

Shannon
GLOBAL ENERGY SOLUTIONS

Removable Reusable Blanket Insulation

THERMAL ACOUSTIC SAFETY SUSTAINABILITY

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

APPA ASHRAE Proud Member of NIA National Insulation Association® ISNetworld® MEMBER CONTRACTOR

Awards

nationalgrid TOP PARTNER ENERGY EFFICIENCY 2022 · SAFETY PLATINUM · TOP PRODUCT 2020



Shannon
GLOBAL ENERGY SOLUTIONS

THERMAL ACOUSTIC SAFETY SUSTAINABILITY

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



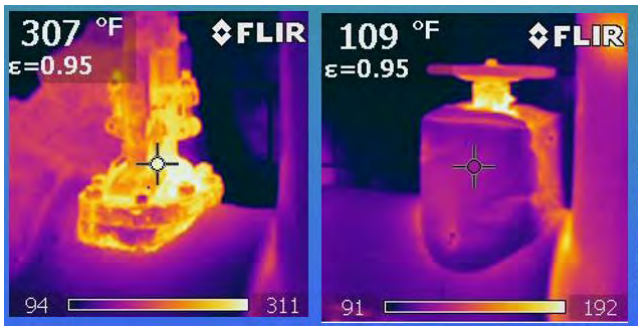


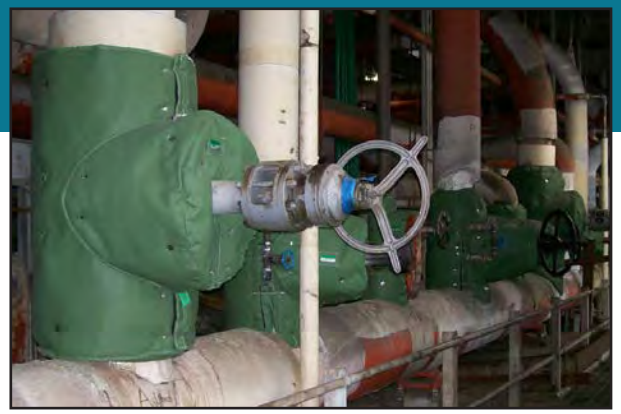
1. Side release buckle with nylon strap fastener
2. Stainless steel wiretwist fastener
3. D ring strap fastener with Velcro® tab

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

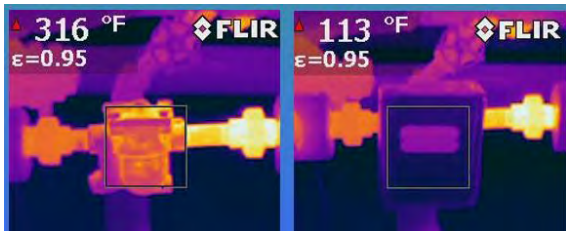
Operating Temp.	Thickness	Surface Temp.	Thickness	Surface Temp.	Thickness	Surface Temp.
250°F (121°C)	1″	100.2°F	1.5″	92.0°F	2″	87.4°F
300°F (149°C)	1″	108.6°F	1.5″	98.2°F	2″	92.3°F
350°F (177°C)	1″	117.2°F	1.5″	104.6°F	2″	97.4°F
400°F (204°C)	1″	126.0°F	1.5″	111.2°F	2″	102.7°F
450°F (232°C)	1″	135.0°F	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

CAD designed for exact fit • CNC produced for accuracy & quality • OSHA compliant solutions • System tested to ASTM, UL & ISO, for each blanket design

Heat Shield Insulation

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



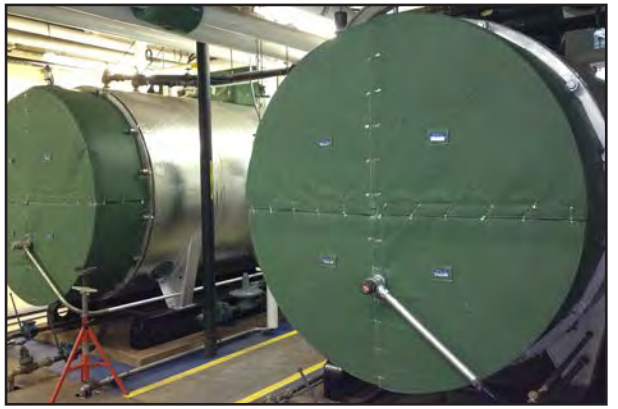
- Cost-effective, thin wall insulation solution
- We have a Heat Shield design to match any field condition, custom or standard
- Mitigate risk factors of employee burns, lost workdays, recordable incidents
- Addresses OSHA 1910.261(k)(11), 1910.262(9), 1910.23(3) for hot surfaces

