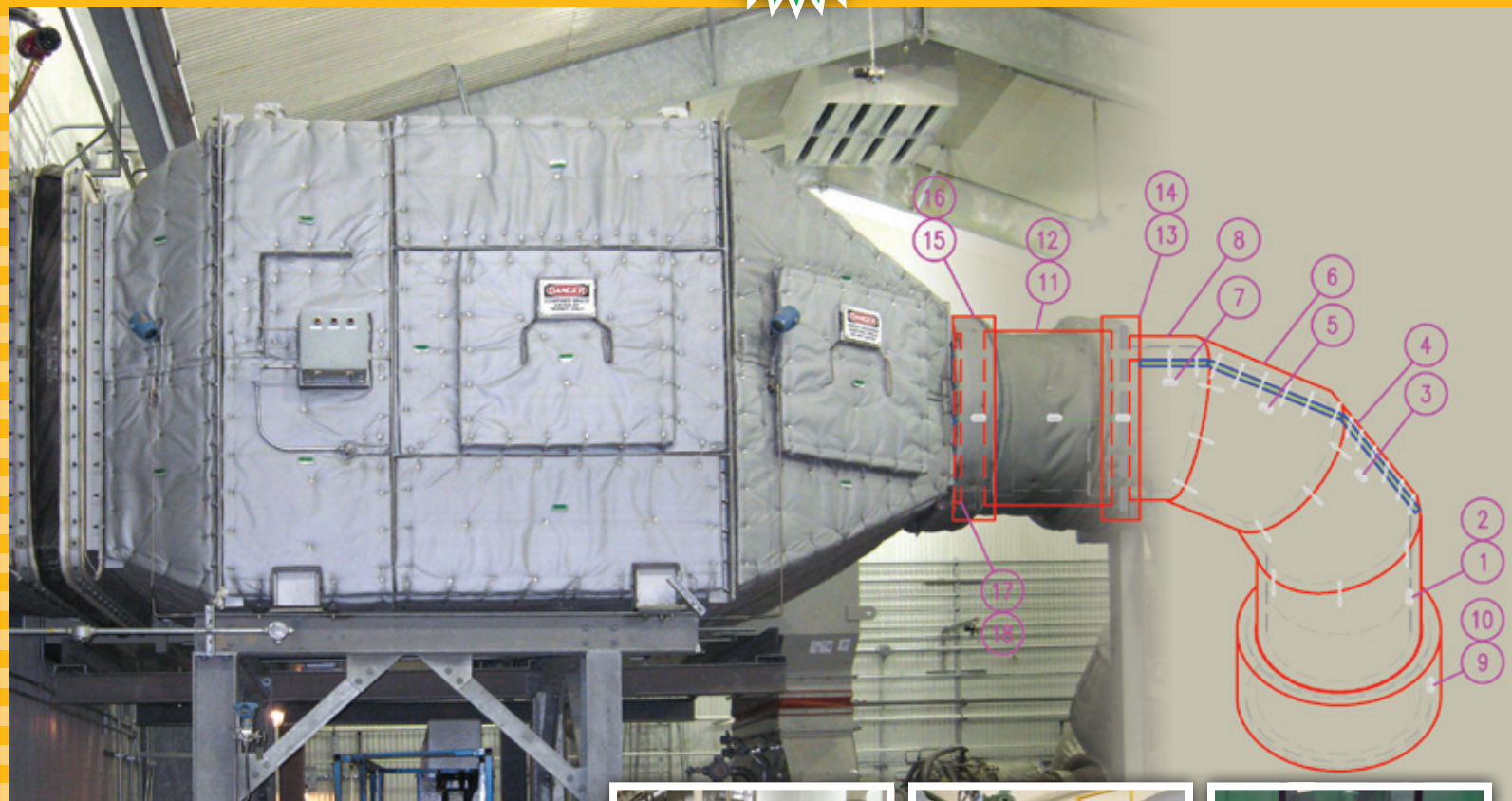


# SHANNON

**HIGH  
QUALITY**

**REMOVABLE REUSABLE  
BLANKET INSULATION**



**Thermal  
Efficiency**

**Safety**

**Noise  
Reduction**

[www.blanket-insulation.com](http://www.blanket-insulation.com)

