

HOT BOX

High Temperature Enclosures



Analyzers or sample conditioning systems used in the process industry often require a specific, elevated operating temperature in order to prevent the condensation or crystallization of the analyzed samples. To ensure a stable temperature, the right enclosure and heating equipment is paramount.

With the HOT BOX concept, INTERTEC offers customized solutions consisting of a well-insulated non-metallic enclosure, fitted with a heating system and an accurate digital temperature controller. The design of the enclosure, thermal insulation and heating requirements are engineered by the INTERTEC team and optimized to the particular application and the equipment in question.





All enclosures and shelters are available in a variety of custom shapes and sizes. An experienced team of engineers and CAD designers works in close collaboration with the client to match the enclosures to the equipment and fit them in the available space.



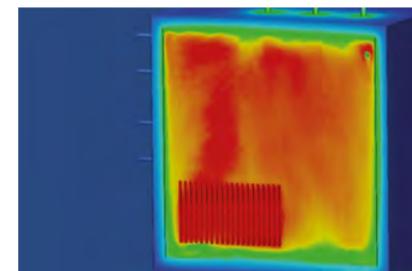
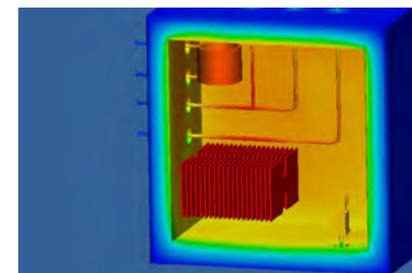
Benefits of INTERTEC HOT BOXES

- Customized design adapted to application requirements
- Optimal GRP materials, providing superior thermal conditions and corrosion resistance
- Completely insulated enclosures, with minimal heat losses and thermal shortcuts
- Design requires less heating outputs
- Optimized heater solutions designed to ensure the electrical area classification, including gas group, and surface temperature (T rating) requirements are maintained
- Remote temperature monitoring using high accuracy ($\pm 1^\circ\text{C}$) digital controller with fieldbus connection
- Heating requirements for the system are calculated, simulated and factory tested before delivery

The choice of construction material used for a high temperature application is critical in order to minimize heat loss and thus maintain a stable thermal environment. We use polyurethane foam because of its very low heat conductivity ($\approx 0.02\text{-}0.05 \text{ W/m}\cdot\text{K}$). Its thickness is adjusted to fit the application.



The sandwich construction of polyurethane foam between an inner and outer layer of glass-fiber reinforced polyester sheeting provides superior means of constructing a HOT BOX. It combines very low thermal conductivity with great strength and a high resistance to wear and corrosion.



Our construction uses adhesive bonding techniques for mechanical strength and stability without introducing thermal shortcuts. Together with its excellent insulation, it creates a uniform internal temperature distribution (top image). Steel enclosures have thermal shortcuts due to their high thermal conductivity and screw connections which results in a higher heat transfer and thus a higher heat output (bottom image).

GRP for high temperature applications

INTERTEC was founded in 1965 with the idea of using high-tech long fibre reinforced composites for protective cabinets and enclosures. GRP is a rigid, yet lightweight glass-fiber reinforced polyester with many inherent benefits for industrial and outdoor applications.

- Same strength as steel with less than half the weight
- Exceptional thermal insulation
- Condensation proof
- Leakage proof
- Corrosion resistant
- UV-resistant
- Retains excellent structural integrity and stable internal temperature between -65°C and $+80^\circ\text{C}$

Thanks to its stability and resistance, GRP enclosures enjoy a comparatively long service life of over 30 years with little to no maintenance required.

The properties and designs of our solutions can be tailored to every application. Options include:

- Protection class up to IP68
- Antistatic coating
- Protection against storms (up to 240 km/h), shock waves or earthquakes

INTERTEC offers more than you can see.

- Thermally insulated cabinets, enclosures, covers and shelters
- Enclosed instrument hook-ups
- Analyzer houses
- Fire protection boxes
- Heating, ventilation, cooling

- Quality engineering
- Proven designs
- CAD
- Calculations
- Easy integration
- Reliable and long-lasting operation of electronics
- Fire protection
- Explosion protection
- Comprehensive documentation
- Relevant certification
- Procurement & logistics
- Low total cost of ownership

Since its founding over 50 years ago, INTERTEC has grown to a worldwide engineering and sales organization with locations in Germany, Canada, Russia and the United States. To provide technical solutions for grassroots projects and existing MRO markets, INTERTEC has a sales partner network spanning 31 countries around the globe.

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