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 STEAM TRAP



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

CAD designed for exact fit • CNC produced for accuracy & quality • OSHA compliant solutions • System tested to ASTM, UL & ISO, for each blanket design

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

- 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



LT450TT DISTILLERY PUMP STATION

Applications: Process Equipment, Heat Exchangers, Pumps, Tanks, Piping, Vessels, Manways, 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 overall manufacturing process.



LT550LFP - SIDE RELEASE BUCKLE STEAM PASTEURIZER

FDA: CFR 177.1550 / CFR 178.3297 /
EU: RoHS 2002/95/EC

ASTM: C335/E-84, E-136

CAD designed for exact fit • CNC produced for accuracy & quality • OSHA compliant solutions • System tested to ASTM, UL & ISO, for each blanket design

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



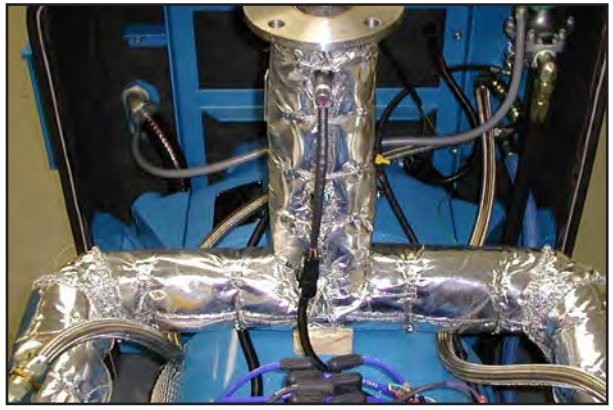
LT450SS, LT500HS-TC BOILER HEAD FEED WATER PIPING ECONOMIZER

CAD designed for exact fit • CNC produced for accuracy & quality • OSHA compliant solutions • System tested to ASTM, UL & ISO, for each blanket design

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 effiency 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



MT800SGM ENG EXHAUST PIPING, ELBOWS, FLANGES & EXP JOINTS

Shannon Thermal Blankets meet testing standard ASTM C335.

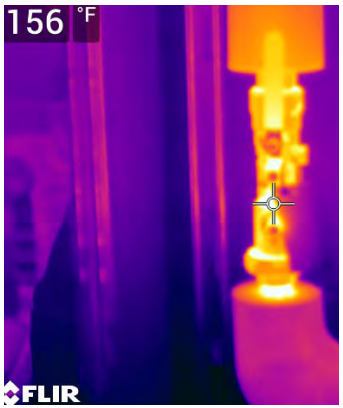
The Acoustic Blankets meet test standards ASTM-E1222 and ISO-15665, while reducing sound by 4 to 10 dBA.

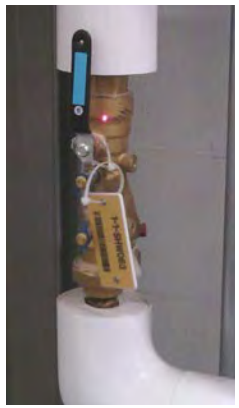
- Removable & Reusable • Integral fasteners • Self-contained & easy to install • Standard warranty of up to 10 years • ID Plate, or Label for easy identification

HYDRONIC Insulation Shield™

For Chilled Water and Hot Water Systems

- Shannon shields insulate problematic, untreated, uninsulated Hydronic components
- Sustainability 101, insulate complex surfaces, capture radiant heat
- Save energy, save money, lower ambient temperature, lower your carbon footprint
- Valves, strainers, flanges, pump housings, heat exchangers, etc.
- Hot Water to Hot Water Systems
- Steam to Hot Water Systems
- Chilled Water Systems





1" NPT Control Valve:
Thermographic image showing bare fitting temperature.



