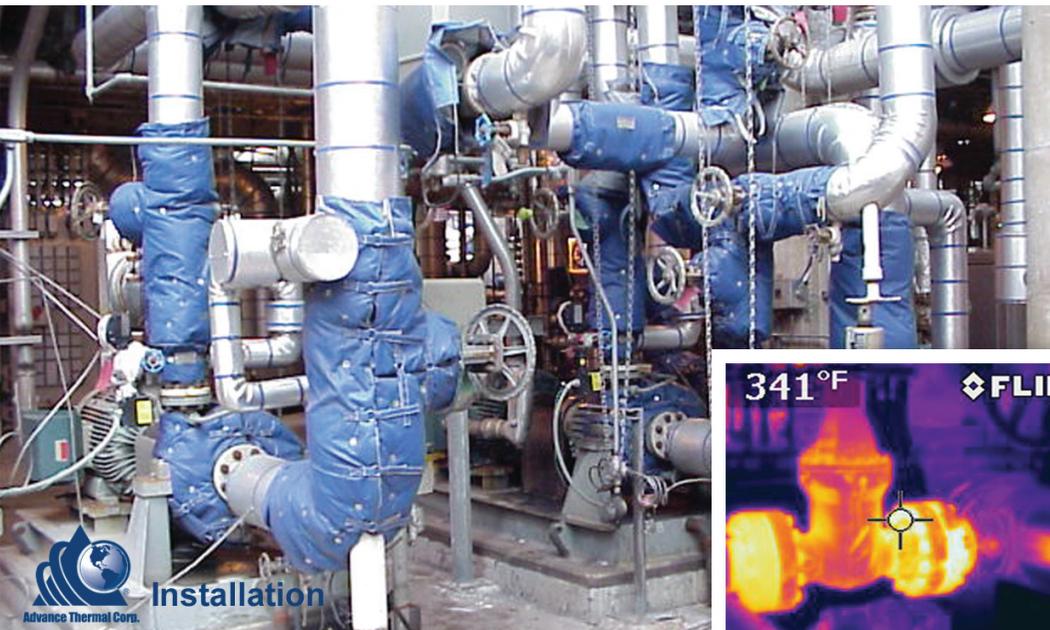


SAVING ENERGY BY INSULATING STEAM AND HOT WATER SYSTEMS



“By insulating a single steam valve, Advance Thermal Corp.’s removable and reusable insulation covers reduced surface temperature by 283.3F”



Before & After HEATAINER³

Major industrial and institutional energy users, as well as energy service companies are turning to Advance Thermal Corp’s HEATAINER removable/reusable insulation covers, as aggressive energy conservation initiatives are taking center stage once again. Large energy users are waking up to the fact that the cost of energy now accounts for between 10% and 15% of total operating costs. Utility cost reductions, even the most modest ones, can significantly improve profitability.

Uninsulated valves, strainers, as well as other steam and hot water system components can be a major source of costly heat loss. Keeping these serviceable components properly insulated is an on-going energy conservation and maintenance challenge. The infrared image above shows an uninsulated 10” steam valve with a surface temperature of 341 degrees F (approximately 125 PSI steam pressure). This uninsulated valve is losing 111 MMBtu/year and is costing the facility \$1,113.00 annually in heat loss.

After the HEATAINER removable/reusable insulation cover was installed, the surface temperature was reduced to 57.7 degrees F. Insulating this valve with a HEATAINER removable/reusable insulation cover will reduce the annual heat loss to 4.45 MMBtu. The facility will save \$1,070.00 in annual energy costs from this single valve cover and approximately \$21,000 over the 20 year expected life of ATC product. The payback on initial investment was 10.4 months.**

**Continuous steam operation. \$9.95 cost/MM Btu.
80F ambient condition. 2 MPH wind.

ENERGY CONSERVATION AND REDUCED FUEL CONSUMPTION

Energy conservation and reduced fuel consumption are major reasons for many facilities to utilize HEATAINER removable/reusable insulation covers. ATC products also provide a number of additional benefits.

