Daken Flexible Insulation Jacket (**DFI**) - Removable Insulation Systems

Daken Fireproofing Co. Limited offers a comprehensive range of high-performance, customizable Flexible Insulation Jacket (DFI) systems. Engineered for demanding thermal management across diverse sectors—including petrochemical, marine & offshore, power generation, metallurgical, and food & manufacturing—these removable and reusable jackets are the ideal solution for insulating exhaust systems, valves, pipelines, ducting, pressure vessels, and other critical equipment.

Every Daken FIJ system is a bespoke design, optimized to meet specific thermal specifications and project requirements. This ensures a compact, user-friendly solution that is quick to install. All designs are backed by rigorous thermal calculations to validate performance, guaranteeing reliability in the most challenging operating environments.

Daken Flexible Insulation (DFI) Jackets: Four Specialized Solutions

Daken offers a range of four pre-engineered, single-layer insulation jackets, each tailored for

distinct performance needs:

- **Aero Flex Jacket:** Features Aerogel core for maximum thermal performance with minimal thickness.
- **Acoustic Flex Jacket:** Engineered composite system for high-efficiency noise reduction.
- **HT Flex Jacket:** High-temperature insulation for extreme heat applications.
- **Insulation Flex Jacket:** Standard, fully removable solution for general-purpose thermal management.

Unified Design Advantages:

- **Custom-Fit Design:** Each jacket is engineered to the exact dimensions and thermal requirements of the protected equipment.
- **Rapid Deployment:** The pre-fabricated, single-layer design allows for quick and tool-free installation.
- **Cost Efficiency:** Dramatically reduces installation time and labor costs during both initial fit-out and maintenance shutdowns.

Precision Engineering

Daken's engineering process ensures every Flexible Insulation Jacket is optimized for fit, performance, and install ability.

1. 3D Modeling & Design

- **Digital Prototyping:** Utilize 3D modeling software to create a precise digital twin of the jacket, ensuring perfect fit and conducting clash detection.
- **Documentation Deliverables:** Supply 2D fabrication drawings, thermal specs, installation guides, and optional thermal calculation reports for each item.

2. Performance Analysis

- **Standard Calculation:** Baseline thermal performance is modeled using **3E Plus** software per **ASTM C680**.
- **Engineering Refinement:** Results are refined by our engineers to account for real-site conditions (wind, tolerances, environment).

3. Flexible Design Inputs

- **Multiple Sources:** Designs can be initiated from your GA drawings, 3D models, or

our own project models.

- **Site Survey Option:** Our field engineers, certified in onsite HSE protocols, can perform surveys if needed.

Standard Product Design

The foundational features of our full product range are as follows:

- **Lightweight and Compact Design**: Engineered to be among the lightest and thinnest specialized insulation jackets in the industry.
- **Performance-Driven Engineering**: The thickness of all jackets is optimized through calculation to precisely meet the project's thermal requirements.
- **Water-Shedding, Corrosion Prevention Design**: Featuring a hydrophobic design to effectively shed water and mitigate Corrosion Under Insulation (CUI).
- **Easy Installation**: Designed for straightforward installation, requiring minimal training and no specialized tools.
- **High-Grade Materials**: Utilizes premium materials such as silicone-coated or polytetrafluoroethylene (PTFE)-coated fiberglass cloth. These fabrics offer excellent thermal stability for long-term operation in high-temperature environments and are oil-resistant, water-resistant, abrasion-resistant, UV-resistant, and resistant to corrosion from over 90% of chemical solvents.
- **Reliable Fastening System**: Employs high-quality mechanical fasteners. Hook-and-loop fasteners (e.g., Velcro®) are typically used for initial positioning and temporary securement, with various mechanical fasteners applied as a secondary, permanent fix.
- **Flat-Pack Packaging and Sequential Management**: Products are designed for flat-pack shipment, significantly reducing on-site packaging volume and storage requirements. All jackets are packed in **reverse installation sequence**, ensuring the first item in the package is the first to be installed, facilitating easy and efficient installation management.

Manufacturing Capabilities

Huludao Daken Passive Fireproofing Limited leverages a team of highly skilled engineers for product design and is supported by a dedicated, permanent manufacturing workforce, with the flexibility to scale up with temporary staff as project demands require.

Our 4,400+ square meter facility integrates dedicated manufacturing departments with on-

site warehousing, enabling the efficient management of large-scale contracts. Each production area utilizes advanced, automated machinery, specifically developed for bespoke fabrication. This commitment to specialized technology enhances quality, improves efficiency, and minimizes material waste.

This world-class, automated manufacturing environment is engineered to ensure rapid lead times, deliver an optimized and cost-effective service, and guarantee our capability to produce the full range of Daken products to the highest standards.

Daken Aero-Flex Jacket:

Engineered to be an exceptionally thin, highly hydrophobic insulation system, specifically designed to prevent Corrosion Under Insulation (CUI).

With a profile starting at just 10mm, the AeroFlex Jacket delivers substantial space and weight savings, representing a perfectly engineered insulation solution. This is the result of our dedicated team's years of research, development, and rigorous testing to perfect its design and construction.

Core Technology & Design

The system incorporates an innovative, intelligent moisture-management design. In the unlikely event water penetrates the jacket, this built-in fail-safe mechanism actively draws moisture away from the protected pipe or equipment and expels it through a dedicated ventilation system, effectively preventing Corrosion Under Insulation (CUI).

