



Sprinkler Solutions
for **Storage** Applications

tyco

Logistics and Distribution

As storage facilities and their distribution methods have evolved, so have the challenges of protecting them. When installing a fire protection system in these spaces, different risk levels must be considered for a custom solution designed to meet the long term needs of the facility.

TEMPERATURES 40°F (4°C)
AND ABOVE

TEMPERATURES 40°F (4°C)
AND BELOW

CEILING
HEIGHTS

Model ESFR-25

Highest ceiling-only protection available for protection of cartoned unexpanded plastics

Model ESFR-25

Highest ceiling-only protection available for exposed unexpanded and exposed expanded plastics

Model EC-25

Low installed cost from extended coverage and low hydraulic demand

QUELL

Highest ceiling-only protection available for protection of Class 3 Commodities using the Ultra K-34 Sprinkler

**Model ESFR-17
Dry Type Sprinkler**

Highest ceiling-only protection available for cartoned unexpanded plastics in box-in-box construction

QUELL

Highest ceiling-only protection available for protection of cartoned unexpanded plastics in structural construction

55 ft.
(16,8 m)

48 ft.
(14,6 m)

40 ft.
(12,2 m)

35 ft.
(10,5 m)



Tyco has the experience to provide the right solution for your fire protection needs. In addition to water-based storage solutions, Tyco has a wealth of experience from automatic fire detection and fire suppression systems to hand held portable extinguishers.

At Tyco, we use our expertise to recommend long-term solutions which maximize protection for a variety of storage or distribution facilities, including, warehouses, distribution centers, fulfillment centers, cold storage, and automated facilities.

Model ESFR-25

- 48 ft. (14,6 m) ceiling-only storage protection and 5 ft. (1,5 m) aisle widths to help maximize product per square foot
- Greater storage arrangement flexibility—change how contents are stored to maximize use of the cube
- Protection for a wide variety of commodities allows the storage contents and tenants to be changed without replacing the fire protection system

Model DPV-1 Dry Pipe Valve

- Sprinkler system valve for environments exposed to freezing temperatures
- Simple external reset simplifies installation and service
- Use with Tyco sprinklers for a total fire protection solution

Model EC-25

- 196 ft² (18 m²) storage protection – almost double the coverage area offered by standard coverage sprinklers
- Upright design has more favorable obstruction rules
- Suppression performance with low water demand compared to most alternatives

Model DV-5 Deluge Valve

- Quick opening, hydraulically operated, valve designed for use as an automatic water control valve in deluge, preaction and specialist fire protection systems,
- Fewer moving parts than other deluge valves means lower operating costs
- Simple external reset simplifies installation and service; can be configured remotely

Model ESFR-17 Dry Type

- Cold storage protection with standard wet system piping minimizes installation and maintenance costs
- Threaded and grooved inlet provide maximum choice for quick installation
- Two temperatures provides maximum installation flexibility

VIZOR Electronic Dry Pipe Accelerator (US only)

- Quick-opening device intended to reduce the operating time of dry pipe valves
- Less business impact – quick installation, faster reset after inspection, and reduced risk of false trips

QUELL Systems

- FM Approved 55 ft. (16,8 m) ceiling-only storage protection with ULTRA K-34 means lower operating costs than alternatives
- Protection of Class I through Cartoned Group A Plastics – allows a wide range of cold storage commodity protection
- Less repair and downtime – no in-rack sprinklers to damage and discharge water

Model QRS Electronic Accelerator

- Quick opening device intended to reduce the operating time of a dry pipe valve in a dry pipe system or a deluge valve in a double interlock electric / electric preaction system
- One Releasing Panel can control up to four dry pipe systems or one double interlock preaction system



Warehouses, Distribution and Fulfillment Centers

Tyco offers solutions for a wide variety of logistics and distribution facilities. The most effective protection solution will be based on multiple factors, including building design, type of commodity, ceiling height and storage arrangement.