HS250VPEF VALVE AND STRAINER



HS250VPEF VALVE AND STRAINER



HS250VPEF 3" - 150# CIRCUIT BALANCING VALVE



Integral Fasteners for easy on and off



Removable & Reusable for years of use



Hard Insulation Removed for access
Results in waste and uninsulated components

CAD designed for exact fit • CNC produced for accuracy & quality • OSHA compliant solutions • System tested to ASTM, UL & ISO, for each blanket design

Shannon offers Hydronic Insulation Shield™ for **Commercial Buildings and Public Facilities**

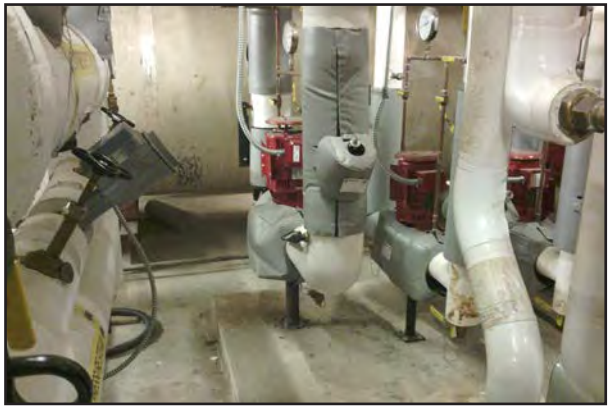
- Higher Education Campuses
- Hospitals and Healthcare
- Sports Facilities
- Government Buildings
- Large Apartment Complexes



HS250VPEF PLATE & FRAME HEAT EXCHANGER



HS250VPEF CONTROL VALVES AND GATE VALVES



HS250VPEF FLANGED VALVES



HS250VPEF FLANGED VALVES



HS250VPEF CONTROL VALVES AND GATE VALVES

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



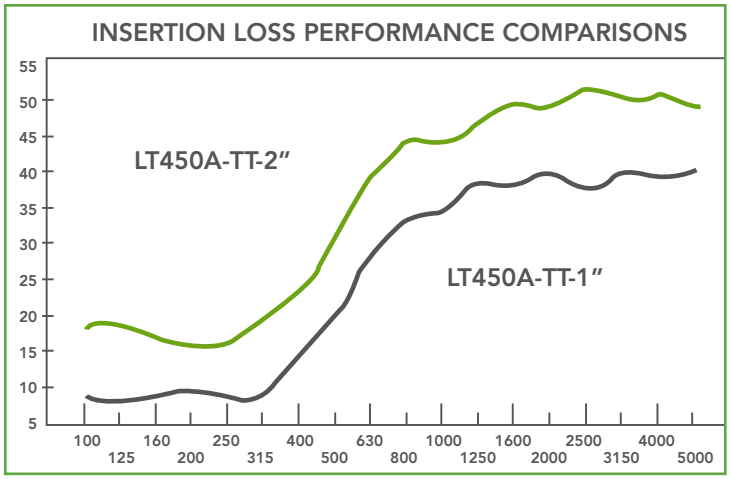
LT450A-TT SPLIT CASE PUMP 24x20-36 (6 dBA REDUCTION)



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



LT250A-VP CENTRIFUGAL LIQUID CHILLER (8 dBA REDUCTION)



107dBA SOURCE	A-WEIGHTED MEASUREMENTS		LINEAR WEIGHTED MEASUREMENTS	
Test Frequency (in Hz)	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

CAD designed for exact fit • CNC produced for accuracy & quality • OSHA compliant solutions • System tested to ASTM, UL & ISO, for each blanket design

Acoustic Shield Insulation



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)

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

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)

