
- Datasheet and Safety Datasheet available
- The Fire Blanket is reusable and can be cleaned.
- Easy to deploy, equipped with colored loops.
- Protects the surroundings and prevents collateral damage.

FIRE ISOLATOR PRODUCTS - CUSTOM FIRE BLANKETS

We can make blankets for virtually any size in one of our three types of material ULTIMATE, ECON and ULTRA. Are you looking for very large sizes of blankets for buses, for example, a specific size for electric forklifts or a specific size for your own vehicle or object; we can make it for you and still keep the prices competitive. Whether or not equipped with extra loops, extra reinforcement material, d-rings etc.etc. The possibilities are almost endless with our blankets.



FIRE ISOLATOR PRODUCTS - AEROSOL UNITS

Aerosol Units are lightweight, handheld devices that use specialized aerosol technology (containing potassium nitrate) to suppress fires. The device releases a form of tiny solid particles suspended in a gas. These particles interfere with the fire's chemical chain reactions, interrupting the combustion process. With the Fire Isolator blanket providing the confined space for the aerosols to be effective and water mist to further cool the car and make the blanket even more gastight, the aerosol units are a crucial part of the Fire Isolator concept to contain the car fire.

In case of fires in electric vehicles, with the battery in thermal runaway, the aerosols cannot completely stop the thermal runaway or extinguish the fire. It can however strongly reduce the flames, resulting in a dramatic decrease of the temperature. This makes the whole situation much more controllable.

Features and benefits:

- The Aerosol Units have a serviceable lifetime of 15 years
- The devices can be stored between 5°C - 40°C (humidity 80%)
- Volume coverage up to 45m^3 (or 1400ft3)
- Does not deple oxygen levels
- Product certification: EN 15276-1, ISO 15779, KIWA BRL K23001, UL 2775, NFPA 2010 AS 4487, ISO 9094 + regulatory certificates: ISO9001, ISO14001, BSI Kitemark, CE, EPA SNAP listing, ATEX
- Ecologically safe and environmentally friendly
- Harmless to humans and animals

The Aerosol Units work best after deployment of the Fire Blanket, in a closed off space. Always make sure to keep a safe distance from the fire. Training in using the Aerosol Units is recommended for first responders and firefighters to ensure effective and safe use in fire control scenarios.

Visit our website to learn more about the aerosol units

FIRE ISOLATOR PRODUCTS - WATERMIST LANCE

A watermist lance (FI-WMLANCE), also known as a water mist nozzle or water mist gun, is a firefighting device that produces a fine mist of water to suppress fires. It is a portable and versatile tool used by firefighters to control and extinguish fires in various situations, particularly in situations where traditional firefighting methods may not be suitable. For example, fires in confined spaces like a container or the battery of an electric vehicle.

In the FIRE ISOLATOR concept, the watermist lance is often used to produce a fine water mist on top of the deployed Fire Blanket, to further cool down the car. By spraying a water mist over the blanket (with the car under it), the vapor coming off the blanket is kicked down so most of the toxic (white) vapor is kept under the blanket instead of flowing into the building/ship/area.

Features and benefits:

- Constructed from high-quality stainless steel
- The top shaft of the lance is PE-coated to prevent electric shock
- When connected to a water supply, the lance produces a fine water mist
- The length of the shaft is adjustable, from 500mm to 1350mm
- Nominal pressure and flow about 90L/min at 8 BAR
- The watermist lance is ABS approved and meets requirements in SOLAS regulations II-2/10.7.3

Connection end:

- 1" male thread without the Ball valve
- 1" female thread with the Ball valve

FIRE ISOLATOR PRODUCTS - WATERMIST APPLICATORS

The Fire Isolator Watermist applicators are revolutionary products for fighting (EV) car fires. These applicators are specifically developed to limit the fire in electric vehicles. An EV fire can reach extremely high temperatures. The Watermist Applicators will cool the car and significantly reduce the temperature. These easy to use devices, that are patented and unique in the market, come in different versions/sizes. All applicators are made of lightweight and fire resistance materials.

FIRE ISOLATOR WATERMIST STICK 26

- FI-WMS26
- 2640 mm, ⌀ 60 mm
- 9,5 kg
- connection end: M60 male thread, 50A Storz coupling (aluminum)

FIRE ISOLATOR WATERMIST APPLICATOR 126

- FI-WMA126
- 800 mm x 500 mm x 100 mm
- 8 kg
- 137 liters per min at 4 bar pressure

FIRE ISOLATOR WATERMIST APPLICATOR 138

- FI-WMA138
- 170 mm x 570 mm x 100 mm
- 10 kg
- 200 liters per min at 4 bar pressure

FIRE ISOLATOR WATERMIST APPLICATOR 241

- FI-WMA241
- 4500 mm x 900 mm x 100 mm
- 30 kg
- 215 liters per min at 4 bar pressure