Fire Protection Challenges

Increased fire risk –fire can grow larger and faster– due to changes in logistics and supply chain strategies that have resulted in storage areas over 1,000,000 ft² (93,000 m²) with ceiling heights approaching 50 ft. (15,2 m)

With short product life-cycles and tenant changes, the products stored tomorrow will be different than today and you need help with protection for this ever-changing range of products

Increased amount of plastics from product, packaging and transport create higher fire hazards

Tyco Solutions

- Early Suppression, Fast Response (ESFR) Sprinklers provide help in protecting a wide variety of commodities and storage arrangements, making them a versatile, long-term choice to meet changing needs over the lifetime of a space
- Extended Coverage (EC) sprinklers help protect a larger coverage area and combined with minimal hydraulic demand can lower the cost of installation



Model ESFR-25

The Model ESFR-25 provides suppression mode performance with ceiling-only fire protection for a wide range of commodities and storage arrangements. These capabilities provide owners with the ability to lease to a wide range of occupiers. This sprinkler is the ideal solution to help protect a space where the commodity type may change during the life of the building.



Model EC-25

The Model EC-25 upright sprinkler is an Extended Coverage sprinkler designed for 196 ft² (18 m²) coverage area. This sprinkler has a fast response element and larger water droplets for high performance fire suppression while introducing a third variable, spacing above the 12 ft (3,7 m) maximum allowed for standard coverage sprinklers. The Model EC-25 has been tested to deliver suppression performance at design criteria as low as six sprinklers. With such a small number of sprinklers operating, combined with suppression performance, total system water can be significantly reduced.





Cold Storage

Tyco offers solutions for the challenging environmental conditions found in cold storage facilities. The most effective protection solution will be based on various factors: the construction technique, be it box-in-box or a fully refrigerated warehouse, type of commodity, ceiling height, and storage arrangement.