Manufacturer's of **INSULTECH®**



## Reinstall just once - it has paid for itself...

### All Shannon-INSULTECH® Insulation Solutions are:

- A **"Proven"** blanket insulation solution with a long history of success
- **"CAD / CNC"** designed & manufactured for exact fit
- **OSHA Compliant**
- **ASTM Tested**
- Truly a **"Re-Usable"** solution, not just removable
- **"Self-Contained"** blanket insulation, no direct exposure to insulation
- **"User Friendly"** designed for easy installation
- Are **Warranted** for up to a 10 Year Warranty
- **"Operator Friendly"** to allow easy access for Inspection, Service & Repair
- **I.D. Tagged** & embossed for labeling and asset management
- Designed to last **15 years** with virtually no ownership cost
- Highly Efficient with **"Attractive Pay-Back Periods"** of 6-24 Months
- Highly Effective at **reducing** unwanted noise pollution
- Well over 5 million standard **CAD designs**

### Proven Company Track Record

- Shannon is the market leader in blanket insulation specification standards
- Shannon is the market leader in product design offerings
- Shannon was established in 1988
- The "Shannon Approach" is what makes Shannon products and services better
- Shannon is a technology driven company with state-of-the-art design and production capabilities
- Shannon developed a proprietary geometry software to assure a quality fit and finish
- Shannon uses a custom integrated ERP software to manage all information
- Shannon has been the preferred resource for quality blanket insulation since 1988
- Shannon emphasizes QP3 – Quality People, Quality Processes and Quality Products
- Shannon has an existing installed base of over 400,000 blankets, worldwide
- Shannon produces roughly 3500 blankets per month
- Shannon specifications are the worldwide standard, Shannon standards drive every sale
- Shannon specifications follow the Construction Specification Institute (CSI) Standard
- Shannon blanket designs are "User Friendly," easy to install, simple but functional
- Shannon designs "Match" the application condition to assure a 15 year service life
- The "Shannon Approach" assures quality and most important, common sense solutions
- Shannon specifications are the "Recognized" industry standard

# SHANNON

## Thermal Blanket Insulation – Steam



### Steam System Applications

Shannon Thermal Blanket captures bare surface radiant heat loss on complex steam fittings and complex surfaces.

- Shannon Thermal Blankets Insulate problem insulation fittings with a history of neglect, maintenance, inspection and repair.
- Applications Include; Gate Valves, Strainers, PRV's, Control Valves, Flange Sets, Stop Check Valves, Steam & Mud Drums, Level Gauge's, Condensate Pumps, Steam Meters, Expansion Joints, Drip Legs, Up-Steam Threaded Fittings and more.
- Save energy, save money, lower ambient temperature and improve the general work environment.
- Generate the highest "Life Cycle Cost."
- Complies with both Custom and Script utility rebate programs, if available within a region. Check with your local utility provider.
- Offering of both "Standard" and "Custom Fit" blanket designs.
- "Standard" part number, manufacturer offerings include; Armstrong®, Spirax Sarco®, Spence®, Watson McDaniel®, TLV® and Flowserve Gestra®.
- Shannon-INSULTECH® follows "Best Insulation Practices," solving a life time of insulation maintenance and repair.
- Shannon has a specification standard to meet every condition.
- Thermal Specifications: LT450SS, LT550SSM, MT800SGM, HT1100MSGM, HT1100DL

## Thermal Blanket Insulation – Process



### Process Applications

Shannon offers blanket design solutions for process applications that require, "Non-Porous", "Non-Wicking" reusable blanket insulation systems.

