DAKEN PASSIVE FIREPROOFING CO. LIMITED
DAKEN PFP UK LIMITED
Web: www.daken-pfp.com

Daken Epoxy Coating Shell (**DEC**) - Passive Fire Protection System

The Daken Epoxy Coating Shell (**DEC**) Passive Fire Protection System is a robust high-performance product manufactured using high performance epoxy intumescent fire protection coatings. The system is a bespoke design to suit various Critical Process Control Equipment (**CPCE**) to allow the equipment to remain operable in the event of a fire. The base product can be found on offshore platforms, FPSOs, refineries, petrochemical plants, LNG terminals and LPG storage facilities across the world. The product is highly durable and is resistant to industrial environments including splash and spillage of chemicals. Daken Epoxy Coating Shell (**DEC**) Passive Fire Protection System can be customized to accommodate any geometric shapes to suit all valves, actuators, flanges, pipe supports, and steel structures. The system is completely removable and can be removed and re-fitted, if required.

The Daken Epoxy Coating Shell (**DEC**) Passive Fire Protection System is manufactured using a special mouldable, flexible, epoxy intumescent coating system designed to resist the most severe hydrocarbon hazards - pool fires, jet fires and explosions. When exposed to the high temperatures of the fire, the system undergoes a chemical reaction and expands to form a robust, insulating char that reduces the temperature rise of the protected item.

The maximum allowable temperature of CPCE and duration of protection can vary depending on the equipment type and project requirements and the optimum thickness Daken Epoxy Coating Shell (**DEC**) Passive Fire Protection System would always be considered.

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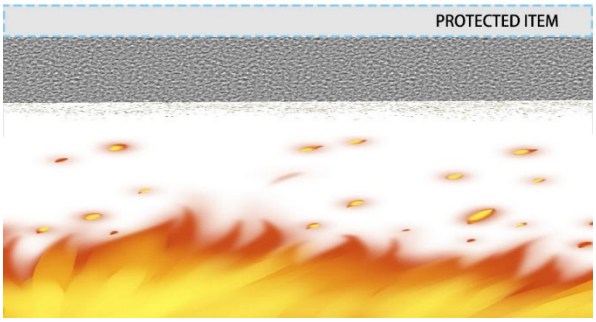
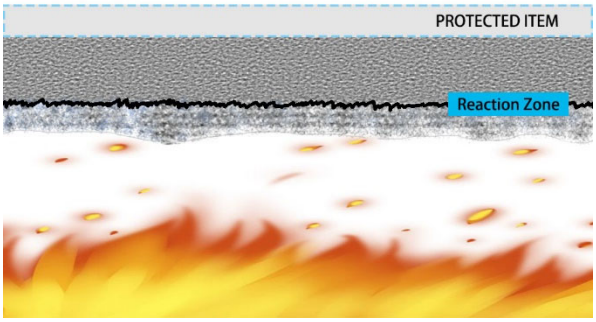
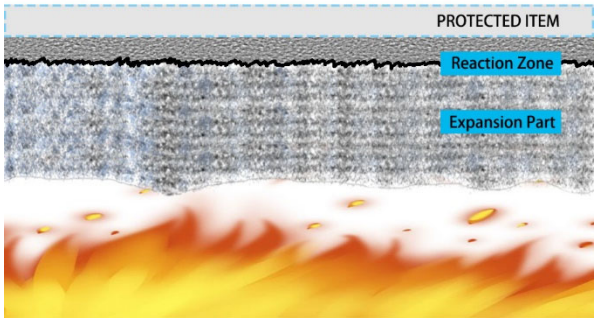
Working mechanism of Daken epoxy coating shell (**DEC**) passive fire protection system



When exposed to high temperature, the coating starts to react between 86°C and 100°C, and the chemical process causes the coating to expand. An insulating char is formed and evaporation on the surface of the char has a cooling effect.



During the early stage of the fire, the char on the surface of the coating increases, reflecting 80-90% of the heat away from the protected item. The expansion of the coating continues and forms an insulating barrier.



As the fire exposure continues, the heat will penetrate the outer layer, allowing the inner layer of the epoxy coating to chemically react. Once the material has fully reacted and a char has formed, the material will prevent temperature rise over a given duration.

Daken Epoxy Coating Shell (DEC) Passive Fire Protection System provides superior thermal insulation and fire protection for Critical Process Control Equipment (CPCE) in the event of a hydrocarbon pool fire (UL1709) and a hydrocarbon jet fire ISO22899-1 considering a high heat flux.

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Direct adhesive type - Direct bonding and application of Daken Epoxy Coating Shell (DEC) Passive Fire Protection System. In the Daken facility, the Daken epoxy intumescent coating is bonded directly to the surface of the Critical Process Control Equipment (CPCE). The result is a permanent adhesive layer that is durable and weather / chemical resistant.

Moulded Shell - Daken assembles the module using prefabricated parts to suit the protected item, using die casting to create bespoke parts. The parts are then assembled and fitted to the protected item to form an epoxy coating shell.

Prefabricated modular type - Daken Epoxy Coating Shell (DEC) Passive Fire Protection Systems can be designed as a fully removable system that can be installed at site. The retrofit design is compact and quick to install using quick-release toggle fasteners. The system is self-supporting and can be adjusted easily at site to allow for tubing and cables to exit.

Daken Epoxy Intumescent Coated Fire Protection System Certification Standard

- Tested for Hydrocarbon Pool Fire as per BS476-20 standard.
- Tested for Hydrocarbon Pool Fire as per UL1709:2017 standard.
- Tested for Hydrocarbon Jet Fire as per ISO 22899-1:2021 standard.
- Tested for explosion pressure test up to 1.2 bar.
- Lloyd's Register type approvals.
- Cryogenic Protection test ISO 20088-3:2018 standard.

Advantages of Daken epoxy coating shell (**DEC**) passive fire protection system

Daken Epoxy Coating Shell (**DEC)** Passive Fire Protection Systems can withstand heavy mechanical shocks maintaining mechanical integrity throughout their lifecycle. Daken Epoxy Coating Shell (DEC) Passive Fire Protection Systems are versatile and offer acoustic and thermal insulation properties as well as fireproofing. Other advantages are as follows –

- Quick release access doors are fully tested, and type approved.
- Ventilation is fully tested, and type approved.
- The system is thinner than traditional PFP products.
- The system is a bespoke design to suit the protected item and can be tailored to suit environmental clashes.
- The system is designed to resist the most severe hydrocarbon hazards.
- The system can be permanently bonded directly to critical process control equipment CPCE parts to avoid issues with CUI.
- The system gives full access to all parts without the requirement of any special tools.
- The system is compact, and an optimum design is considered reducing the amount of space required to install the PFP.
- The system is a durable weatherproof solution that is weather and chemical resistant.
- The system provides low life cycle costs, long service life, with quick installation and easy disassembly.
- Because it is an epoxy product that is directly attached to the device, it adds an extra layer of corrosion.