



## Removable Reusable Blanket Insulation



THERMAL



ACOUSTIC



SAFETY

[www.ShannonGlobalEnergy.com](http://www.ShannonGlobalEnergy.com)

*Engineering Reusable Solutions for a Sustainable Planet*

# “ReInstall just once – It pays for itself”

## Shannon GES solutions offer:

- Proven solutions with a history of success since 1988
- CAD designed for exact fit & finish
- CNC produced for accuracy and high quality
- Design standards tested to ASTM, UL & ISO
- Removable and Reusable
- A specification library of designs to meet every application & condition
- Integral Fasteners for easy installation
- Self-contained insulation system
- User-friendly installation and removal within minutes
- Standard warranty of up to 10 years
- Expect a 15-year service life
- Each blanket includes an ID Plate or Label for ease of identification
- All labels include a QC Code for easy identification
- Thermal Blankets offer an attractive Payback Period of 12-24 Months
- Acoustic Blankets offer a highly effective noise reduction of 4-15 dBA
- Ease of access to reduce labor and repetitive downtime
- Low cost of ownership
- Thermal Efficiency of up to 95%
- Acoustic Noise Reduction, addressing peak frequency, OSHA compliance
- Safety Spray Shield enclosures for process leak prevention
- Rain Shield enclosures for washdown and weather protection



### Memberships



### Awards



## The Shannon GES Company Track Record:

- Market leading products and solutions unmatched in the industry
- Specification standards for every offering, both field validated and tested
- Software technology driven support process: CRM/ERP/CAD/CNC
- Proven Energy Survey Services (Development & Execution)
- Our CAD library of designs, over 7 million
- Comprehensive specifications to accommodate temperature and field condition  
Temperature range 40°F - 2000°F
- Specification standards follow CSI (Construction Specifications Institute Masterspec) CSI 3-Part & CSI 10-Part
- QP3 - Quality control process: People, Process & Products
- An existing installed base of 750,000 blankets
- Sales in over 55 countries
- Energy Savings approaching \$650 Million / 7.6 Million Barrels of Oil

### Blanket Design Features



- |  |   |
|--|---|
| 1. Wind flap with draw cord                          | 4. Double sewn lock stitch construction |
| 2. Two-piece construction (separate body and bonnet) | 5. Teflon® PTFE fiberglass cloth        |
| 3. Riveted and embossed ID tag                       |   |



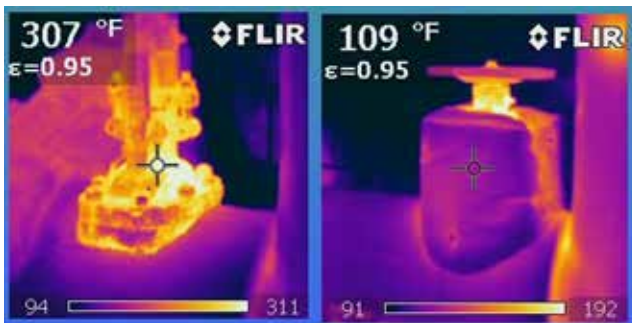
1. Side release buckle with nylon strap fastener
2. Stainless steel wiretwist fastener
3. D ring strap fastener with Velcro® tab



## Shannon Thermal Blankets for Steam Systems

- Shannon blankets insulate the problematic, untreated, uninsulated surfaces
- Sustainability 101, insulate complex surfaces, all surfaces, capture radiant heat
- Save energy, save money, lower ambient temperature, lower your carbon footprint
- Utility credits to offset capital cost investment, ECM development services
- Steam valves, steam turbines, strainers, pumps, expansion joints, flanges, condensate pumps, heat exchangers, etc.
- Offerings include both complex custom applications and OEM standard catalog fittings and components
- Standard Steam Fitting Parts include: Spirax®, Armstrong®, Watson®, TLV®, Gestra® and more

Complies with ASTM-C335 / E-84, OSHA safety recommendations



LT450TT

HP STEAM HEADER VALVES



LT450SS

PRESSURE REDUCING STATION



LT450TT

HP BOILER STEAM DRUM



LT450SS

DEAERATOR VALVES, PIPING, PUMPS

Operating Temp.	Thickness	Surface Temp.	Thickness	Surface Temp.	Thickness	Surface Temp.
250°F (121°C)	1"	100.2°F	1.5"	92.0°F	2"	87.4°F
300°F (149°C)	1"	108.6°F	1.5"	98.2°F	2"	92.3°F
350°F (177°C)	1"	117.2°F	1.5"	104.6°F	2"	97.4°F
400°F (204°C)	1"	126.0°F	1.5"	111.2°F	2"	102.7°F
450°F (232°C)	1"	135.0°F	1.5"	118.0°F	2"	108.0°F
550°F (288°C)	1"	154.0°F	1.5"	132.0°F	2"	120.0°F
650°F (343°C)	1"	175.0°F	1.5"	148.0°F	2"	133.0°F



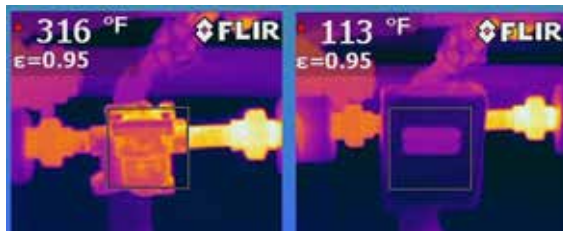
### Shannon offers Heat Shield Insulation for **Steam Traps**

