THE COMPLETE GUIDE TO PROTECTING CONTAINER HANDLING EQUIPMENT FROM FIRE DAMAGE

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A container yard is a busy place. In July of 2021, the Port Authority of Los Angeles released numbers showing that over 800,000 containers were handled in that month alone, bringing the yearly tally to just over 6 million containers. For ports all over the world, meeting these types of productivity demands means maximizing container handling equipment uptime - and protecting employees - is critical.

However, equipment fires happen frequently, and are difficult to predict. In a claims analysis by TT Club, a leading insurance provider to the international transport and logistics industry, it was found that nearly 70% of costs at container yards related to fire were attributed to yard equipment. Installation of an effective automatic fire detection and suppression system can help minimize equipment downtime, prevent loss of expensive equipment, and safeguard against serious injury.

In this report, we examine fire risks in container handling equipment, what areas to protect and how to manage fire risks.

Common Fire Risks in Container Handling Equipment

Risk #1

Failures in hydraulic hoses or fuel lines can cause fuel or hydraulic oil to leak or spray throughout the engine compartment. Once in contact with hot components in the engine, the fuel or oil can ignite - filling the whole compartment with fire.

Risk #2

Overcurrent in panels within the crane's electrical room can cause wiring and components to burn. A fire in an unprotected panel can destroy the panel and spread throughout the electrical room.

Risk #3

Electrical faults can cause wiring and components to burn, and lead to arc flash within the crane's electrical room. In these cases, the spread of fire can be catastrophic, destroying the room and possibly the crane, leading to collapsing booms and beams.

Fire Protection for Three Critical Areas of Container Handling Equipment

Electrical Panel Protection

Electrical panels on container handling equipment are protected by Firetrace's direct release systems. When heat or flames are detected by the pressurized tubing, the system activates, and a clean agent is released directly from the tubing at the source of the fire. The suppression agent fills the panel compartment, simultaneously suppressing the fire and cooling the environment, while protecting electronics from damage.

