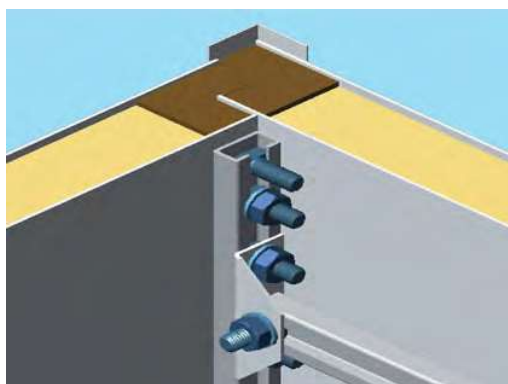


ARCTIC SHELTER

The sandwich elements of the ARCTIC series are manufactured on modern CNC machines with millimeter precision and are suitable for use in moderate climate as well as in extreme temperatures.

Most aspects of an ARCTIC SHELTER solution are fully customizable. All dimensions as well as the thickness of the insulation can be chosen individually. The possibilities for individual designs are almost unlimited.

ARCTIC SHELTERS are constructed of sandwich style elements with excellent insulation properties which are assembled to form a self-supporting shelter with high mechanical strength.



Features & advantages

- Protection class IP65 (single door) or IP54 (double door)
- Heat insulation U-value from 0.43 W/m²K / R13 to 0.2 W/m²K / R28
- Variable wall thicknesses according to the client's specific requirements, e.g. with regards to fire protection, heat and cold insulation, sound protection, etc.
- Variable wall materials (GRP, stainless steel, aluminium, special surfaces) and customer-specific colors.
- High static strength
- Low total weight enables installation in and on buildings and steel structures.
- Fully transportable, can be equipped in the workshop and moved to site.



FIRE SHELTER

In case of a fire, it is necessary to keep safety devices in operation. INTERTEC FIRE SHELTERS ensure a comparatively low internal temperature in the event of fire - even up to and beyond 120 minutes of exposure. FIRE SHELTERS are made of a special multi-layer sandwich construction of GRP (pg. 11) and mineral wool.

FIRE SHELTERS are available in various forms - from retrofit kits to fully equipped and accessible houses. They are individually designed and sized for each application to ensure a proper fit.



Fire rating

A protective solutions's fire rating can be categorized by two types:

- Combustibility describes how fire retardant the solution is
- Fire resistance is determined by thermal insulation materials and describes the enclosure's ability to structurally withstand high temperatures and prevent heat from passing through, i.e. keep inside temperatures under a certain threshold

Our FIRE SHELTERS are specially designed to meet the requirements of both these types in accordance with international fire protection standards:

- EN 13501: E, EI, REI30, REI60 , REI90, REI120
- Solas: A30, A60, A90, A120
- DIN4102: F30, F60, F90, F120
- BS476, ISO 834, ASTM E119, CAN4-S101



Hydrocarbon fires

Our FIRE SHELTER 1709 meets standards for the hydrocarbon time-temperature curve. The challenge is that usual fire insulation materials like glass and mineral wool melt at extremely high temperatures and materials that can withstand these temperatures usually lack insulation properties. We solved this problem by combining layers of ceramic material with layers of mineral wool.

The construction was tested and certified by MPA-Dresden. The test simulated a hydrocarbon fire by exposing our FIRE SHELTER 1709 to a temperature of 1100°C. The temperature of the equipment inside did not exceed 60°C.

Features & advantages

- Corrosion resistant using GRP materials externally and internally
- Lightweight, yet rigid
- Maintenance-free
- Antistatic materials
- Ingress protection up to IP66
- Optional Ex p pressurization
- Custom designed and sized to fit around instruments
- Extreme thermal insulation can be configured to maintain a predefined interior operating temperature
- Complete shelter removal allows full access to repair or replace instruments
- Optional access doors for service and maintenance without disassembly
- Full fire protection for doors, windows and vent openings
- Standard details for tubing and electrical penetrations

Application

One of the most common applications is the protection of control tools, safety equipment or emergency shutdown (ESD) valves. In the event of a fire, ESD valves and their actuators must be protected against heat exposure in chemical and petrochemical plants. They must remain operable for a minimum of 15 minutes after the outbreak of a fire. More stringent requirements such as 30, 60 min. or higher are also possible.



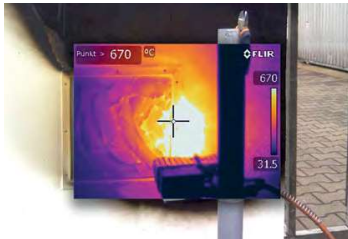
In-house tests

INTERTEC conducts regular fire tests to validate the protective properties of all FIRE SHELTER components. The test below was done to check the integrity of an intrumescent safety glass window, as well as its frame through direct, punctual exposure to a flame for 120 minutes. While conventional tests work with a heat output of 250 kW/m², we used a heat source with an output of 1.000 kW/m².

During the test, the safety glass expanded to release a heat insulating foam. After 120 minutes, the structural integrity of the window and frame remained intact, as the fire did not manage to burn through the construction. A maximum temperature of 175°C was recorded on the far side of the construction, directly opposite the exposure point, which was considerably lower than the threshold temperature.



Temperatures after 5 minutes of exposure.



Temperatures after 50 minutes of exposure.