- Shannon offers a complete line of thermal blanket specification standards for: hot oil, hydrocarbon, chemical and most acidic and basic environments.
- Designs feature chemical resistant jacketing materials and a double sewn construction, to assure a truly "Self Contained" blanket meets the harsh condition.
- Designed for outdoor use, extreme sun and extreme weather.
- Offers integral fastener options and all hardware is stainless steel and or brass.
- Accommodate steam and electrical tracing as needed.
- Include metal (stainless steel or aluminum) ID Tag labeling for asset management policy and programs.
- CAD / CNC produced for exact fit and finish, with both "Standard" offerings and "Custom" field retro-fit designs.
- Applications include; valves, flanged fittings, pumps, equipment and equipment heads, shell and tube / plate and frame heat exchangers and instrumentation.
- Shannon has a specification standard to meet every condition.
- Thermal Specifications: LT450TT, LT500LFP, LT550TTM, HT1000MTFM

## Heat Shield Insulation



### Steam Traps & Specialties

Shannon Heat Shield is a "Thin Wall" insulation solution, addressing radiant heat loss for energy savings and personnel protection on hot surfaces.

- Shannon Heat Shield offers many design specifications depending on field condition.
- Features an integral Velcro Flap fastener, an Inspection Grommet for future trap testing and a Metal ID Tag for labeling and asset management.
- Shannon Heat Shield will retain 75% of the heat source.
- Your steam trap survey can be used to develop a Heat Shield Energy Survey.
- The Energy Survey Submittal will include; tag#, trap manufacturer, model & size.
- Designs are CAD / CNC produced for exact fit and finish.
- Is a "Standard" off the shelf, part number design.
- There is no need to measure the steam trap, our library of designs include; Armstrong®, Spirax Sarco®, Spence Nicholson®, Watson McDaniel®, TLV®, Bell and Gossett®, Flowserve-Gestra® and much more.
- Additional applications include; Instrumentation, Threaded Fitting Assemblies, Manifolds, Drip Legs, Tracing, Boiler Doors and more.
- Shannon has a specification standard to meet every condition.
- Thermal Specifications: LT500HS-AC, LT500HS-TC

## Acoustic Blanket Insulation



### Sound Reduction

Shannon Acoustic Blankets address radiant sound on complex surfaces.

- Applications include; compressors, motors, pumps, fan housings, blowers, ducting, mechanical equipment, liquid chillers, process piping, valves, ejectors and much more. Sample performance:
  - Liquid Chillers – Centrifugal, Scroll, Screw – 4 to 8 DBA
  - Pumps – 6 to 8 DBA
- Offer "Standard" and "Custom" sound packages, consult with a factory representative for more details.
- Specification standards cover a wide array of field conditions.
- Treats the sound problem at the source with a direct surface treatment, wrapping critical complex components that otherwise would be left untreated.
- Feature both a high density insulation filler for sound absorption and a mass loaded vinyl for sound reflection.
- Will generate up to 15 decibels of reduction, depending on the application, nature of the field condition and sound profile of the source noise.
- Offer validated and tested performance.
- Shannon has a specification standard to meet every condition.
- Acoustic Specifications: LT250A-VP, LT450A-TT, MT800A-TGM, HT1000A-MTFM, HT1100A-MSGM

## Acoustic Shield Insulation



### Sound Reduction

Shannon Acoustic Shield is a "Cost Effective" alternative for treating unwanted noise.

- Shannon Acoustic Shield is a "Low Cost" alternative from Acoustic Blanket Insulation.
- Applications include; scroll compressors, compressor discharge mufflers, piping and much more.
  - Scroll Compressors – 6 DBA
  - Compressor Discharge – 4 DBA
  - Mufflers / Silencers – 4 to 8 DBA
- Designs accommodate many operational conditions.
- Ideal for OEM programs where cost and price matters.
- CAD / CNC produced, in a highly efficient, high volume production environment with quick lead times and short production cycles.
- Shannon has a specification standard to meet every condition.
- Acoustic Specification: LT300AS



## Thermal Acoustic Blanket Insulation



### Power Generation

Shannon will accommodate temperature ranges from ambient outside temperature up to 1500 degrees.

- Shannon Thermal / Acoustic Blanket Systems have been successfully used in the power generation market since 1988.
- Shannon Thermal / Acoustic Blankets can address both acoustic and thermal performance in the same design offering.
- Specification standards capture a wide array of field conditions. Consult with a factory representative for the "Correct Specification" to apply.
- Applications include: turbo chargers, manifolds, silencers, piping, ducting, compressors, de-hy skids, gas turbines, plenums, control valves, expansion joints, exhaust cones, instrumentation and much more.
- Vibration resistant.
- Shannon has a specification standard to meet every condition.
- Thermal Specifications: LT450SS, MT800SGM, HT1100MSGM, HT1200AGM, HT1300MAGM, HT1500MSSM
- Acoustic Specifications: LT450A-TT, MT800A-TGM, HT1100A-MSGM

## OEM Thermal/Acoustic Blanket Insulation



### OEM Industry

Shannon Thermal Blanket captures bare surface radiant heat loss on complex steam fittings, complex surfaces.