Facilities report dramatic reductions in ambient temperatures in mechanical equipment rooms, distribution tunnels and manholes, boiler plants and process areas. Reduced ambient temperatures have been shown to provide an increased measure of personnel protection and comfort, along with improvements in productivity. These reductions can also extend the operating lives of expensive instrumentation and process equipment.

Facility maintenance personnel acknowledge that in the normal course of steam or process system maintenance, valve insulation usually gets removed to repair leaks, maintain valves or lubricate joints. Rarely does the insulation get replaced. HEATAINER removable/reusable insulation covers can easily be removed and re-installed in minutes, without any special tools or installation skills. ATC also stocks jacketing materials in a variety of colors.

In addition to valves and strainers, HEATAINER removable/reusable insulation covers can be designed for valve bonnets, hot water heaters, heat exchangers, pressure relief valves, flanges, manways, steam traps, process piping, boiler doors, pumps, instrumentation and expansion joints.



ENERGY CONSERVATION

ENERGY SAVING REMOVABLE INSULATION COVERS

THE HEATAINER® SYSTEM



Jeff Dean and George Kirwan, University of Louisville staff engineers.

The University of Louisville and Siemens Industry, Inc. chose Advance Thermal Corp's HEATAINER removable/reusable insulation system as part of its aggressive multi-million dollar energy conservation initiative. The multi-year agreement, announced in 2008, called for Siemens to complete an extensive audit of the university's Belknap campus, provide the university with a list of possible facility improvement measures to consider and assist the university in the funding of the initiative.

"Siemens presented 185 measures for us to consider," George Kirwan, U of L staff engineer, says. As part of its report, Siemens strongly recommended to Kirwan and his associate, Jeff Dean that Advance Thermal Corp.'s HEATAINER removable/reusable insulation system be installed.

Advance Thermal conducted a thorough evaluation and survey of all 60 Belknap campus buildings targeted by Siemens. After the analysis was completed, over 700 removable/reusable insulation covers were installed on the campus by Advance Thermal. Siemens estimates that the HEATAINER system will reduce the University of Louisville's BTU consumption by 12,874 mmbtu/year. This will result in an annual savings of \$77,815.

"Siemens presented one hundred and eighty five facility improvement measures for us to consider," George Kirwan says. "Although removable insulation isn't one of the more high tech or dramatic measures, the HEATAINER® System provides a very appealing payback when you consider the money spent"

Energy Savings

The table below summarizes energy savings due to the use of insulating valve covers for a range of valve sizes and operating temperatures. These values were calculated using a computer program that meets the requirements of ASTM C 680—Heat Loss and Surface Temperature Calculations. The energy savings is defined as the difference in heat loss between the uninsulated valve and the insulated valve operating at the same temperature.

Energy Savings* from Installing Removable Insulated Valve Covers (Btu/hour)						
Operating Temperature, °F	Valve Size (inches)					
	3	4	6	8	10	12
200	800	1,090	1,560	2,200	2,900	3,300
300	1,710	2,300	3,300	4,800	6,200	7,200
400	2,900	3,400	5,800	8,300	10,800	12,500
500	4,500	6,200	9,000	13,000	16,900	19,700
600	6,700	9,100	13,300	19,200	25,200	29,300

*Based on installation of a 1-inch thick insulating pad on an ANSI 150-pound class flanged valve with an ambient temperature of 65°F and zero wind speed.
From U.S. Department of Energy, Energy Tips, Steam Tip Sheet #17 • April 2004

Energy Conservation Results at University of Louisville

Proper insulation saves \$77,815 per year in energy

As part of the University of Louisville's multi-million dollar energy conservation program, Siemens and Advance Thermal Corp. evaluated the complete steam and hot water systems.

Keeping steam valves, pressure reducing valves, strainers and other serviceable system components properly insulated is an on-going energy conservation challenge, Jeff Dean, University of Louisville staff engineer explains. "In the normal course of steam system maintenance valve insulation usually gets removed to repair leaks, etc. and rarely gets replaced. The energy losses can be significant."