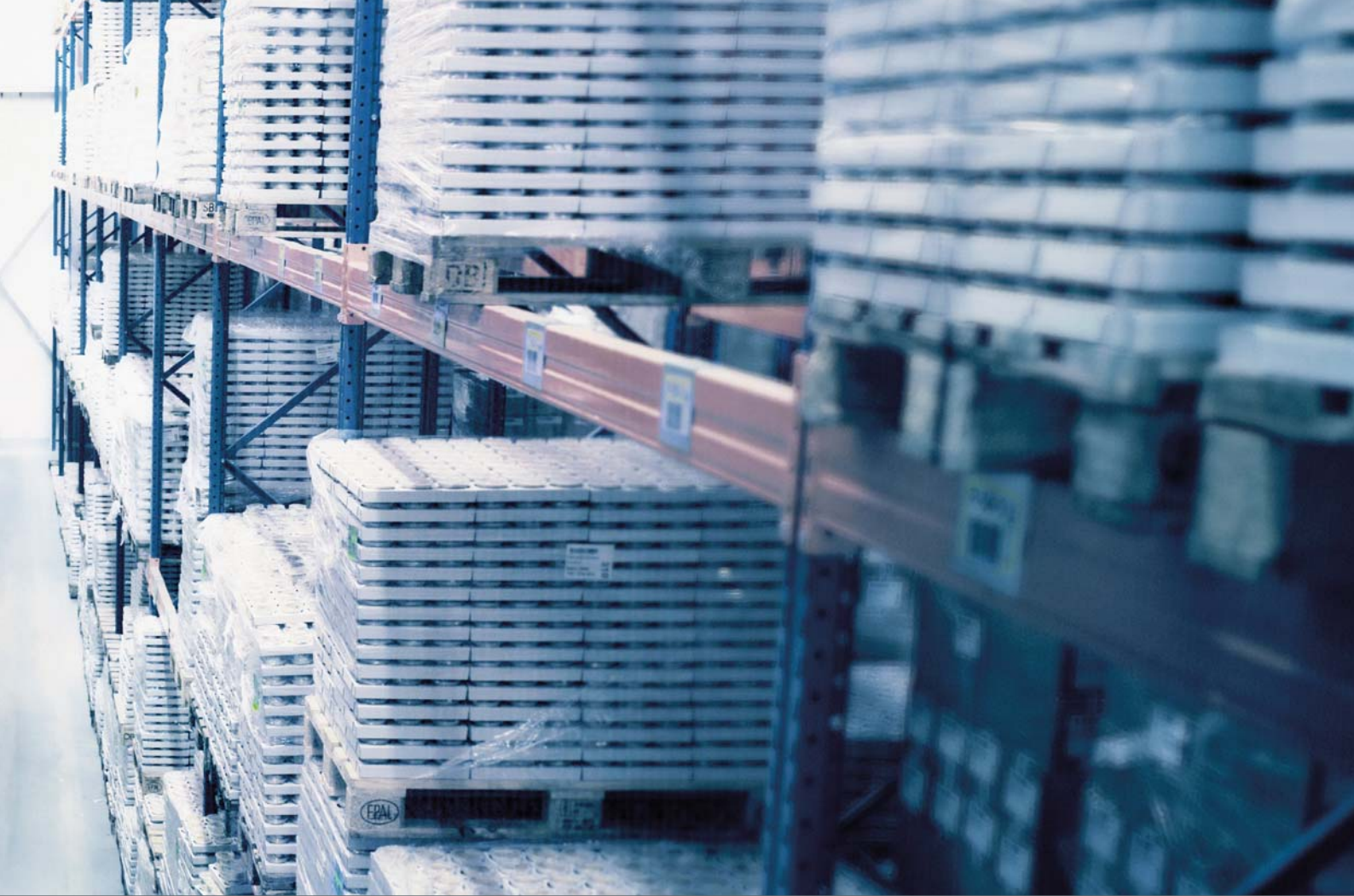
Fire Protection Challenges

Wide range of temperatures from 40°F (4°C) down to -60°F (-51°C) is a challenge for water-based fire protection – as temperatures move further below freezing, product options narrow and differ from higher temperatures

In-rack sprinklers can be broken and discharge water into the space, resulting in expensive clean-up, repair and return to operation

Tyco Solutions

- Ceiling-only protection can reduce the risk of broken sprinklers and accidental water discharge
- The Tyco QUELL System provides the highest ceiling-only solution available for cold storage protection. Protecting up to 55 ft. (16,8 m) with the ULTRA K-34
- Early Suppression, Fast Response (ESFR) dry pendent sprinklers for box-in-box construction provide simpler installation and maintenance



QUELL Systems

The Tyco QUELL System, featuring the ULTRA K-34 Sprinkler, is an FM Approved cold storage fire protection solution for unheated and cold storage warehouses and distribution centers. Compared to in-rack sprinklers, QUELL delivers higher performance and greater flexibility—you can stock more commodity classifications, achieve higher roof and storage heights, and have more storage configuration options. Additionally, the QUELL System offers a lower total cost of ownership than in-rack sprinklers, thanks to reduced installation and maintenance costs associated with ceiling-only fire protection.



Model ESRF-17 Dry-Type Sprinkler

The Tyco Model ESRF-17 Dry-Type Sprinkler is an easy to install, cost-effective solution for box-in-box cold storage facilities. The Model ESRF-17 Dry-Type sprinkler offers installation savings, less maintenance and less chance of damage compared to in-rack sprinklers, which are susceptible to accidental breakage and discharge. The two temperature ratings allow installation flexibility by using the intermediate temperature sprinklers near heat sources such as automatic defrost units.

Model DPV-1 Dry Pipe Valve

The Tyco Model DPV-1 dry pipe valve is available as a fully assembled, pre-tested solution that can reduce installation time, cost and risk. With its simple external reset, the valve can be tested during routine maintenance and returned to operation quickly, reducing business impact.