- Shannon has a long history of success developing OEM blanket programs.
- OEM customers are worldwide.
- Design and manufacturing capabilities are the perfect setting for OEM partnerships, with QA/QC, ERP, CAD/CNC and production cell output, to drive quality performance.
- Specification standards are recognized worldwide in the OEM community.
- Shannon has in place, consignment inventory programs, finished goods and "Quick-Ship" programs to drive demanding lead times and response times for sensitive OEM customers.
- Shannon has a specification standard to meet every condition.
- Thermal Specifications: LT450SS, MT800SGM, HT1100MSGM, HT1200AGM, HT1300MAGM, HT1500MSSM
- Acoustic Specifications: LT250A-VP, LT300AS, LT450A-TT, MT800A-TGM, HT1100A-MSGM

## Passive Fire Protection Blanket



### MOV Industry

Shannon Fire Blankets are designed to protect equipment and instrumentation from catastrophic direct flame, process conditions, up to 2000°F @ 30 minutes.

- Tested under the UL1709 Test Method, 2000°F @ 30 minutes.
- Block the flame path and retard extreme heat flow.
- Designed for MOV Motor Operated Valve Actuators.
- Protect equipment and instrumentation from heat and smoke.
- Shannon Fire Blanket design specifications are available. Consult with a Shannon factory representative for more information or go to [www.blanket-insulation.com](http://www.blanket-insulation.com).
- Shannon has a specification standard to meet every condition.
- Passive Fire Protection Specifications: FB2000MSSiSiM, FB2000SSiSi

**Thermal Efficiency . . . . . Safety . . . . . Noise Reduction**



## Rain Shield Protective Enclosures

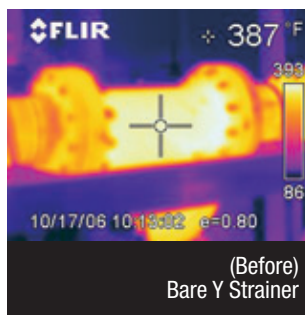


### Sanitary Washdown

Protects sensitive equipment exposed to outdoor conditions, wash down sanitary conditions or extreme wet conditions.

- Shannon Rain Shield is designed as a removable, reusable, Protective Enclosure.
- Allows easy access for service, inspection and repair.
- Allows easy installation and easy removal, all within minutes.
- Features quick release, quick access fasteners.
- Includes an ID Tag for proper labeling and asset management.
- Applications include; terminal boxes, control panels, sub panels, electronic scales, VFD's, motors, switches, instrumentation, critical components and much more.
- Eliminates "Taping and Wrapping" of loose plastic, no more disposal & waste.
- Enhances a "Zero Waste" initiative.
- Shannon Rain Shield will lower operator cost and shorten down time.
- Shannon Rain Shield designs capture a wide array of applications, with multiple specifications to choose from, based on the specific field condition, up to 600°F.
- Shannon has a specification standard to meet every condition.
- Rain Shield Specifications: RS250VP, RS450TF, RS500LFP

## Product Support Services



### Energy Survey Services

- Shannon Energy Surveys develop ECM (Energy Conservation Measure) proposals to define a specified scope of work and a measured performance on steam & process systems.
- Shannon Energy Surveys will define radiant Heat Loss opportunities with calculated measures.
- Shannon Energy Surveys are typically free of charge but are also offered as a charged service, depending upon on the scope of work.

### Post M&V Reporting

- Shannon Post M&V (Measurement and Verification) reporting is offered, using Picture on Picture Thermography.
- Shannon Post M&V results will define actual savings within a 5% error rate.

