

Introduction

INSULTECH® Heat Shield Insulation is a CAD designed /CNC produced high quality pre-engineered insulation system designed to save energy, retain radiant heat, minimize insulation maintenance and improve the surrounding work environment. INSULTECH® is weather and chemical resistant. INSULTECH® is flexible and easy to install, remove and reinstall allowing quick access and easy equipment serviceability. The key benefit is "Re-Usability".

Common Applications and Markets served

INSULTECH® Heat Shield Insulation Applications include; Steam Traps, Threaded Fittings, Boiler Doors, Pipe, Pumps. INSULTECH® Heat Shield Markets include; Steam Utilities, Institutional Facilities, Pharmaceutical, Chemical, Petro Chemical, Food Processing & Manufacturing Plants.

Maximum Service Temperature

This design is to act as a Thermal Barrier with a maximum service temperature up to **260°C (500°F)**.

Product Components

The Outer and Inner Jacket is a 601g/m² (17.7 oz/yd²) **PTFE Teflon® Impregnated Fiberglass Cloth**. The Insulation Material is a **Non-Woven 0.12 g/CC (7.5 lb/CF) Glass Fiber**. The Glass Fiber is straight stitched to the PTFE Teflon® Impregnated Fiberglass Cloth, producing a "Self Contained Insulation System". Heat Shield includes Integral Fasteners for install & removal.

Heat Shield Construction

Heat Shield shall be a "**Single Sewn**" lock stitch with a minimum 4.3 stitches per CM along all edges. No raw cut jacket edge will be exposed. Stitching will be a PTFE Teflon® fiberglass thread.

Blanket Overlap

To minimize heat loss, Heat Shield will extend beyond mating flanges unto existing insulation for a minimum of 3 CM. Where the material cannot fit over existing oversized insulation, Heat Shield will butt up to existing insulation with a friction fit closing seam. Heat Shield diameters which are 3 CM or larger than existing insulation must be end capped to eliminate open air void.

Leak Accommodations

To accommodate a leak and detect its origin, Heat Shield Insulation will have a low point stainless steel drain grommet or the design will incorporate a mating seam at the lowest point of the material.



*(20 DN) Gestra®Model-MK45
Thermostatic Steam Trap*



243 CM Diameter - Boiler Doors



INSULTECH[®] BLANKET INSULATION

Submittal Specification
"Metric"

Heat Shield Design: LT260C-HS-TC
"Low Temperature Steam Thermal Process"

Manufacturers of..... INSULTECH[®] Heat Shield Insulation

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Inspection Grommet

To accommodate an inspection probe for steam trap audits and inspection, the Heat Shield Insulation will include a brass or stainless steel grommet, strategically located to customer approval.

I.D. Plate

For easy identification and location, a stainless steel or aluminum name plate tag is riveted to each piece/part. 0.21 CM embossed lettering shows Trap Number, location, description, size and tag number sequence. Each blanket will include an I.D. Plate.

Stitch Quilting

To enhance quality and to maintain uniform thickness, stitch quilting will be placed no greater than 30 CM apart. Stitch quilting will prevent shifting of the insulation from the outer jacketing.

"WIRETWIST" FASTENER

A stainless steel wire 0.50 mm² (20 Gauge) will be doubled up and twisted in a spiral fashion, with a minimum of 3 to 5 twists per CM. Wiretwist length will be 27 CM or longer. The Wiretwist will be secured to the lacing pin at the pin stem. Pin stems will be 2.5 mm² (14 gauge). Wiretwists will be spaced 10 CM on center along closing seams with matching lacing pins to lace and secure to.

Velcro[®] Flaps

Jacketing flaps are secured closed by the utilization of Hook/Loop (Velcro[®]) fasteners. A 3 CM wide section of the Hook portion of the fastener will be stitched to the outer surface of the blanket. A 3 CM wide section of the Loop portion will be aligned and stitched on the mating inner surface of an extended jacketing flap.

Design Construction Sample Submittal

Upon bid submittal a blanket design sample must be presented for review and product approval. A 13 CM x 17 CM Sample will be required and must identify all characteristics mentioned in the above fabrication requirements. Any deviations from the above stated requirements may result in a bid rejection.

Assembly Drawing Requirements

Each project will include an instruction package shipped with the blanket material. This package will include Assembly Drawings identifying piece location, a Material List of all pieces and Instructions for Installation on how INSULTECH[®] will be installed. Accurate CAD files & project records must be kept by the manufacturer. For a minimum of ten years, these records will assure accuracy in re-ordering and part replacement. **All Heat Shield Insulation is to be CAD designed / CNC produced** to assure the highest quality and precise fit.