THE THERMAL VIEWER

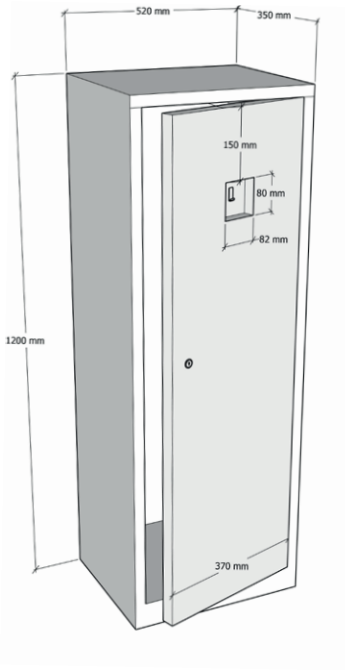
The Thermal viewer, also known as a thermal imaging camera, is a portable and lightweight viewer with 300000 pixels digital camera and a measurement range from -20C° to 1000C°. This device captures the heat emitted from objects and converts it into visible images allowing the user to see variations in heat.
By accurately monitoring the temperature of a (EV car) fire, a better risk assessment can be made. In the case of deployment to a fire in an electric car, when the temperature rises again, another aerosol unit can be deployed to knock down the flames and thus lower the temperature of the fire again.

THE FIRE ISOLATOR EV FIRE GUN

The EV fire gun from Fire Isolator is a tool developed for penetrating the battery of an EV and flood it with water. By doing so, one can attempt to extinguish the fire from within the battery. Many tests have shown that the EV Fire gun is an effective way to ensure the fire does not spread.

THE FIRE ISOLATOR STEEL CABINET

The Fire Isolator Steel Cabinet is a strong built cabinet made to store a Fire Isolator blanket. This cabinet offers a safe and convenient storage solution, keeping your Fire Isolator blanket easily accessible, close to potential EV fire risks.



THE FIRE ISOLATOR KIT & GRP BOX

This high-quality box can withstand any type of climate and is perfectly suited to be standing outside for a longer period of time.
The GRP box can be ordered separately or as part of the Fire Isolator Kit.

THE FIRE ISOLATOR TROLLEY

The Fire Isolator Trolley is a portable and efficient solution designed for easy transport of our Fire Blanket by a single person. It allows for quick and convenient deployment, without the need for multiple people to carry the blanket. The trolley is particularly easy to handle on flat surfaces. Its smooth-rolling wheels and user-friendly design make it an ideal choice for environments where speed and accessibility are crucial. The trolley also features a Velcro strip for easy opening, ensuring fast access to the Fire Blanket in emergency situations.

THE FIRE ISOLATOR BACKPACK

The Fire Isolator Backpack offers a compact solution for carrying our Fire Blanket. This backpack is particularly well-suited for confined spaces, such as car decks on ferries, where vehicles are parked closely together and there is no space to maneuver Fire Isolator trolley. In such environments, the compact design of the backpack allows for easy navigation between tightly parked cars, making it an excellent choice for situations where space is limited. Additionally, the backpack excels in areas with uneven or rough surfaces where trolley wheels may struggle.

THE FIRE ISOLATOR CONCEPT IN FACTS

- EV car fires can reach peak temperatures of over 1500°C (as witnessed during our tests). Regular combustion engine cars of around 800°C.
- By covering the burning EV with the Fire Isolator blanket, the temperature of fire already dropped to around 600-800°C
- After using the water mist lance and aerosol unit, the temperature of the fire dropped to around 200-300°C
- The Fire Isolator is a concept that allows you to control the fire and minimize collateral damage
- When an electric vehicle's battery rises in temperature (visible through monitoring systems) but has not yet caught fire, the Fire Isolator concept can be deployed without the use of personal protective equipment.
- Once the EV car is burning, the Fire Isolator concept should be deployed using PPE and SCBA
- We offer Fire Blankets that are reusable 6 times (FI-BL0906), 30 times (FI-BLULTRA0806) and blankets intended for single use (FI-BLECON0806)

PRODUCT IMAGES & CERTIFICATES

PRODUCT CERTIFICATES

- Fire Blanket:
  ASMT D6413 Flame resistance certificate by HPL Engineering ,ISO EN 13501-1 A1, Reaction to fire certificate by MPA/KIWA, DIN SPEC 91489, NFPA701 by SGS

- Aerosol units:
  ABS Product Design Assessment Certificate, EN 15276-1, ISO 15779, KIWA BRL K23001, UL 2775, NFPA 2010, AS 4487, ISO 9094, EPA SNAP listing and many others.

- Water Mist Lance:
  ABS Product Design Assessment Certificate

ACCESSORIES

We are happy to work with you on procedures and products to control EV fires and minimize collateral damage. Please contact us for a free consultation: sales@fireisolator.com.

FIRE ISOLATOR

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