Automated Facilities

Tyco offers solutions for the increasing heights and dense storage configurations found in semi and fully automated facilities

Fire Protection Challenges

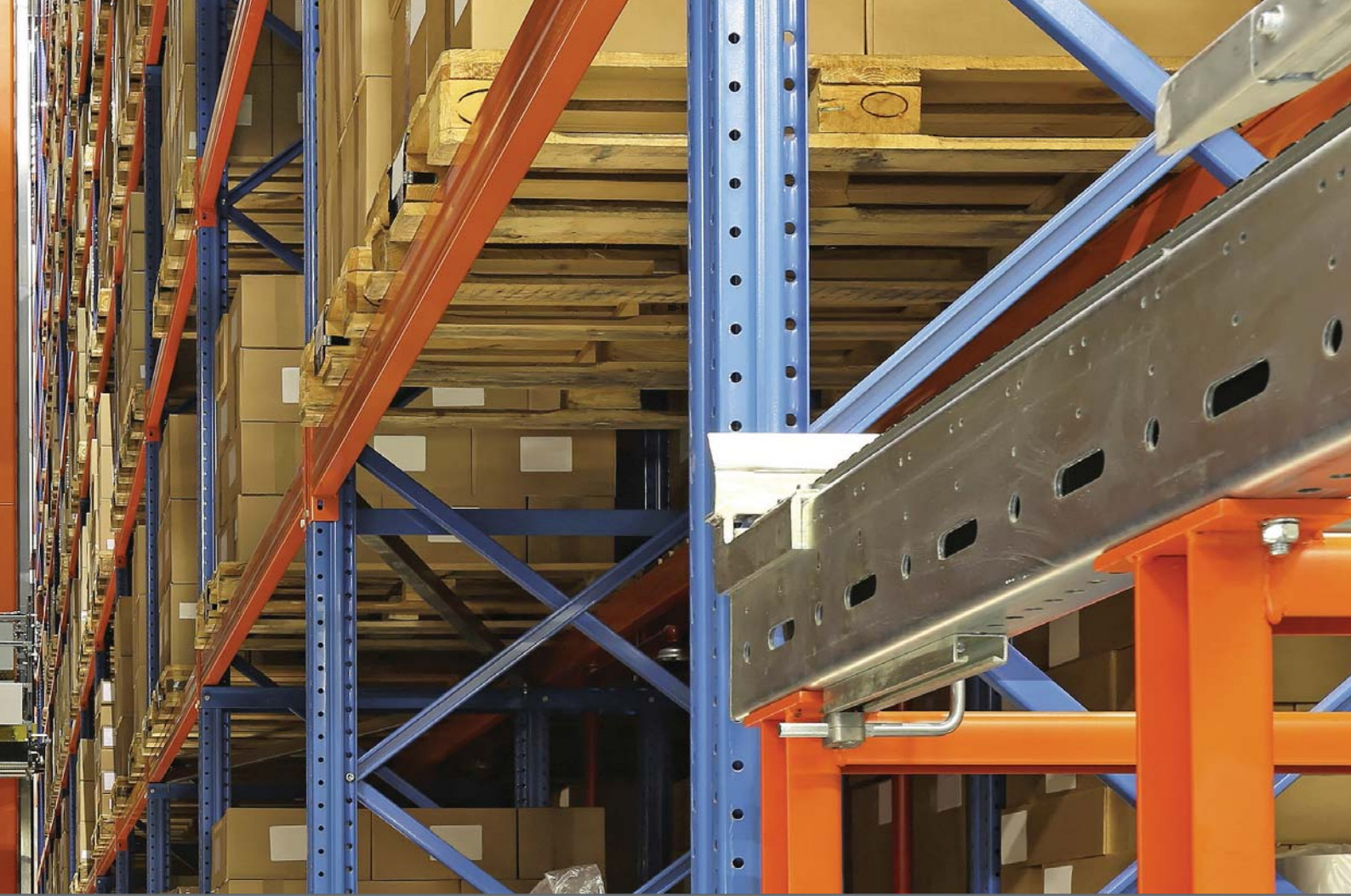
The expanded storage density and heights increase the potential size and growth rate of fires

Narrower aisles between storage racks make it more difficult to get water to the base of the fire and can increase likelihood that a fire will move from one side of an aisle to the other

The automated system presents potential ignition hazards and may obstruct detection or suppression equipment from targeting the seat of a fire.