Advanced Material Science

The insulation core utilizes premium super-hydrophobic materials, such as Aspen Aerogel, with an exceptionally low thermal conductivity of 0.015-0.020 W/(m·K). This allows for a

thinner overall design while maintaining high thermal performance and enhancing CUI resistance. The exterior is a high-performance, durable outer layer that is oil-resistant, chemical-resistant, and offers superior weather and UV resistance.

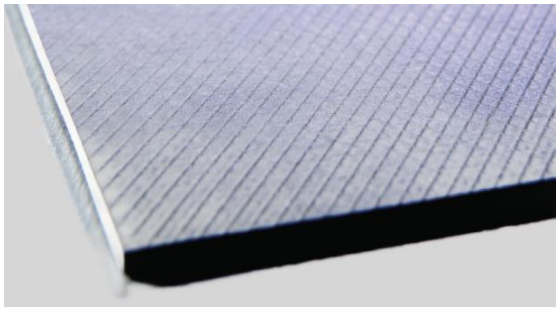
Key Performance Advantages

- **Exceptional Efficiency:** Reduces heat loss by over 80%.
- **Ultra-Thin & Lightweight:** Enables easy handling, transport, and installation.
- **Rapid Deployment & Reusability:** Designed for quick installation and removal, the system is fully reusable, facilitating maintenance. It can save up to 80% of the time and cost compared to traditional insulation methods.
- **Project-Wide Savings:** Can reduce total project costs by over 30% by minimizing downtime and operational expenses.
- **Broad Compatibility:** Adapts to complex structures like valves, vessels, and piping, even where space is constrained.
- **Eco-Friendly & Safe:** Free from asbestos, formaldehyde, and other hazardous substances, meeting stringent standards for pharmaceutical, food, and fine chemical industries.
- **Simplified Installation:** Features an advanced connection system that requires no additional sealing, even at stitched seams.

Daken Acoustic Flex Jacket

High-Performance, Single-Layer Noise Reduction

The Daken Acoustic Flex Jacket is a high-performance, single-layer insulation system engineered for superior noise control, designed to simplify installation while delivering exceptional acoustic performance.



Acoustic Barrier Mat inserts

Acoustic Flex Jacket

Unlike traditional multi-layered noise reduction solutions that are time-consuming to install, the Acoustic Flex Jacket's single-layer design significantly reduces installation time and labor, offering considerable noise attenuation in a more efficient package.

Independently tested in accordance with international standards **ISO 15665** and **ASTM E2611**, the system achieves an average noise reduction of **40 dB** with a single 50mm layer. This performance surpasses the requirements of Classes A, B, C, and D of the ISO 15665 standard and meets or exceeds the specifications of most industrial acoustic projects. An optional second layer can be added for approximately **20 dB** of additional noise reduction.

Beyond its core acoustic function, the Acoustic Flex Jacket system is versatile. Through strategic material combinations, it can be configured to address additional challenges such as **Corrosion Under Insulation (CUI) protection, high-temperature resistance, and enhanced thermal performance**, providing a comprehensive solution for complex application requirements.

Daken HT Flex Jacket

Advanced High-Temperature Insulation for Critical Applications

The Daken HT Flex Jacket is a premium insulation system designed for extreme high-temperature environments, making it an ideal solution for equipment such as turbines, exhaust systems, and generators.

Exceptional Thermal Performance

Constructed from high-performance materials, the system can withstand temperatures **exceeding 1,000°C**, significantly reducing heat radiation. For instance, a single layer with a **50mm** thickness can lower the outer surface temperature of an exhaust system operating above **400°C** to **below 55°C**, effectively safeguarding nearby personnel and equipment.

Robust and Durable Construction

The HT Flex Jacket is made from a high-temperature resistant technical fabric with a graphite coating. This construction ensures outstanding abrasion resistance and durability during handling, installation, and service.

Flexible Installation

The installation method can be adapted to specific project requirements. It is typically secured using stainless steel wire and banding straps. In some cases, high-temperature hook-and-loop fasteners or expansion springs may also be used to meet particular installation needs.

Daken Insulation Flex Jacket

Advanced, Durable All-Weather Insulation

The Daken Insulation Flex Jacket is a robust, high-performance system engineered for reliable thermal protection in demanding environments. Its core design features a tough, hard-wearing outer layer that effectively blocks liquid water ingress, safeguarding equipment from moisture and corrosion.

Constructed for longevity, the protective outer material withstands harsh weather, resists high moisture, and is easily cleaned. The jacket is rated for **continuous service at temperatures up to 230°C**.

This versatile solution is ideal for a wide range of applications, including heat conservation and personnel protection for hot equipment in the Oil & Gas industry, as well as frost protection for cold process systems.

Petrochemical Industry





Power Systems






Site Services & After-Sales Support

Our comprehensive support extends beyond product supply, ensuring the successful implementation and long-term performance of your Daken Flexible Insulation systems.

- **On-Site Survey & Measurement:** Our engineers can conduct precise field measurements using professional instrumentation. We capture critical as-built geometry and operational parameters, including temperature field distribution, to inform the most accurate design.

- **Expert Engineering & Design:** With deep expertise in both onshore (e.g., refinery reactors, pipelines) and offshore (e.g., platform equipment, marine systems) facilities, our team develops optimized, custom solutions for complex configurations. We can work from your 3D models, 2D CAD drawings, or the data from our own site surveys to create perfect-fit 3D models of the insulation jackets.

- **Installation & Supervision:** In addition to surveys, our Service Team can supervise and coordinate local labor to ensure quality and adherence to procedures.

- **Training, Inspection & Ongoing Support:** We provide comprehensive training for your personnel, conduct post-installation inspections, and offer dedicated after-sales support to guarantee system performance and facilitate maintenance.