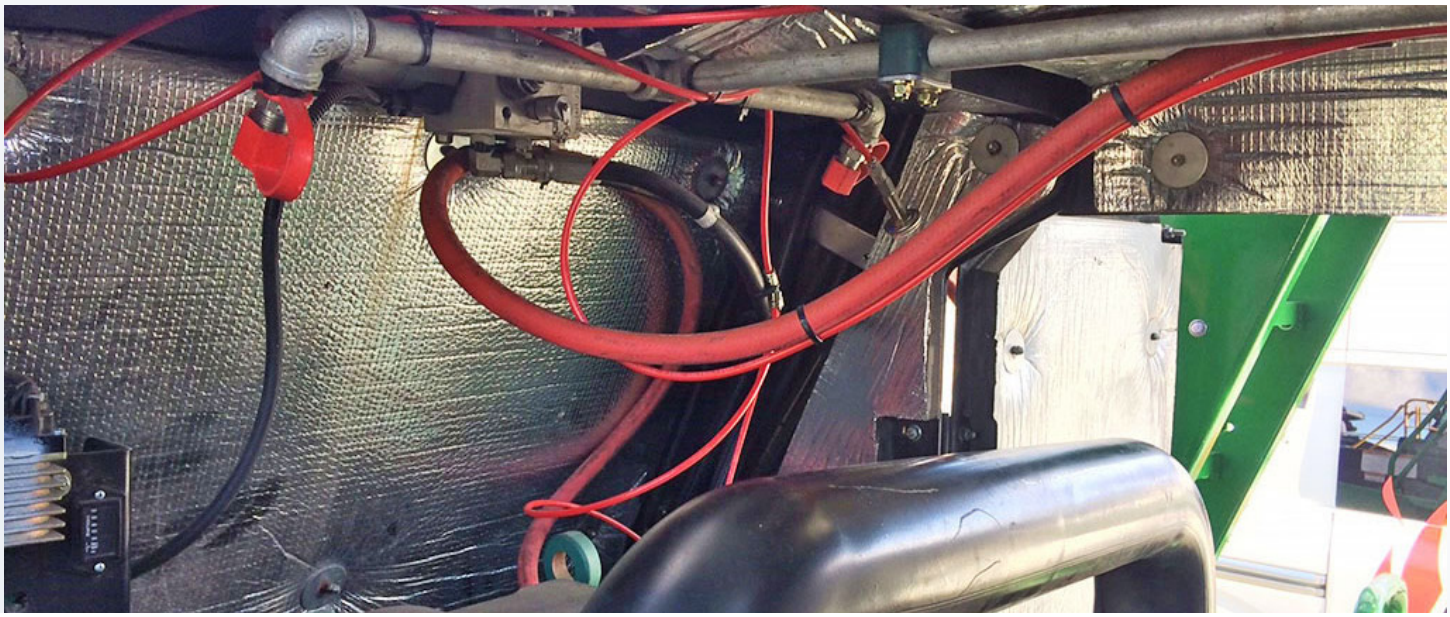
Engine Protection

Engines on container handling equipment are protected by Firetrace's indirect release systems. When a fire is detected by the pressurized tubing and the system is triggered, a dry chemical suppressant is released from a series of nozzles and directed at the hottest operating components in the engine, coating the compartment in dry chemical and suppressing the fire.

Electrical Room Protection

Firetrace™ engineered systems protect electrical rooms on container handling equipment. These are specially designed detection and suppression systems that protect rooms of sensitive electronics by automatically releasing a clean agent that fills the room when fire is detected and suppresses the fire. The clean agents used in these systems do not leave a residue and will not damage electronics.

Firetrace systems are unmatched in simplicity of installation and maintenance. Firetrace utilizes pneumatic linear detection, rather than electronic linear detection and associated panels, meaning they require no power to detect or suppress fires and are much simpler to install, inspect, and maintain. Very little equipment downtime is needed for Firetrace system installation and maintenance when compared with other system types.



What is the best fire suppression system for protecting container handling equipment?

To adequately protect container handling equipment, three systems are recommended. While the most common cause of fire is hydraulic system failure in engine compartments, it's not enough to rely on just automatic fire detection and suppression systems for engine compartments: catastrophic fires can also start in electrical rooms and in electrical cabinets on cranes. Firetrace offers a system to protect each of these hazards, and often, ports can protect a whole fleet of equipment with Firetrace systems for less than the cost of one top loader forklift.

Firetrace can protect engines, electrical panels, and electrical rooms on every type of container handler, such as:

- Yard trucks or terminal tractors
- Forklift trucks
- Empty container handlers or side loader forklifts
- Loaded container handlers or top loader forklifts
- Reach stackers
- Straddle carriers
- Rubber tired gantry (RTG) cranes, rail mounted gantry (RMG) cranes
- Mobile harbor cranes
- Ship to shore cranes

Most Firetrace systems detect fires via pneumatic linear detection, using specially designed pressurized tubing that is routed throughout the hazard. This tubing can detect both heat and flames, and upon heating, ruptures, and triggers release of a fire suppression agent, either through the tubing itself or through a series of nozzles to suppress the fire.

The Importance of Industry Leading Certifications.

Firetrace systems are certified for performance.

ENGINE PROTECTION: R107 COMPLIANT AND PMARK SPCR 183 CERTIFIED

Firetrace engine protection systems are R107 compliant and have passed all 11 SP Method 4912 tests. This includes both the fire tests required by R107 and additional tests to ensure that the systems can survive the harsh environment of an engine. They are also PMark SPCR 183 certified and have been specially certified for effectiveness and reliability in engines.

PANEL PROTECTION: LPCB CERTIFIED TO LPC 1666

The Loss Prevention Certification Board (LPCB), the leading international Certification Body in the fields of security and fire protection, has also certified Firetrace electrical panel protection systems to the Loss Prevention Standard (LPC) 1666. The certification applies to direct low pressure application fixed fire suppression systems, using heat sensitive pneumatic tubing, designed for the protection of small unoccupied defined volume enclosures such as electrical panels. Firetrace's electrical panel protection systems have been awarded LPCB approval that certifies the product will reduce the risks of electrical panel fires.

WHAT IS IN FIRE SUPPRESSION SYSTEMS?

Fire suppression systems can utilize dry powder, clean agents, or liquid.

DRY POWDER

Dry powder systems spray a fine powder, like ABC Dry Chemical, typically made of sodium bicarbonate, potassium bicarbonate, or monoammonium phosphate. They work by coating the fuel and smothering the fire, which make them an excellent choice for engine compartments. Dry powder systems can cause issues with electrical components and are not recommended for electrical applications.

CLEAN AGENTS

Clean agents like FK-5-1-12 and FM-200 quickly suppress fire without harming equipment, electronics, employees, or the environment. They are noncorrosive, nonconductive, and do not leave residue to clean up. These agents minimize the interruption of business operations due to the minimal cleanup required.