- Standard and custom insulation for steam traps
- Follow the existing steam trap survey list
- We offer a comprehensive list of standard steam trap designs
- These offerings are off the shelf & ready for quick shipment
- Heat Shield will capture 75% of all radiant heat loss
- Cost-effective, thin wall insulation solution
- We have a Heat Shield design to match any field condition, custom or standard
- Mitigate risk factors of employee burns, lost workdays, recordable incidents
- Addresses OSHA 1910.261(k)(11), 1910.262(9), 1910.23(3) for hot surfaces



LT500HS-TC

STEAM TRAP



Complies with ASTM-C335 / E-84

Applications: Steam Traps, Boiler Doors and Steam Specialities

Industries: OEM, End User, Healthcare, Manufacturing, Pharmaceutical, Process, Institutional, Education



LT500HS-TC

BOILER DOOR

### Steam Heat Kits

### Shannon offers **Steam Kits** Prebent Tubing and Jacket Insulation



- Freeze protection & maintain process temperature
- 304 & 316 stainless seamless tubing, 3/8" or 1/2" dia.
- Save field labor on tube bending, avoid mistakes, avoid crimping
- Integral quick connect fitting or flange
- CAD designed for easy install, exact fit, standard off the shelf designs
- Achieve maximum performance



SHK-38-12-SS

CONTROL VALVE BODY



## Thermal Blanket Solutions for Chilled Water Applications

Condensation is the problem when insulating cold surfaces and in most applications, the difficulty lies in treating complicated & unusual surfaces which require access for service, inspection and repair. Trapping the surface air, removing air movement, air travel, and sealing the insulated surface will solve the problem. Shannon's Chilled Water Thermal Blankets provide a tight seal to prevent air movement, thus reducing condensation.

- Shannon blanket designs are "Non-Porous"
- CAD designs for exact fit



LT250VP CHILLED WATER HX HEAD & VALVES

- Proper match-ups to conventional insulation
- No open gaps or seams, a sealed system
- Complies with ASTM-C335



LT250VP CHILLED WATER VALVES & PIPING

**Applications:** Pumps, Back-Flow Preventers, Chiller Water Boxes, Heat Exchanger Heads, Valves, Strainers and much more

## Thermal Blanket Solutions for Steam Condensate Pressure Power Pumps & Condensate Receiver

Shannon Global Energy Solutions manufactures an ideal insulation system for conserving energy on steam-condensate pressure power pumps and condensate receivers. It's difficult to insulate these complex components and if conventional hard insulation is applied to these components, their surfaces cannot be easily accessed for service, inspection and repair.

Shannon Blankets achieve significant energy savings and lower surface and ambient temperatures, which reduce air conditioning load.



LT450TT ARMSTRONG® CONDENSATE PUMPS



LT450TT SPENCE® STEAM CONDENSATE PUMP



## Thermal Blanket Solutions for Gas Transmission

Designed to minimize maintenance, improve engine performance, and improve the surrounding work environment.

- Thermal blanket systems to accommodate up to 1500°F (815°C)
- High temperature blanket systems are wire mesh encapsulated for durability
- Vibration, UV and weather resistant
- Can be designed for both Thermal & Acoustic performance



HT1100MSGM

GAS TURBINE EXHAUST



LT450TT / HT1100MSGM

DE HY SKID GAS DRYER

**Applications:** Exhaust Pipe, Flanges, Manifolds, Turbo's, Exp Joints, Gas Turbine Housings, Silencers & much more

## Thermal Blanket Solutions for the Process Industry

For Hot Oil, Hydrocarbon, Chemical, Acidic and Basic Environments

- "Non-Porous" & "Non-Wicking" solutions
- Chemical resistant jacketing materials
- Robust, high-density Insulation fillers with optional hydrophobic performance
- Process Thermal Blankets are designed for outdoor conditions, for a long-lasting solution
- Hydrophobic designs address CUI (Corrosion Under Insulation). They contain PTFE-impregnated Type-E needled and felted fiberglass blanket insulation.



LT450TT

DISTILLATION COLUMN FLANGES & PIPING



LT450TT

DISTILLERY PUMP STATION

- Shannon hydrophobic insulation does not require workers to wear a mask while manufacturing or installing the material.
- Accommodates temperature extremes from ambient freeze protection to 1100°F

**Applications:** Process Equipment, Heat Exchangers, Pumps, Tanks, Piping, Vessels, Manifolds, Valving, Flanges, Instrumentation & more

**Industries:** Industrial, Pharmaceutical, Manufacturing, OEM, Refineries, Chemical processing, Distilleries



## Thermal Blanket Solutions for the **Plastics Industry**

Shannon Global Energy Solutions offers an engineered insulation system that significantly reduces heat loss and surface temperature for plastics extrusion, injection molding and blow molding equipment.

- Non-porous high quality outer jacketing
- Process improvement with shorter cycle times
- Any surface being covered will show an estimated heat loss reduction of 85%, to reduce kwh and save energy
- With average surface temperatures of 500° F, this reduction equates to payback periods on investment of less than 6 months.



LT550SG - D-RING STRAP, VECRO TAB EXTRUDER BARREL

- Designs are non-metallic
- Designs include integral "D" Ring Straps with Velcro® tabs for easy install
- Protects workers from hot portions of an extrusion or blow molding line



LT550SG EXTRUDER BARREL

- Even heat distribution for more uniform product
- Reduced ambient temperature and air conditioning cost

## Thermal Blanket Solutions for **Food Processing/Sanitary**

Kettles, fryers, ovens and steam components pose a difficult insulation challenge for food manufacturers because they present complex surface geometries and high surface temperatures. Food manufacturers can improve cooking efficiency by evenly distributing heat and can make sanitary washdown expedient.