Tyco Solutions

- A combination of ceiling and traditional in-rack protection control the fire regardless of the commodity and rack type
- Multiple levels of ESFR sprinklers installed in the racks minimize the number of levels of in-rack sprinklers with open-frame racks



Model ESFR-25

The Model ESFR-25 provides a combined solution for automated facilities. Installed in the ceiling and in open-frame racks, it helps protect a wide variety of commodities in an environment with heightened risk of fire.



Model TY-FRB

The Model TY-FRB is a compact design ideal for use as an in-rack sprinkler. In-rack sprinklers in automated facility fire protection solutions help meet the unique challenge of protecting commodities in narrow, highly obstructed spaces.



Application Overview

Commodity Storage Type	Model ESFR-25	Model EC-25	QUELL	Model ESFR-17 Dry Type
Palletized, Solid Piled storage of Class 1 through Class III Commodities	NFPA FM Global EN12845 UL Specific Application Listing	NFPA FM Global	Performance based design	NFPA FM Global EN12845
Palletized, Solid Piled storage of Class IV Commodities and cartoned unexpanded plastic	NFPA FM Global EN12845 UL Specific Application Listing	NFPA FM Global	Performance based design	NFPA FM Global EN12845
Palletized, Solid Piled storage of exposed unexpanded plastic	NFPA FM Global EN12845	NFPA FM Global	N/A	NFPA FM Global EN12845
Palletized, Solid Piled storage of cartoned and exposed expanded plastic	NFPA FM Global EN12845	NFPA FM Global	N/A	NFPA FM Global EN12845
Open frame rack storage of Class 1 through Class III Commodities	NFPA FM Global EN12845 UL Specific Application Listing	NFPA FM Global	Performance based design	NFPA FM Global EN12845
Open frame rack storage of Class IV Commodities and cartoned unexpanded plastic	NFPA FM Global EN12845 UL Specific Application Listing	NFPA FM Global	Performance based design	NFPA FM Global EN12845
Open frame rack storage of exposed unexpanded plastic	NFPA FM Global EN12845	NFPA FM Global	N/A	NFPA FM Global EN12845
Open frame rack storage of cartoned expanded plastic	NFPA FM Global EN12845	NFPA FM Global	N/A	NFPA FM Global EN12845
Open frame rack storage of exposed expanded plastic	NFPA FM Global	FM Global	N/A	FM Global

Commodity Storage Type	Model ESFR-25	Model EC-25	QUELL	Model ESFR-17 Dry Type
Idle Pallet	NFPA FM Global EN12845	NFPA FM Global	N/A	NFPA FM Global EN12845
Rubber Tire	NFPA FM Global EN12845	NFPA FM Global	N/A	NFPA FM Global EN12845
Storage of Aerosol Products	NFPA FM Global	N/A	N/A	NFPA FM Global
Ignitable liquid Storage	NFPA FM Global	NFPA FM Global		NFPA FM Global
Record Storage	NFPA	N/A	N/A	N/A
Roll Paper Storage	NFPA FM Global EN12845	NFPA FM Global		NFPA FM Global EN12845
Rolled Non-woven Fabric	FM Global	N/A	N/A	FM Global
Carpet Storage	FM Global	FM Global	N/A	FM Global
Automotive Components in Portable Racks	NFPA	N/A	N/A	N/A
Non-Storage Applications	FM Global	N/A	N/A	N/A



Global Strength. Local Expertise. At Your Service.

WORLDWIDE HEADQUARTERS

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