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



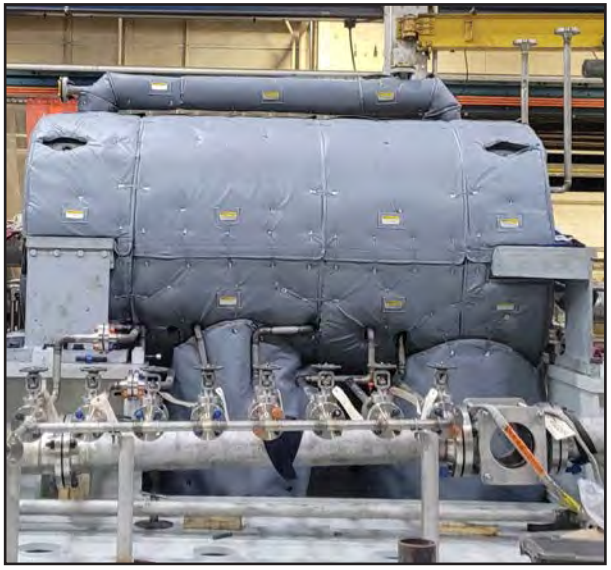
LT250A-VP CENTRIFUGAL LIQUID CHILLER (4 dBA REDUCTION)

- 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)



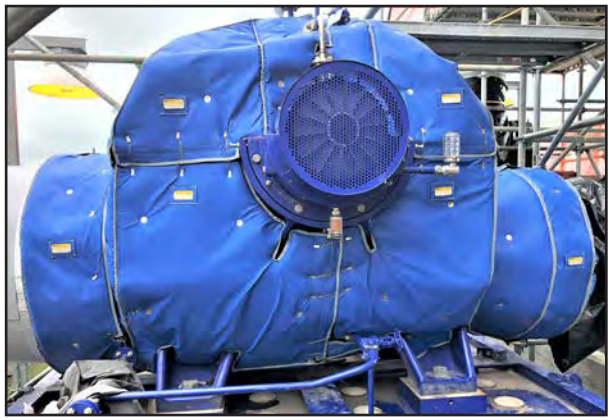
LT450A-TT INDUSTRIAL FAN HOUSING (8-10 dBA REDUCTION)

CAD designed for exact fit • CNC produced for accuracy & quality • OSHA compliant solutions • System tested to ASTM, UL & ISO, for each blanket design

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



FB2000SSiSSi 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



FB2000MSSiSSiM 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

CAD designed for exact fit • CNC produced for accuracy & quality • OSHA compliant solutions • System tested to ASTM, UL & ISO, for each blanket design

Product Specifications

A Specification Library of Designs to Meet Every Application & Condition

See Our Website For Additional Specifications: www.shannonglobalenergy.com

Thermal Blankets and Shields

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

Acoustic Blankets and Shields

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

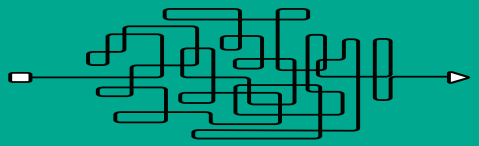
Specification	Product	Service	Attribute	Temp	Test Standard
SSS-500-AAAS	Safety Spray Shield	Oil & Gas Process	Non-Porous	500˚F	Mullen ASTM-D3786
SSS-500-TAFT	Safety Spray Shield	Oil & Gas Process	Non-Porous	500˚F	Mullen ASTM-D3788

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
FB2000SSiSSi	Passive Fire Protection	Fire Protection/OEM	Risk Mitigation	2000˚F	UL-1709 / ASTM E-84

The Problems We Solve

COMPLEX INSTALLATION ISSUES



Installing traditional insulation on large or intricate systems is labor-intensive, error-prone, and costly.

SOLUTION

- **Engineered Fit:**

Tailored to the dimensions of the asset, reducing installation time and ensuring optimal coverage.

- **Integral Fasteners:**

Minimizing labor and downtime.

- **Metal Embossed ID plates:**

Each blanket is tagged in order of installation sequence.

RESULTS



- **Ease of Installation:**

Clients can easily install, remove as needed, and re-install Shannon insulation blankets for optimal performance and long service life.

MAINTENANCE CHALLENGES



Traditional insulation is difficult to remove and generally unable to be reinstalled during maintenance, leading to waste and energy loss.