LIQUID

Liquid fire suppression systems work by releasing a pressurized mixture of water to smother the fire. Some liquid fire suppression systems contain added elements like carbon dioxide or antifreeze, a corrosive agent, to help keep the system functioning in all environments. However, the corrosive nature of antifreeze can damage equipment. Liquid agents also require larger cylinders to store the volume of liquid needed to suppress the fire adequately, making them less compact and increasing the difficulty of install. Liquids are not recommended for use with electronics, as they can cause damage.

DUAL AGENTS

Dual agents combine both dry powder and liquid to suppress fires. These systems combine these elements in effort to prevent reflash—the reignition of the fire after the initial suppression. The cleanup for dual agent suppression systems is extensive due to the mixture of powder and liquid that coats equipment. These systems also require more or larger cylinders to store the volume of agent needed to suppress the fire, making them less compact.

What are the benefits of installing a Firetrace system on your container handling equipment?

Maximizing Equipment Uptime

Firetrace systems protect operators and nearby workers while maximizing equipment uptime. Down equipment from fire means that fewer teams work longer hours to complete unloading or loading a ship, leading to overtime and causing a payroll increase. In addition, if too much equipment is down, this can result in turning a ship away and a $1-6M loss in revenue, depending on ship size.

When equipment is damaged repairs can take more than two months for small equipment and up to a year for larger cranes because replacement components are often custom-built. If a piece of equipment is a total loss, new equipment replacement costs can range from $500k to $30M and new units can take years to receive because this equipment is typically built to order.

Not all automatic fire suppression companies can address all the hazards that exist on container handling equipment; From engines to electrical panels and electrical rooms, Firetrace has you covered no matter the hazard. Firetrace systems prevent serious damage and total loss, to have your equipment back up and running in days.

Protecting operators and nearby employees

At container terminals, support teams and extinguishers can be far away. Because of this delay in response time, equipment fires can grow rapidly making it more dangerous for operators to get down from equipment. In addition, it increases the likelihood of complete loss of structural integrity, which could lead to collapsing booms and beams. Unlike traditional fire extinguishers, Firetrace systems automatically detect and suppress fires in seconds. Significantly decreasing the risk of serious and life-threatening burns, falls, and injuries from falling objects.

For worker safety and reduced downtime, container terminals all over the world choose Firetrace

Our customers trust us with their productivity, and their most important asset, the lives of their workers. This is a responsibility that we take seriously by providing the best in fire suppression technology at an affordable price. Firetrace systems are currently being utilized to protect port equipment in:

North America

Long Beach, CA, USA --- Reach Stackers

Oakland, CA, USA --- Reach Stackers

Seattle, WA, USA --- Top Loaders

Houston, TX, USA --- Reach Stackers

Elizabeth, NJ, USA --- Empty and Loaded Handlers, Reach Stackers, Straddle Carriers

Jersey City, NJ, USA --- STS Cranes, RTG Cranes

Miami, FL, USA --- Top Loaders, Reach Stackers

Savannah, GA, USA --- RTG Cranes

South America & Latin America

San Juan, Puerto Rico --- STS Cranes

Dominican Republic --- All Equipment Types

Manzanillo, Mexico --- Reach Stackers

Colon, Panama --- Reach Stackers

Africa

Maputo, Mozambique --- Many equipment types

Middle East

Khorfakkan Container Terminal, UAE --- Reach Stackers, RTG Cranes

Asia

Hong Kong, China --- Reach Stackers

Singapore --- RTG Cranes

SCPT, Vietnam --- Empty Handlers, RTG Cranes

PT Terminal Petikemas Surabaya, Indonesia --- RTG Cranes

Shanghai Yangshan Port, China

- Sheng Dong Terminal --- STS and RTG Cranes
- Yi Dong Terminal --- STS and RTG Cranes
- Zhen Dong Terminal --- STS and RTG Cranes

A Firetrace fire suppression specialist can help you determine which system is right for your container handling equipment needs. Contact us today.

Firetrace: Fire Protection that Won't Let You Down

Products and systems with industry listings and approvals are a signal of quality, security, and peace of mind. If you're looking to protect your business, your people, and your equipment from fire damage, Firetrace has you protected. If you're looking to distribute or bundle fire suppression systems that work, Firetrace is the right company for the job. We're proud of the products we sell, and we stand behind the UL Listing and FM Approvals our products carry. To learn more about the third-party certifications of our products, visit our resources page at *firetrace.com/resources*.

Our products automatically detect and suppress fires in high-risk equipment like CNC machines, wind turbines, container handling equipment, and electrical panels. And, we have one of the strongest distributor networks across the globe, which means you will get the assistance you need in a timely manner.

If you're ready to get started protecting your people and assets, reach out to us today.

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