- FDA approved materials (sanitary wash-down)
- PTFE non-porous jacketing (550° F)
- Heat sealing technology
- Double sewn / PTFE stitching
- Compelling energy savings & safety
- Wash resistant, Chemical resistant



LT550LFP STEAM LINED COOKING KETTLE

- OSHA compliance and lower insurance rates by lowering ambient temperatures for worker safety
- Shannon Blankets boost steam system thermal efficiency, which improves steam quality and the



LT550LFP - SIDE RELEASE BUCKLE STEAM PASTEURIZER

overall manufacturing process.  
 FDA: CFR 177.1550 / CFR 178.3297 /  
 EU: RoHS 2002/95/EC  
 ASTM: C335/E-84, E-136





## Engineered Systems for Refinery Applications, Chemical Process

Refineries are large-scale consumers of steam where system efficiency, safety and noise are considerations for plant managers.

- For steam and process systems to improve system efficiencies, capture radiant heat loss, improve steam tracing performance and most importantly, to insulate complex surfaces otherwise left untreated.
- Improves steam quality, and asset life
- Shannon Acoustic Blankets successfully reduce equipment noise by 4 to 15 dBA.



LT450TT - D-RING STRAP, VELCRO TAB PROCESS VALVES

- Shannon insulation is the industry standard for refineries.
- OEM manufacturer endorsed designs
- High temperature designs up to 2000°F



LT450TT HEAT EXCHANGER HEAD END CAPS

- Vibration resistant
- Oil resistant jacketing
- Non-flammable

## Thermal Blanket Solutions for Paper and Pulp Mills

For paper and pulp mill applications, Shannon Global Energy Solutions manufactures an insulation system that improves steam quality. With Shannon Blankets, plant managers can also more efficiently return condensate to boilers. Efficiency is achieved with a thermal barrier that insulates complex steam fittings and hot surfaces typically left untreated. The benefits of insulating are: significant energy savings, lowered surface temperatures (i.e., OSHA compliance and lower insurance rates), and lowered ambient temperatures.



LT450TT MULTI STAGE FEEDWATER PUMP



LT450TT HP STEAM GATE VALVE & STRAINER

**Applications:** Steam Drum End Caps, Rotary Joints, Braided Flex Hose, Steam Valves, Steam Traps, Condensate Receivers, Black Liquor Kettles



## Thermal Blanket Solutions for Tire Manufacturing

Shannon Global Energy Solutions makes an insulation system that maximizes thermal efficiency for steam systems and tire presses. Installing removable-reusable Shannon insulation takes one man-hour versus a full day with conventional insulation.

- Insulates Tire Presses
- Covers Complex Surfaces like flange caps and access ports
- Addresses Hot Surface Conditions
- Improved Cure Times



MT800SGM REMOVABLE REUSABLE BLANKET INSULATION



MT800SGM - D-RING STRAP, VELCRO TAB TIRE PRESS

- Lower ambient temperatures, saves energy

Shannon engineered systems are supported by sales representatives with in-depth technical

knowledge of the process and value Shannon Blankets add to tire manufacturing application.

## Thermal Blanket Solutions for Laundry Services

Shannon GES designs insulation solutions that save energy for commercial laundry presses and steam system components such as valves, strainers and flex hosing, while protecting operators from burns.

- Improve steam quality
- Save Energy by insulating the uninsulated
- Lower ambient room temperature
- Deliver dry steam to the press
- Mitigate risk, avoid employee burn injuries
- Lower your air conditioning cost



LT450SS LEGGER STEAM BUCK PRESS

- Improve the steam efficiency supplied to equipment like washing machines and presses

**Applications:** Valves, Steam Fittings, Laundry Presses, Ironers, Steam Traps



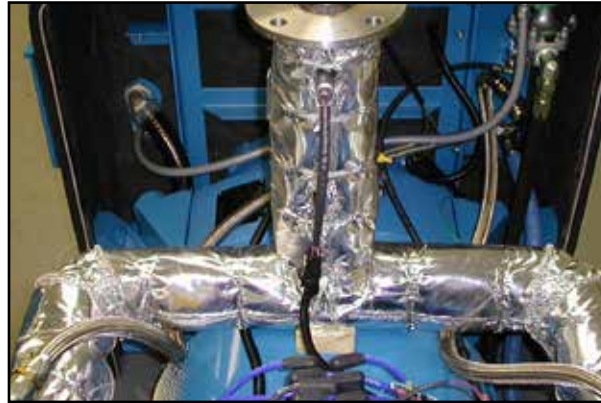
LT450SS, LT500HS-TC BOILER HEAD FEED WATER PIPING ECONOMIZER



## Thermal Blanket Solutions for Engine Exhaust Transportation Fleet Services

Shannon manufactures an engine exhaust insulation system for transit authorities, university bus systems, logistics companies and OEMs.

- Improves engine efficiency and equipment performance
- Reduces emissions
- Manufacturer endorsed designs
- Vibration resistant
- Accommodates 1300°F service temperatures



HT1300AGM ENGINE EXHAUST PIPING & FLANGE



HT1300AGM EXHAUST ELBOW & PIPING

- Integral stainless steel spring tensioner fastener

**Applications:** Engine Exhaust Piping, Flex Connectors, Catalytic Converters, Expansion Joints, Manifolds, Turbochargers

## Thermal Blanket Solutions for Marine Applications

For high-temperature applications such as engine manifolds, mufflers and exhaust piping, Shannon makes a custom-fit, reusable thermal/acoustic blanket. The blanket resists chemicals and weather and retains radiant heat up to 1800°F (982°C)

- Greater engine efficiency
- Less emissions
- Lower surface temperature
- Reduced ambient temperature
- Vibration resistant
- Oil resistant outer jacketing
- Durable wire mesh encapsulated, staple construction



HT1100MSGM EXHAUST PIPING ELBOWS & FLANGES

- Non-flammable
- UCSG approved
- ASTM/UL/ISO tested



MT850SGM ENG EXHAUST PIPING, ELBOWS, FLANGES & EXP JOINTS

Shannon Thermal Blankets meet testing standard ASTM C335.