Project Accuracy & Effectiveness

Demonstrate the efficacy of precision, through the use of State-Of-The Art CAD Design. The efficacy of precision markings with the ability to maintain a high degree of repetitiveness and control of manufacturing tolerances for locations of I.D. tags, stitch lines, cut lines for stuffing, cutting of jacketing materials and cutting of insulation through the use of State-Of-The-Art CNC cutting systems & software.

Production Drawing Record Keeping

The correlating Project Production Drawings will also be kept on file with the Heat Shield manufacturer. The latest revisions, if any after installation, will be recorded and filed on the CAD drawing system. This file will also be kept for a minimum of ten years to assure accuracy in re-orders of replacement parts.

Project Qualifications

All items insulated will require a site visit prior to bid submittal. Each item must be tagged and or marked for installation reference. At the time of installation, Heat Shield Insulation must have a corresponding tag and must match to an existing tag on the fitting. Standard steam Trap designs will be accepted. "Custom Fit" designs will apply for everything else.

18 Month Warranty

We guarantee that all Heat Shield Insulation will match the surface geometry. 18 months will cover the cost of replacing the Heat Shield should the failure be due to premature degradation of any component utilized in the Heat Shield construction, as well as any defects due to poor workmanship.

Installation Guidelines

INSULTECH[®] will follow these simple guidelines:

- Once material is received, open boxes with care. DO NOT "cut" deep into container to avoid damaging blankets.
- Locate the Instructions for Installation.
- Follow the Material List to determine blanket part number.
- Refer to the Assembly Drawing for orientation of each blanket part number and installation details of each part.
- Locate the Identification Tag on each blanket, for correct description and sequence of blankets.
- Material is installed in tag number sequence.
- Use leather gloves to install material.
- A physical effort is required for proper placement and fit.

Storage

Once shipment is received, protect INSULTECH® Heat Shield Insulation from water damage and/or other abuses prior to installation. INSULTECH® Heat Shield Insulation will be shipped in cardboard boxes or crated for export shipping. Packaging is not designed for outdoor storage, thus a tarp or covering of some type is necessary if stored outdoors until installation is completed.

Preparation

Apply INSULTECH® Heat Shield Insulation on clean, dry surfaces and avoid trapping oils, greases or combustible materials.

Physical Properties	Performance Measures	Test Methods
Thermal Conductivity	0.029 (W/m.K) @ 24° C (75 F) 0.038 (W/m.K) @ 121° C (250 F) 0.057 (W/m.K) @ 260° C (500 F)	ASTM C518-91
Insulation Density	0.12 (g/cc)	ASTM D-202
Upper Use Temperature Limit	649° C (Insulation Rating)	UL 94V-0 Non-Flammability

Product Properties Specifications:

Insulation Core: Standard Specification for Fiberglass Needled Fiber Felt Thermal Insulation
ASTM D-202 Service Temperature Up to 288°C (500°F)

Jacketing Materials: Outer layer: PTFE Teflon® Fiberglass Composite Material weight 560g/m² (16.5 oz/yd²)
PTFE Teflon® & Fiberglass Respective Continuous Service Temperature 316°C (600°F)
538°C (1000°F) - Tensile Strength of PTFE Teflon® Fiberglass Jacketing:
Warp: 3664 N/50 mm (410 lbs/in) / Fill: 3137 N/mm (355 lbs/in)

INSULTECH® Reference Testing:

ASTM C 335 Standard Test Method for Steady-State Heat Transfer Properties of Pipe Insulation.
ASTM E 1222 – 90 Standard Test Method for The Laboratory Measurement of the Insertion Loss of Pipe Insulation.
ASTM C 1045 – 07 Standard Practice for Calculating Thermal Transmission Properties Under Steady-State Conditions
UL 1709 Standard Fire Test of Protection Materials for MOV / Structural Steel

Caution:

Typical industry handling practices should be exercised for the protection of the worker. Worker should wear long-sleeved, loose-fitted clothing, head covering, leather gloves, eye protection and appropriate respiratory protection (as required) when handling and applying INSULTECH® material. Wash with soap and cold water after handling INSULTECH® material. Wash work clothes separately and rinse washer. For specific handling practices, refer to the product MSDS sheets for the Thermal Blanket System.

Notes:

The chemical and physical properties of INSULTECH® Insulation Products represent typical average values determined in accordance with accepted test methods. The data is subject to normal manufacturing variations and is supplied as a technical service subject to change without notice. In addition, test data are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes. Design Guidelines are as follows: to access the true limitations of this recommended design, refer to the technical data for each product component. Following these guidelines will produce the highest achievable service life. Blanket design quality can be reduced or enhanced by changing any one component. If a question arises regarding deviations from those stated guidelines, or to insure the information is most current please contact your regional representative or call Shannon Enterprises direct.