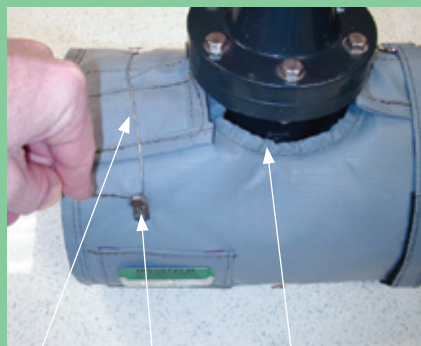
### Installation Services

- Shannon offers installation services for all products designed & manufactured by Shannon.
- Installation for both Merit and Non-Merit Labor.
- Shannon is fully insured and follows the IS Net World and PICS guidelines.
- Shannon offers supervisory install services to support the sales process.

### Sound Testing

- Shannon offers field sound testing on mechanical equipment, both pre and post installation.
- Shannon obtains sound pressure level measurements using a Class "A" Type 1, Digital Meter.
- Shannon follows ARI-575 test methods for liquid chillers.
- Shannon sound surveys, capture both DBA and Octave Band measurements.
- Shannon will present the field data to define the sound make-up and sound reduction levels as they relate to the acoustic blanket treatment.

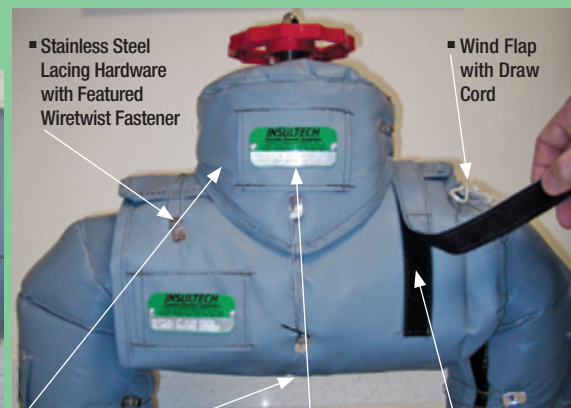
## Insultech® Design Features



- Overlapping 1-1/2" Fabric Flap at Closing Seams

- Stainless Steel Lacing Hardware with Featured Wiretwist Fastener

- Double Sewn and Binded Seams



- Stainless Steel Lacing Hardware with Featured Wiretwist Fastener

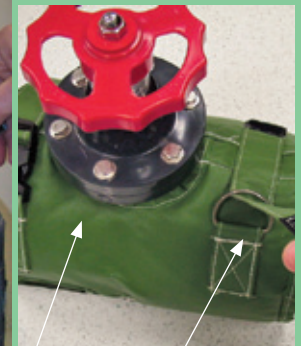
- Wind Flap with Draw Cord

- Two-piece Construction (Separate Body and Bonnet)

- Low Point Stainless Drain Grommet

- Stainless Steel or Aluminum Embossed Identification Tag (Riveted to Outer Jacketing)

- Velcro® Lock Fabric Strap



- Durable Silicone/PTFE Impregnated Fiberglass Cloth

- (Optional) "D" Ring Strap with Velcro® Tab (Double Sewn)

## Energy Survey Sample

<b>Presented By:</b> Shannon Enterprises	<b>Survey Date:</b> 3/23/2016
<b>Contact:</b> Frank Kovacs	<b>Proposal Date:</b>
<b>Phone / Email:</b> (716)693-7954	<b>Fuel Cost (\$/mmBTU):</b> \$9.60
<b>Project Name:</b> Sample Steam System-	<b>Steam Cost:</b> \$12.80
<b>Project Contact:</b>	<b>Product Specification:</b> (M) LT450TT
<b>Phone / Email:</b>	<b>Insulation Thickness:</b> 1.5 Inches
<b>Shannon Proj. #:</b> 2535	<b>Fastener Type:</b> (M) Velcro Flaps / Wiretwists