The Acoustic Blankets meet test standards ASTM-E1222 and ISO-15665, while reducing sound by 4 to 10 dBA.

- Removable & Reusable
- Integral fasteners
- Self-contained & easy to install
- Standard warranty of up to 10 years
- ID Plate, or Label for easy identification



## Shannon Acoustic Blanket Insulation for Noise Reduction

Shannon Acoustic Blankets both absorb and reflect sound energy, offerings include both standard OEM catalog and custom field solutions.

- Direct wrap designs with reductions of 4-15 dBA
- Enclosure designs with reductions of 10-20 dBA
- Field sound tested and validated for each specific application
- Acoustic Blanket design standards to match every application & field condition
- Acoustic Blankets are Weather & UV rated
- Noise reduction is dictated by Surface Mass (Range: 1.23lb/SF to 3.5lb/SF)
- Hydrophobic designs accommodate CUI (Corrosion Under Insulation)
- End User and OEM endorsed
- High Density Mass Loaded Vinyl (reflection)
- High Density Needled Fiberglass Mat Filler (absorption)

Complies with ASTM E-1222, ISO15665;2003 (Insertion Test)

**Applications:** Compressors, Pumps, Process Piping, Chillers, Fans, Oil Separators

**Industries:** Commercial, Industrial, HVAC, OEM



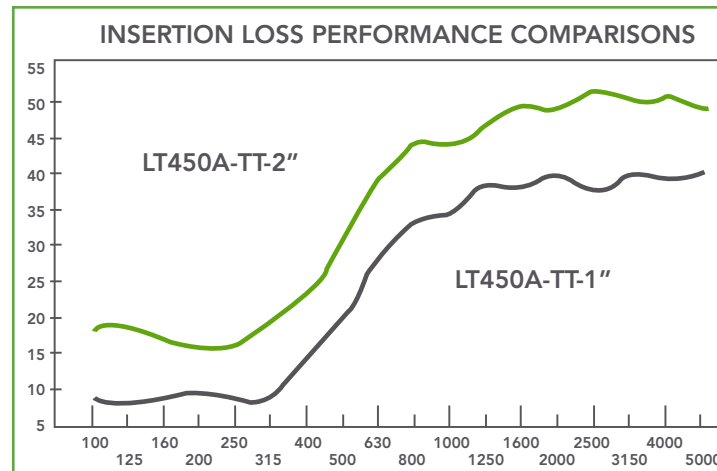
LT450A-TT SPLIT CASE PUMP 24x20-36 (6 dBA REDUCTION)



LT450A-TT NATURAL GAS PIPELINE 24" (13 dBA REDUCTION)



LT250A-VP CENTRIFUGAL LIQUID CHILLER (8 dBA REDUCTION)



107dBA SOURCE Test Frequency (in Hz)	A-WEIGHTED MEASUREMENTS		LINEAR WEIGHTED MEASUREMENTS	
	LT 450A-TT-1" Noise Reduction (in dBA)	LT 450A-TT-2" Noise Reduction (in dBA)	LT 450A-TT-1" Insertion Loss (in dBA)	LT 450A-TT-2" Insertion Loss (in dBA)
100	8	19	8	18
125	8	20	7	19
160	9	17	9	17
200	9	16	9	16
250	8	17	8	16
315	10	20	9	20
400	14	24	14	23
500	21	30	20	30
630	28	39	27	39
800	34	44	33	44
1000	35	44	34	43
1250	38	46	37	46
1600	37	49	36	49
2000	38	48	38	48
2500	37	51	36	51
3100	40	50	39	50
4000	39	49	38	50
5000	41	49	40	49



LT450A-TT AXIAL FAN HOUSING (6 dBA REDUCTION)



LT450A-TT AIR COOLED CHILLER (6 dBA REDUCTION)



LT450A-TT ACOUSTIC ENCLOSURES (10 dBA REDUCTION)

## Shannon Acoustic Shield Insulation for the OEM Market

Acoustic Shield is a cost effective, noise reduction solution and mimics the acoustic blanket with similar features. It addresses both absorption and reflection.

- Direct wrap designs with reductions of 4-8 dBA overall
- Offerings include both standard OEM catalog and custom field solutions
- Field tested & validated for each specific application
- Acoustic Shield design specification standards to match every application & field condition
- Weather & UV rated (Acoustic Shield features a Rain Shield Cap)
- Noise reduction is dictated by Surface Mass (Range: 1.23lb/SF to 2.23lb/SF)
- OEM endorsed where total cost of ownership and price are a top priority

Complies with ASTM E-1222, ISO15665;2003 (Insertion Test)

**Applications Include:** Scroll Compressors, Discharge Piping, Economizer, Mufflers & Silencers

**Industries:** OEM, Commercial, Industrial, HVAC



LT250AS SCROLL COMPRESSOR (WITH RAIN CAP)



LT250AS CENTRIFUGAL LIQUID CHILLER (6 dBA REDUCTION)



## Acoustic Blanket Insulation for Liquid Chillers

For chillers at office buildings, high-rises and manufacturing plants, Shannon's Acoustic Blanket reduces noise levels to meet OSHA and zoning requirements. Plant managers also turn to Shannon blankets to lower sound levels in factories, so employees can reduce or eliminate hearing protection. Shannon introduced its Acoustic Blanket Insulation for liquid chillers in the early 1990s. Since that time, Shannon acoustic sound kits have been the industry standard for many OEM applications.

