

Introduction

INSULTECH® Thermal Blankets are 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 also capable of withstanding weather conditions and chemical environments. INSULTECH® is flexible and easy to install, remove and reinstall allowing quick access for equipment service.

Common Applications and Markets served

INSULTECH® Thermal Blanket Applications include; Engine Manifolds, Exhaust Reducer Cones, Mufflers, Expansion Joints, Exhaust piping, Fittings, By-Pass Piping and Turbo Charger Casings. INSULTECH® Thermal Blanket Markets include; Gas Transmission Stations and Cogeneration Power Plants.

Maximum Service Temperature

This design is to act as a Thermal Barrier with a maximum service temperature of **593°C (1100°F)**.

Product Components

The Outer Jacketing consists of a layer of **Stainless Steel Type 304 Knitted Wire Mesh** (0.28 mm Dia. @ 3.3 m²/KG) and 601g/m² (17.7 oz/yd²) **Silicone Impregnated Fiberglass Cloth**. The inner jacket consists of a layer of **Stainless Steel Knitted Wire Mesh** (same as above) on the outside, encasing a layer of 601g/m² (17.7 oz/yd²) **Plain Fiberglass Cloth**. The Insulation Material is an 176.2 g/m³ (11 lb/CF) **Fiberglass Needled Mat-Type "E" Fiber**. The Fiberglass Mat is encapsulated by the Knitted SS Mesh, Silicone Impregnated, Plain Fiberglass Cloth and SS Mesh, then stapled together, producing a "Self Contained Blanket System". The INSULTECH® Blanket System includes Integral Fasteners for install & removal.

Blanket Construction

Blanket construction shall be a "Stapled Construction". Outer jacket materials will be drawn down, to match at the inner jacket edge. Jacketing will be folded under and stapled with 0.63 CM Monel bevel point staples at the seam. Staples are to follow the inner jacket edge with at most 1.6 CM spacing between staples.

Blanket Overlap

To minimize heat loss from fittings, the blanket will extend beyond mating flanges unto existing insulation for a minimum of 3 CM. Where blanket cannot fit over existing oversized insulation, blanket will butt up to existing insulation with a friction fit closing seam. All sections of pipes will be insulated and open gaps are not acceptable. Blanket diameters which are 3 CM or larger than existing insulation must be end capped to eliminate open air void.



Dual Engine Exhaust

Leak Accommodations

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

Blanket Insulation Weight

When designing blanket insulation for large equipment where a multi-piece construction is necessary, the total number of pieces will be minimized. Any one piece will not exceed 18 KG in weight.

I.D. Plate

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

Quilting Pins

To enhance blanket quality and to maintain uniform thickness, stainless steel quilting pins @ 2.5 mm² (14 Gauge) will be placed at random locations no greater than 30 CM apart. Quilting Pins will prevent shifting of the insulation. Stainless Steel speed washers will secure the quilting pin stem in place.

Minimized Air Void

Equipment and equipment heads are typically a multi-piece design and are installed in tag number sequence. Heat exchanger heads, large vessel flanges and pump housings will be designed in two half sections. Blanket design will conform to the equipment with minimized air void. All valve covers will be a two piece design with a separate body and bonnet.

STANDARD "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 3-5 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.

Assembly Drawing Requirements

Each blanket insulation 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. **All blankets are to be CAD designed / CNC produced** to assure the highest quality and precise fit.

Production Drawing Record Keeping

The correlating Project Production Drawings must be kept on file with the blanket manufacturer. The latest revisions, if any after installation, will be recorded on the CAD file drawing system. This file will be kept for a minimum of ten years to assure accuracy in the ordering of replacement parts.

Project Qualifications

Items insulated will require a site visit prior to bid submittal. Upon receipt of project contract, each item must be field measured for "Custom Fitting" to existing field conditions. Each item must be tagged and or marked for installation reference. At the time of installation, blankets must have a corresponding tag on the blanket and must match to an existing tag on the fitting. No standard blanket designs will be accepted. This will assure a "Custom Fit" design with maximum thermal efficiency.

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.

Warranty

We guarantee that all custom manufactured blankets will accommodate vibration probes, gauges, tubing, piping, brackets, etc. and fit correctly for optimum performance as per the design specification provided in the quotation process. In addition, for 18 months we will cover the cost of replacing the blanket should the failure be due to premature degradation of any component utilized in the blanket construction, as well as any defects due to poor workmanship.

Design Construction Sample

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.

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® Blanket Insulation from water damage and/or other abuses prior to installation. INSULTECH® Blanket 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® Blanket Insulation on clean, dry surfaces and avoid trapping oils, greases or combustible materials.