QTY	Description / Location	Amb. Temp	Meas. Surface Temp	Operating Hours	Bare Heat Loss (BTU/Hr)	Bare Oper. Cost (\$/Year)	Insulated Heat Loss (BTU/Hr)	Insulated Oper. Cost (\$/Year)
<b>Main Boiler Room</b>								
3	Valve, Gate, 150#	90	360	8760	23,916.06	\$2,681.66	2,104.95	\$236.02
3	6" 300# Stop Check Valve	90	360	8760	39,463.20	\$4,424.93	3,473.31	\$389.46
6	44" Dia. Steam Drum (6"-10" Deep)	90	345	8760	108,201.60	\$12,132.43	10,667.76	\$1,196.15
6	44" Dia. Mud Drum (6"-10" Deep)	90	330	8760	101,836.80	\$11,418.76	10,040.25	\$1,125.79
<b>Steam Header</b>								
6	Valve, Gate, 150#	90	350	8760	23,362.56	\$2,619.60	2,303.35	\$258.27
4	Valve, Globe, 150#	90	350	8760	15,575.04	\$1,746.40	1,535.57	\$172.18
2	Flange, 150#	90	345	8760	10,874.53	\$1,219.34	1,072.14	\$120.22
<b>Steam Tunnel</b>								
6	Exp. Joint, Single,	90	342	5834	22,837.25	\$1,705.38	2,251.56	\$168.14
4	Valve, Gate, 150#	90	342	5834	18,321.41	\$1,368.15	1,806.34	\$134.89
3	Blind Flange Cap, 300#	90	338	5834	7,928.06	\$592.03	781.64	\$58.37
<b>PRV Station to DeAerator</b>								
1	Strainer, 150#	110	325	8760	3,219.84	\$361.03	317.45	\$35.59
1	Pressure Reducing Valve, 150#	110	325	8760	6,123.20	\$686.58	603.70	\$67.69
1	Valve, Globe, 150#	110	315	8760	3,070.08	\$344.24	302.68	\$33.94
1	Flange, 150#	110	315	8760	2,784.90	\$312.27	274.57	\$30.79
1	Valve, Gate, 150#	110	315	8760	3,070.08	\$344.24	302.68	\$33.94

## Energy Survey Summary

Total Heatloss - Bare (BTU/Year):	3,277,893,469.42
Total Heatloss - w/ Insulation (BTU/Year):	317,299,858.47
<b>Heatloss Savings - w/ INSULTECH® (BTU/Year):</b>	<b>2,960,593,610.95</b>
Total Annual Operating (Steam Cost) - Bare:	\$41,957.04
Total Annual Operating (Steam Cost) - w/ Insulation:	\$4,061.44
<b>Annual (Steam Cost) Savings - w/ INSULTECH®:</b>	<b>\$37,895.60</b>
<b>* Lifetime (Steam Cost) Savings (15 Yrs):</b>	<b>\$537,402.96</b>
Total Cost (INSULTECH® Blanket System):	\$26,231.01
Installation (By Shannon):	\$4,800.00
<b>Total Cost:</b>	<b>\$31,031.01</b>
<b>Payback (Months):</b>	<b>10</b>
<b>Number of Fittings:</b>	<b>48</b>

Emissions Savings #1 Natural Gas (mm BTU):	2960.59	Emissions Savings #2 #6 Fuel Oil (mm BTU):	2960.59
CO2 (Tons)	444.21	CO2 (Tons)	264.43
NOx (lbs)	444.21	NOx (lbs)	1163.55
N2O (lbs)	6.42	N2O (lbs)	*
SO2 (lbs)	1.66	SO2 (lbs)	3318.72
PM10 (lbs)	5.47	PM10 (lbs)	211.40
VOC (lbs)	15.93	VOC (lbs)	34.01
CO (lbs)	71.10	CO (lbs)	105.82
* (Amount is less than 0.05 Lbs)			

### Heatloss Calculation

$$Q = K (\Delta T) / L + (K / Ht)$$

Q = Heatloss (BTU / Hr / SF)  
 K = Bare Surface Thermal Conductivity (K = 26.9)  
 $\Delta T$  = Surface Temp - Ambient Temp  
 L = Insulation Thickness  
 K = Insulated Surface Thermal Conductivity (K = 0.525 @ 300°F)  
 Ht = Combined Coefficients (Ht = 3.2 @ 300°F)  
 (Radiation, Convection & Conduction)

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**Thermal Efficiency . . . . . Safety . . . . . Noise Reduction**