- Shannon Acoustic Blankets can reduce noise by 4 to 15 dBA, depending on the chiller type.



LT250A-VP WATER COOLED LIQUID CHILLER (6 dBA REDUCTION)



LT250A-VP CENTRIFUGAL LIQUID CHILLER (4 dBA REDUCTION)

- Addresses employee risk exposure
- Standard Performance and Enhanced Performance Sound Kits

- Custom retrofit sound kits
- Standard design sound kits

## Acoustic Blanket Insulation for Fans, Blowers, & Compressors

Shannon GES has developed noise reduction solutions to address radiant sound energy on fans, compressors, and blowers. Design considerations for temperature and environmental conditions, as well as noise reduction targets (4-15 dBA). Shannon GES Acoustic Blanket Solutions are ASTM tested, field validated and OEM endorsed. A self-contained insulation system, designed to fit complex surface geometry, integral fasteners make installation quick and easy.

- PTFE Fiberglass Jacketing
- Double Sewn / Tri-Fold Binding Edges
- Velcro / Vinyl Acoustic Flaps
- 4 dBA to 15 dBA Reduction



LT450A-TT COMPRESSOR HOUSING (8 dBA REDUCTION)



LT450A-TT INDUSTRIAL FAN HOUSING (8-10 dBA REDUCTION)



# Blanket Insulation for Hydrophobic Applications

Shannon GES' hydrophobic thermal and acoustic insulation blankets reduce the risk of CUI (Corrosion Under Insulation) by significantly reducing or eliminating the steel substrate's duration of wetness caused by water-soaked insulation.

- PTFE Fiberglass Jacketing
- Designed with a PTFE-impregnated Type-E needled and felted fiberglass blanket insulation
- No amorphous silica particulate or additive that can escape as dust, posing a health risk.
- Mitigate CUI (Corrosion Under Insulation)



LT400-HES - WIRETWIST, VELCRO FLAP SPLIT CASE PUMP



LT450-HES NATURAL GAS PIPELINE

- E-glass insulation core material is the safest and most durable
- Up to 15 dBA Reduction

Testing Standards: ASTM C1511, C1763



## Safety Shield Protective Enclosures

### Safety Shield for Liquid Piping Systems

Use Safety Spray Shields for environmental protection. They are designed to accommodate high pressure flange leaks or spills.

- Effluent is redirected into a containment bed below, preventing spray exposure
- Self-contained, multi-layer design
- Tested to ASTM D3786/F1138 (Mullen Burst Test)



SSS-450-FJT (SSS-232C-FJT) PIG LAUNCHER HEAD



SSS-500-TAFT OIL PIPELINE - SHUT OFF VALVE

- Up to 2700 PSI Bursting Strength
- Ideal for harsh extreme flow, high pressure, process systems
- Nonporous, weather, chemical, pressure and temperature resistant

**Applications:** Switches, brackets, glass panel, in-line flanges, valves, nozzle connections, pig access doors, equipment heads

**Industries:** Oil & Gas, Utilities, Chemical Processing, Petro Chemical





## Rain Shield Protective Enclosures

### Rain Shield for the Process Industry

Rain Shields are designed for Sanitary Washdown and protecting sensitive equipment exposed indoors and outdoors

- Jacketing materials are chemical resistant and FDA approved
- Custom-designed fabric enclosures with easy on and easy off integral fasteners are removable and reusable
- Eliminate plastic, reduce waste, stop taping



RS250VP

PACKAGING WEIGHING STATION

- Achieve a "Zero Waste" initiative, stop using and throwing away plastic
- Lower your operator cost & shorten down time, easy on and off
- Gain instant access, for service, inspection and repair



RS350VP

CONTROL VALVE ACTUATOR

**Applications:** Terminal Boxes, Control Panels, Motors, Sub Panels, Instrumentation, Switches, Critical Components

**Industries:** Food Processing, Pharmaceuticals, Oil & Gas, Manufacturing, Healthcare



## Fire Protection Blanket Insulation

### Fire Protection Blankets to protect sensitive equipment

Shannon Fire Blankets protect from extreme, catastrophic rapid-temperature-rise.

- Designed to accommodate a 2000°F fire condition for 30 minutes
- Tested under the guidance of UL-1709 Rapid Rise Fire Test
- Blocks the flame path & retards heat flow
- Designed to lower your insurance premium
- A self-contained insulation system, both sewn and stapled designs available



FB2000SSiSi

MOV ACTUATOR ENCLOSURE

- System designs are non-metal and metal encapsulated
- Chemical resistant, weatherproof and UV rated for outdoors
- A low maintenance investment for Inspection, Service & Repair



FB2000MSSiSiM

VALVE ACTUATOR ENCLOSURE

- Design allows for full operation of the hand wheel if necessary

**Applications:** MOV Motor Operated Valves, Instrumentation, Valve Bodies

**Industries:** Petro Chemical, Process, Chemical





See Our Website For Additional Specifications: [www.shannonglobalenergy.com](http://www.shannonglobalenergy.com)