SOLUTION

- **Removable and Reusable Insulation:**

Shannon blankets are designed for easy removal and reinstallation, streamlining maintenance workflows.

- **Durable Materials:**

Withstand repeated handling and harsh environments,

RESULTS

- **Time Savings**

Maintenance teams save signifi-cant time and effort, improving operational efficiency.

- **Long Term Performance**

SAFETY HAZARDS



High surface temperatures on uninsulated equipment pose serious risks, including burns and injuries, which lead to higher liability and compliance costs.

SOLUTION

- **Thermal Protection:**

Shannon's insulation blankets reduce surface temperatures by 70%, creating a safer work environment.

- **Engineered Fit & Finish:**

The precision-engineered design ensures every critical surface is covered, eliminating exposure risks.

RESULTS

- **OSHA Compliance:**

Helps facilities meet safety standards and avoid penalties.

- **Worker Safety in Mech Rooms:**

Reduces burn & ambient heat stress risk.

The Problems We Solve

LOUD EQUIPMENT



Unwanted or dangerous noise levels according to OSHA or community ordinance from Compressors, Pumps, Small Steam Turbines, Liquid Chillers, Oil Separators, Process Valves, Piping, Fans, Blowers, etc.

SOLUTION

- **Reusable Acoustic Insulation Blankets:**

Lower noise levels on equipment by capturing sound energy through sound reflection and absorption.

- **Noise Audits:**

Free acoustic surveys identify critical areas of equipment noise and quantify potential decibal reduction.

RESULTS

- **Decibel Reduction, Noise Ordinance / OSHA Compliance**

Lower sound levels to reduce the noise energy and improve workplace safety.

HIGH ENERGY COSTS



Many industrial and commercial facilities experience significant energy loss due to uninsulated or poorly insulated equipment, valves, and piping. This inefficiency increases operating costs and reduces profitability.

SOLUTION

- **Reusable Insulation Blankets:**

Custom-engineered to fit valves, fittings, flanges, and piping. They reduce heat loss, maintaining thermal efficiency and minimizing energy waste.

- **Energy Audits:**

Free energy audits identify critical areas of heat loss and quantify potential savings.

RESULTS

- **Proven Savings**

Clients have saved over $620 million collectively in energy costs, setting a global standard for thermal efficiency.

SUSTAINABILITY GOALS

Organizations face growing pressure to meet environmental and sustainability targets by reducing energy consumption and carbon emissions.

SOLUTION

- **Carbon Footprint Reduction:**

By minimizing energy waste, Shannon insulation solutions directly lower greenhouse gas emissions.

- **Energy Audits:**

Free energy audits identify critical areas of heat loss and quantify potential savings.

RESULTS - Collectively

- **Proven Savings:**

Over $620 Million in energy cost savings via thermal efficiency.

- **Emissions Reduction:**

Over 3 Million Tons of CO_2

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



Energy Survey Methodology

How Do We Initiate a Survey?

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

Site Visit

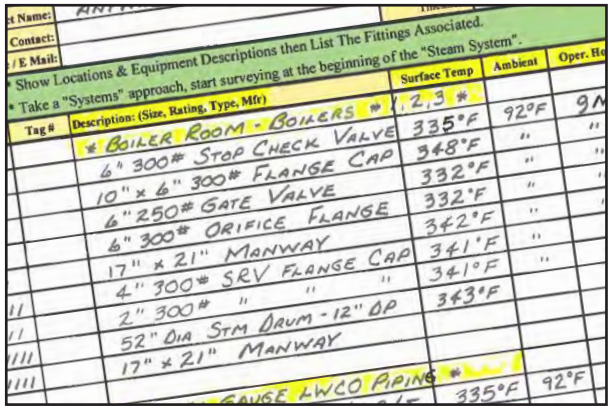
A Shannon GES Sales Engineer will meet with you and the project representative at the site to walk through the steam system.

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.


Show Locations & Equipment Descriptions then List The Fittings Associated.
Take a "Systems" approach, start surveying at the beginning of the "Steam System".