Blanket Thickness Surface Temperature Reference:

Operating Temperature	Thickness	Surface Temperature	Thickness	Surface Temperature	Thickness	Surface Temperature
371° C (700° F)	40 mm (1.5")	69.2° C (156.5° F)	50 mm (2")	59.8° C (139.6° F)	65 mm (2.5")	53.6° C (128.4° F)
427° C (800° F)	40 mm (1.5")	79.2° C (174.6° F)	50 mm (2")	68.1° C (154.5° F)	65 mm (2.5")	60.7° C (141.2° F)
482° C (900° F)	40 mm (1.5")	90.3° C (194.5° F)	50 mm (2")	77.2° C (171.0° F)	65 mm (2.5")	68.6° C (155.4° F)
538° C (1000° F)	50 mm (2")	87.4° C (189.4° F)	65 mm (2.5")	77.3° C (171.2° F)	80 mm (3")	70.1° C (158.1° F)
593° C (1100° F)	50 mm (2")	98.7° C (209.7° F)	65 mm (2.5")	87.1° C (188.8° F)	80 mm (3")	78.7° C (173.7° F)

* The above referenced Cold Face Surface Temperatures should be used as guidelines for blanket insulation thickness design.

* The Cold Face Surface Temperature of the blanket should approach surrounding ambient temperature conditions.

* The economic thickness of the blanket should consider blanket cost, thermal performance and blanket design constraints.

* Heat Loss Calculations are based on a 21.1° C (70° F) ambient temperature using a flat surface condition.

Nr. crt	Conex.	Tip	Echipament		Buc.
1	DN300	Robinet	Semigudron aspiratie pompa 01P14R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
2	DN300	Robinet	Semigudron aspiratie pompa 01P14A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
3	DN200	Robinet	Semigudron refulare pompa 01P14A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
4	DN200	Clapeta	Semigudron refulare pompa 01P14A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
5	DN200	Robinet	Semigudron refulare pompa 01P14R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
6	DN200	Clapeta	Semigudron refulare pompa 01P14R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
7	DN150	Robinet	Semigudron pompa recirculare 01P14R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
8	DN150	Robinet	Semigudron pompa recirculare 01P14A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
9	DN300	Clapeta	Pacura refulare pompa 01P3A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
10	DN300	Clapeta	Pacura refulare pompa 01P3R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
11	DN300	Robinet	Pacura refulare pompa 01P3A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
12	DN300	Robinet	Pacura refulare pompa 01P3R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
13	DN400	Robinet	Aspiratie pompa 01P16A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
14	DN400	Robinet	Aspiratie pompa 01P16R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
15	DN300	Clapeta	Refulare pompa 01P16A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
16	DN300	Clapeta	Refulare pompa 01P16R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1

17	DN300	Robinet	Refulare pompa 01P16A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
18	DN300	Robinet	Refulare pompa 01P16R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
19	DN200	Robinet	Aspiratie pompa 01P17A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
20	DN200	Robinet	Aspiratie pompa 01P17R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
21	DN100	Clapeta	Refulare pompa 01P17A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
22	DN100	Clapeta	Refulare pompa 01P17R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
23	DN100	Robinet	Refulare pompa 01P17A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
24	DN100	Robinet	Refulare pompa 01P17R recirculare	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
25	DN100	Robinet	Refulare pompa 01P17R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
26	DN200	Robinet	Regulator 01064	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
27	DN200	Robinet	Regulator 01064	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
28	DN200	Robinet	Regulator 01064	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
29	DN250	Robinet	Aspiratie pompa 01P21A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
30	DN250	Robinet	Aspiratie pompa 01P21R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
31	DN150	Clapeta	Refulare pompa 01P21A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
32	DN150	Clapeta	Refulare pompa 01P21R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
33	DN150	Robinet	Refulare pompa 01P21A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
34	DN150	Robinet	Refulare pompa 01P21R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
35	DN150	Robinet	Aspiratie pompa 01P35A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
36	DN150	Robinet	Aspiratie pompa 01P35R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1

37	DN100	Clapeta	Refulare pompa 01P35A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
38	DN100	Clapeta	Refulare pompa 01P35R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
39	DN100	Robinet	Refulare pompa 01P35A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
40	DN100	Robinet	Refulare pompa 01P35A	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1
41	DN100	Robinet	Refulare pompa 01P35R	Jacheta de izolatie tip HT593C-MSGM, grosime 40-50 mm, prindere cu sarma de otel inox	1

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