## Thermal Blankets and Shields

Specification	Service	Attribute	Temp	Test Standard
LT200VLP	Chilled Water/Hot Water	Non-Porous	200°F	ASTM-C335
LT250VP	Chilled Water/Hot Water	Non-Porous	250°F	ASTM-C335
LT450SS	Steam/Condensate	Non-Porous	450°F	ASTM-C335 / E-84
LT550SSM	Steam	Non-Porous	550°F	ASTM-C335
MT800SGM	Steam	Porous	800°F	ASTM-C335
HT1100MSGM	Steam	Porous	1100°F	ASTM-C335
LT500HS-AG	Steam	Porous	500°F	ASTM-C335
LT500HS-TC	Steam	Porous	500°F	ASTM-C335
LT550LFP-M	Steam Manholes/Tunnels	Chemical Resistant	550°F	ASTM-C335
LT450TT	Steam/Chemical Process	Non-Wicking	450°F	ASTM-C335 / E-84
LT550TTM	Steam/Chemical Process	Non-Wicking	550°F	ASTM-C335
MT800TGM	Chemical Process	Wicking	800°F	ASTM-C335
HT1100MTFM	Chemical Process	Non-Wicking	1100°F	ASTM-C335
LT300LFP-EF	Food Processing / Sanitary	Non-Porous/No-Fiber	300°F	FDA-21 CFR 177.1550
LT550LFP-FG	Food Processing / Sanitary	Non-Porous	550°F	FDA-21 CFR 177.1550 / ASTM E-136
HS1200FF-W	Food Processing / Sanitary	Non-Porous	1200°F	ASTM-C335
MT850AGM	Power Generation/OEM	Porous	850°F	ASTM-C335
MT850AGGM	Power Generation/OEM	Porous	850°F	ASTM-C335
HT1100MSGM	Power Generation/OEM	Porous	1100°F	ASTM-C335
HS1200FF-S	Power Generation/OEM	Non-Porous	1200°F	ASTM-C335
HT1300AGM	Power Generation/OEM	Porous	1300°F	ASTM-C335
HT1300MAGM	Power Generation/OEM	Porous	1300°F	ASTM-C335
HT1500MSSiM	Power Generation/OEM	Porous	1500°F	ASTM-C335
HT1500MFFM	Power Generation/OEM	Non-Porous	1500°F	ASTM-C335
LT550SG	Plastics Extrusion	Porous	550°F	ASTM-C335
MT850SSi	Plastics Extrusion	Porous	850°F	ASTM-C335

## Acoustic Blankets and Shields

Specification	Service	Attribute	Temp	Test Standard
LT250A-VP	HVAC/Commercial/OEM	Non-Porous	250°F	ASTM-E1222/ISO-15665
LT450A-TT	HVAC/Commercial/OEM	Non-Porous	450°F	ASTM-E1222/ISO-15665
LT450A-SS	HVAC/Commercial/OEM	Non-Porous	450°F	ASTM-E1222/ISO-15665
LT250AS	HVAC/Commercial/OEM	Non-Porous	250°F	ASTM-E1222/ISO-15665
LT450A-TT	Process / Industrial	Non-Wicking	450°F	ASTM-E1222/ISO-15665
MT800A-TGM	Process / Industrial	Wicking	800°F	ASTM-E1222/ISO-15665
HT1100A-MTFM	Process / Industrial	Non-Wicking	1100°F	ASTM-E1222/ISO-15665
HT1100A-MSGM	Process / Industrial	Wicking	1100°F	ASTM-E1222/ISO-15665
LT450A-TT	Power Generation/OEM	Non-Porous	450°F	ASTM-E1222/ISO-15665
MT800A-TGM	Power Generation/OEM	Porous	800°F	ASTM-E1222/ISO-15665
HT1100A-MSGM	Power Generation/OEM	Porous	1100°F	ASTM-E1222/ISO-15665
HT1100A-MTFM	Power Generation/OEM	Non-Porous	1100°F	ASTM-E1222/ISO-15665

## Hydrophobic Blanket Insulation

Specification	Product	Service	Attribute	Temp	Test Standard
LT450TT-HS	Pure-Hydrophobic Thermal Blanket	Out Doors – Process	Water Resistant, Corrosion Resistant	450°F	ASTM C338, C1763, C1511, C1338, C1104
LT450TT-HES	Hybrid-Hydrophobic Thermal Blanket	Out Doors – Process	Water Resistant, Corrosion Resistant	450°F	ASTM C338, C1763, C1511, C1338, C1104
LT550LFP-HS	Pure-Hydrophobic Thermal Blanket	Steam Vaults, Manholes	Water Resistant, Corrosion Resistant	550°F	ASTM C338, C1763, C1511, C1338, C1104

Specification	Product	Service	Attribute	Temp	Test Standard
LT450A-TT-HS	Pure-Hydrophobic Acoustic Blanket	Out Doors – Process	Water Resistant, Corrosion Resistant	450°F	ASTM E-1222, ISO 15665, C1763, C1511, C1338, C1104
LT450A-TT-HES	Hybrid-Hydrophobic Acoustic Blanket	Out Doors – Process	Water Resistant, Corrosion Resistant	450°F	ASTM E-1222, ISO 15665, C1763, C1511, C1338, C1104

## Rain Shield Protective Enclosures

Specification	Product	Service	Attribute	Temp	Test Standard
RS250VP	Protective Enclosure	HVAC/ Commercial	Non-Porous	250°F	NEMA Type 3R
RS500LFP	Protective Enclosure	Sanitary/Food Grade	Non-Porous	500°F	NEMA Type 3R

## Safety Shield Protective Enclosures

Specification	Product	Service	Attribute	Temp	Test Standard
SSS-500-AAAS	Safety Spray Shield	Oil & Gas Process	Non-Porous	500°F	Mullen ASTM-D3786
SSS-500-TAFT	Safety Spray Shield	Oil & Gas Process	Non-Porous	500°F	Mullen ASTM-D3788