Tag #	Description: (Size, Rating, Type, Mfr)	Surface Temp	Ambient	Oper. Hr
	BOILER ROOM - BOILERS	1, 2, 3		
	6" 300# STOP CHECK VALVE	335°F	92°F	9N
	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			
	GANGE LWCO PIPING	335°F	92°F	

DESCRIPTIVE TALLY OF CANDIDATES FOR INSULATION



DOCUMENT & RECORD SURFACE TEMPERATURES



THERMOGRAPHIC IMAGING MEASUREMENTS


Shannon
GLOBAL ENERGY SOLUTIONS

Room	Sub Location	Qt	Fitting Typ	Fitting	Size	Rating	Leng
Boiler Room	main stm header hi pressure/lp stm	1	Pipe	Pipe	8		
Boiler Room	main stm header hi pressure/lp stm	1	Elbow	LR Elbow	8	300	
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Safety Relief V	8	300	
Boiler Room	main stm header hi pressure/lp stm	1	String	2 Fitting Assem	2	NPT	
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Pressure Redu	2	NPT	
Boiler Room	main stm header hi pressure/lp stm	1	String	2 Fitting Assem	2		
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Gate Valve	3	150	
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Gate Valve	3	300	
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Pressure Redu	3	300	
Boiler Room	main stm header hi pressure/lp stm	1	Stm_Fitting	Strainer	3	300	
Boiler Room	main stm header hi pressure/lp stm	1	Elbow	LR Elbow	3	300	
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Gate Valve	2	300	
Boiler Room	main stm header hi pressure/lp stm	1	Stm_Fitting	Strainer	2	150	
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Pressure Redu	2	150	
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Safety Relief V	2	150	
Boiler Room	main stm header hi pressure/lp stm	2	Pipe	Pipe	2		
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Gate Valve	2	150	
Boiler Room	main stm header hi pressure/lp stm	1	Valve	Gate Valve	3	150	

FIELD INSULATION ENERGY SURVEY

Installation:

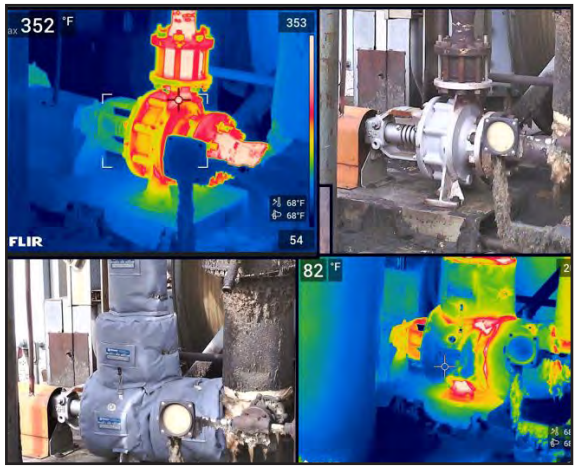
- Installation Services
  - For all products.
  - For both merit and non-merit labor.
  - Fully insured and follow the ISNetworld® and PIC/S guidelines.





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

Shannon GLOBAL ENERGY SOLUTIONS

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)
Boiler Room Blr 1,2,& 3								
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
Level Gauge-LWCO Piping								
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
Bottom of Boilers								
3	10 Deep-Manway	80	350	8760	14,826.2	$1,623.47	2,015.7	$220.72
Main Steam Header								
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
Total Heat loss SAVINGS - w/ INSULATION (BTU/Year):	**2,145,185,746.61**
(Therms/Year):	**21,457.01**
Total Annual Operating (Steam Cost) - **BARE:**	$30,862.55
Total Annual Operating (Steam Cost) - **w/ INSULATION:**	$4,047.73
Annual (Steam Cost) SAVINGS - w/ INSULATION:	**$26,814.82**
***Lifetime (Steam Cost) SAVINGS (15 Yrs):**	**$363,206.55**
Total Cost (Thermal Blanket System):	$33,710.78
Installation (By Shannon):	$5,305.00
Total Cost:	**$39,015.78**
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	**$39,015.78**	Blanket System Cost	**$39,015.78**
Minus Rebate	-$10,728.50	Minus Rebate	-$32,185.52
Final Cost with Rebate	**$28,287.28**	Final Cost with Rebate	**$6,830.26**
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

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