## Fire Protection Blanket Insulation

Specification	Product	Service	Attribute	Temp	Test Standard
LT450SS	Smoke & Flame	Commercial / Industrial	Risk Mitigation	450°F	ASTM E-84
LT550LFP-M	Thermal Blanket	Commercial / Industrial	Risk Mitigation	550°F	ASTM E-136
FB2000SSiSi	Passive Fire Protection	Fire Protection/OEM	Risk Mitigation	2000°F	UL-1709 / ASTM E-84

- Removable & Reusable
- Integral fasteners
- Self-contained & easy to install
- Standard warranty of up to 10 years
- ID Plate, or Label for easy identification



# Energy Survey Methodology

## ECM proposals: (Energy Conservation Measure)

- Define a detailed scope of work measuring performance on steam and process systems
- Define radiant heat loss in therms, kwhs, GJs and BTUs
- Surveys are typically free
- Simple payback period ranges from 3 to 36 months on the steam and process system
- Comprehensive review of the system assures the capturing of all opportunities
- Drive sustainability measures with high ROI projects and continuous performance



### ● How Do We Initiate a Survey?

Your project representative will contact Shannon GES to arrange a site visit.

### ● Site Visit

A Shannon GES Sales Engineer will meet with you and the project representative at the site to walk through the steam system.

The Sales Engineer will tally a descriptive list of candidates for insulation; a list of fittings, valves flanges and equipment.

A Shannon GES energy survey can range from 10 to 1000 fittings depending on the size of the system. The survey is easy to read with room locations and fitting descriptions to cover all opportunities. Shannon will search for bare radiant surfaces to meet your financial objectives.

### ● What Do We Cover?

The Energy Survey proposal will include every bare surface opportunity that meets financial criteria.



THERMOGRAPHIC IMAGING MEASUREMENTS

Tag #	Description: (Loc, Rating, Type, Mfr)	Surface Temp	Ambient	Oper. It.
	* BOILER ROOM - BOILERS	2, 3 #		
	6" 300# STOP CHECK VALVE	335°F	92°F	9A
	10" x 6" 300# FLANGE CAP	348°F	"	"
	6" 250# GATE VALVE	332°F	"	"
	6" 300# ORIFICE FLANGE	332°F	"	"
	17" x 21" MANWAY	342°F	"	"
	4" 300# SRV FLANGE CAP	341°F	"	"
	2" 300# "	341°F	"	"
	52" DIA STM DRUM - 12" OP	343°F	"	"
	17" x 21" MANWAY			
	FLANGE & WCO PIPING	335°F	92°F	

DESCRIPTIVE TALLY OF CANDIDATES FOR INSULATION



DOCUMENT & RECORD SURFACE TEMPERATURES

Room	Sub Location	Qty	Fitting Type	Fitting	Size	Rating	Loss
Boiler Room	main stm header to pressure/to atm	1	Pipe	Pipe	8	300	
Boiler Room	main stm header to pressure/to atm	1	Elbow	45 Elbow	8	300	
Boiler Room	main stm header to pressure/to atm	1	Valve	Safety Relief V	8	300	
Boiler Room	main stm header to pressure/to atm	1	Strng	2 Fitting Assem	2	1/2T	
Boiler Room	main stm header to pressure/to atm	1	Valve	Pressure Reduc	2	1/2T	
Boiler Room	main stm header to pressure/to atm	1	Strng	2 Fitting Assem	2	3/4T	
Boiler Room	main stm header to pressure/to atm	1	Valve	Gate Valve	3	150	
Boiler Room	main stm header to pressure/to atm	1	Valve	Gate Valve	3	250	
Boiler Room	main stm header to pressure/to atm	1	Valve	Pressure Reduc	3	300	
Boiler Room	main stm header to pressure/to atm	1	Sub_Fitting	Strainer	3	300	
Boiler Room	main stm header to pressure/to atm	1	Elbow	45 Elbow	8	300	
Boiler Room	main stm header to pressure/to atm	1	Valve	Gate Valve	2	300	
Boiler Room	main stm header to pressure/to atm	1	Sub_Fitting	Strainer	3	150	
Boiler Room	main stm header to pressure/to atm	1	Valve	Pressure Reduc	2	150	
Boiler Room	main stm header to pressure/to atm	1	Valve	Safety Relief V	2	150	
Boiler Room	main stm header to pressure/to atm	2	Pipe	Pipe	2		
Boiler Room	main stm header to pressure/to atm	1	Valve	Gate Valve	2	150	
Boiler Room	main stm header to pressure/to atm	1	Valve	Gate Valve	4	100	

FIELD INSULATION ENERGY SURVEY



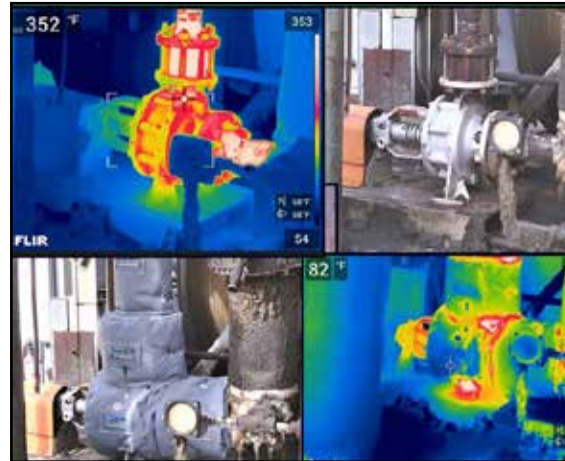
### Installation:

- Installation Services
  - For all products.
  - For both merit and non-merit labor.
  - Fully insured and follow the ISNetworld® and PIC/S guidelines.



### Reporting:

- Reporting
  - Measurement and verification reporting using picture-on-picture thermography.
  - Define savings within 5% error rate.



FIELD PROJECT MANAGEMENT

### Sound Testing:

- Sound Testing
  - Mechanical equipment, both pre and post installation.
  - Measurements using a Class A digital meter.
  - Follows ANSI/AHR (formerly ARI) 575 test methods for liquid chillers.
  - Capture both dBA and octave band measurements.



SOUND PRESSURE LEVEL MEASUREMENTS - AHRI-575 TEST METHOD

# Energy Survey SAMPLE



**Presented By:** Shannon Global Energy Solutions  
**Phone/Email:** (716) 693-7954  
**Project Name:** Sample Steam System  
**Shannon Project #:** 18667

**Survey Date:** 2/13/2023  
**Steam Cost:** \$12.50  
**Product Specification:** LT450SS  
**Insulation Thickness:** 1.5 Inches  
**Fastener Type:** (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>Boiler Room Blr 1,2,&amp; 3</b>								
3	300-Stop Check Valve	92	353	8760	31,372.3	\$3,435.27	2,481.80	\$271.76
3	NPT-Reducer	92	358	8760	9,381.1	\$1,027.23	742.1	\$81.26
3	300-Gate Valve	92	349	8760	20,466.4	\$2,241.07	1,943.0	\$212.76
3	300-Orifice Flange	92	334	8760	6,792.0	\$743.73	644.8	\$70.61
3	10 Deep-Manway	92	361	8760	19,387.4	\$2,122.92	1,533.7	\$167.94
6	300-Safety Relief Valve	92	323	8760	12,246.5	\$1,340.99	1,162.6	\$127.31
6	10 Deep-Manway	92	352	8760	37,477.4	\$4,103.78	2,964.8	\$324.65
<b>Level Gauge-LWCO Piping</b>								
6	NPT-3 Fitting Assembly	85	349	8760	9,123.8	\$999.06	2,183.9	\$239.14
6	NPT-8 Fitting Assembly	85	343	8760	23,777.3	\$2,603.61	5,691.4	\$623.21
6	NPT-4 Fitting Assembly	85	335	8760	11,520.0	\$1,261.44	2,757.5	\$301.94
3	Generic-Level Gauge	85	351	8760	3,083.5	\$337.64	631.8	\$69.18
6	NPT-4 Fitting Assembly	85	340	8760	11,750.4	\$1,286.67	2,812.6	\$307.98
3	1.5-NPT-LWCO Valve	85	345	8760	18,645.1	\$2,041.64	4,463.0	\$488.69
<b>Bottom of Boilers</b>								
3	10 Deep-Manway	80	350	8760	14,826.2	\$1,623.47	2,015.7	\$220.72
<b>Main Steam Header</b>								
2	300-Blind Flange Cap	93	349	8760	7,427.7	\$813.33	705.2	\$77.22
3	300-Gate Valve	93	345	8760	20,068.2	\$2,197.47	1,905.2	\$208.62
2	300-Gate Valve	93	346	8760	8,941.9	\$979.13	848.9	\$92.96
2	300-Gate Valve Bonnet	93	346	8760	6,313.0	\$691.27	599.3	\$65.63
2	250-Gate Valve Bonnet	93	346	8760	9,249.5	\$1,012.62	878.1	\$96.15

## Energy Survey Summary sample

Total Heat loss - BARE (BTU/Year):	2,469,003,973.26
Total Heat loss - w/ INSULATION (BTU/Year) :	323,818,226.65
<b>Total Heat loss SAVINGS - w/ INSULATION (BTU/Year):</b>	<b>2,145,185,746.61</b>
<b>(Therms/Year):</b>	<b>21,457.01</b>
Total Annual Operating (Steam Cost) - BARE:	\$30,862.55
Total Annual Operating (Steam Cost) - w/ INSULATION:	\$4,047.73
<b>Annual (Steam Cost) SAVINGS - w/ INSULATION:</b>	<b>\$26,814.82</b>
<b>*Lifetime (Steam Cost) SAVINGS (15 Yrs):</b>	<b>\$363,206.55</b>
Total Cost (Thermal Blanket System):	\$33,710.78
Installation (By Shannon):	\$5,305.00
<b>Total Cost:</b>	<b>\$39,015.78</b>
Payback (Months):	17
ROI	68.7%
Number of Fittings	71

## Utility Rebates Applied samples

Therms Saved 21,457.01	Rebate #1 0.50/Therm	Therms Saved 21,457.01	Rebate #2 \$1.50/Therm
Blanket System Cost	<b>\$39,015.78</b>	Blanket System Cost	<b>\$39,015.78</b>
Minus Rebate	-\$10,728.50	Minus Rebate	-\$32,185.52
Final Cost with Rebate	<b>\$28,287.28</b>	Final Cost with Rebate	<b>\$6,830.26</b>
Payback period with Rebate	12.7 months	Payback period with Rebate	3.1 months

## Sustainability Measures sample

Emissions Savings #1 NATURAL GAS (mm BTU):	2,145.19	Emissions Savings #2 #6 FUEL OIL (mm BTU):	2,145.19
CO2 (tons)	125.61	CO2 (tons)	191.60
NOx (lbs)	321.86	NOx (lbs)	843.08
VOC (lbs)	11.54	VOC (lbs)	24.64

**Gallons of Water Saved (Gal./Year): 257,422.29**



Shannon Global Energy Solutions  
 75 Main Street, P.O. Box 199  
 North Tonawanda, NY 14120 USA  
 www.shannonglobalenergy.com  
 (716) 693-7954 • FAX (716) 693-1647

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