"We were impressed with the quality of the materials and workmanship we saw in Advance Thermal's product. Their 'D' ring fasteners and sewn-in belt attachments also appealed to us, along with the permanent identification tag fastened to each cover."

George Kirwan, University of Louisville, staff engineer

ENERGY EVALUATION

The evaluation was designed with two objectives:

1. To identify the uninsulated steam and condensate return system components and recommend opportunities for energy and operating cost reductions.
2. To record and analyze the actual surface operating temperatures of the uninsulated components.

The surface operating temperatures measurements are important. Siemens uses this data in its measurement and valuation analysis of the removable insulation portion of the project.

Insulating steam valves and other system components with a removable/reusable system will provide immediate financial and operating benefits. "Siemens estimated a project payback of only 2.83 years." Kirwan says, "This was a facility improvement measure that made total sense. And the long-term savings over the estimated life of the system could be \$1 million or more."

"George and I have known that removable/reusable insulation, as well as other energy conservation projects, could significantly reduce our fuel consumption," says Jeff Dean, University of Louisville staff engineer.

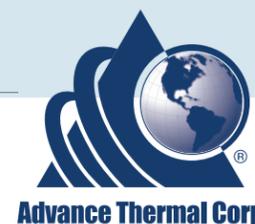
"The commonwealth just hasn't been able to provide us the funding to make these common sense improvements. Now we have it."

"The university has made great strides in energy conservation and environmental initiatives in the past; but, as a publicly funded university they have not had the financial resources available to make the major improvements needed to achieve their objectives," said Michael Azzara, for Siemens. "We're pleased that U of L chose Siemens to help bring these initiatives to reality. And we're also pleased to have partners such as Advance Thermal Corp. as part of the team."



Manufacturing the best engineered, removable insulation systems for over 30 years.

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Energy Conservation Project Development Details

On-Site Analysis

An Advance Thermal Corp energy appraiser, certified by the National Insulation Association, will meet with the facility's management, engineering, and maintenance personnel. The objective of this initial meeting is to develop a clear understanding about the various types of systems and processes that are unique to the facility.

Information about fuel and related costs, boiler efficiencies and other important operational details is gathered. A preliminary walk through is conducted and opportunities for insulation-related energy conservation and operating cost reductions are noted.

Detailed Cost and Energy Savings Analysis

Pertinent information gathered during all visits is entered into ATC's proprietary energy analysis software program. A detailed savings analysis is generated. The analysis will show:

Surface temperatures and BTU losses of un-insulated components and piping.

Projected surface temperatures and BTU losses of insulated components and piping.

Payback analysis showing return on investment projections along with expected BTU savings estimates.

Project Coordination Services

Upon receipt of an order, ATC field personnel will complete the following important tasks:

Collect all the important dimensional data required to design and fabricate each of the HEATAINER removable/reusable insulation covers required on the project.

Each component to be insulated will be identified and either tagged or marked.

Coordinate any installation details with ATC-certified insulation contractors or facility maintenance personnel. Special attention is paid to scheduling and plant safety requirements.

Custom Cover Designs

Each cover is individually designed using ATC's proprietary CAD-CAM design system. **HEATAINER** removable/reusable insulation covers are designed to fit the unique shape of each component to maximize the energy savings results.

Fabrication

ATC covers are fabricated at one of our three fully integrated production facilities. The covers are constructed using the highest quality materials and industry leading fabrication techniques. ATC is ISO 9001:2008 certified.

Project Completion

Once the covers are fabricated and have been cleared for release by ATC's quality control department:

Completed covers are shipped to the jobsite or facility via UPS or common carrier. Shipments are generally segregated by location or building for ease of control. Each box has a detailed contents list and installation drawings (if required).

HEATAINER covers are identified by a laser marked, stainless steel tag that is permanently affixed to each cover. Each tag has an item number that corresponds to the tag or marking on the insulated component. Each stainless steel tag also provides a description and location of the component along with an ATC project number. These details are recorded and stored in ATC's database making future re-orders easy to produce.

If Advance Thermal Corp is responsible for the installation, an ATC installer or an ATC-certified insulation contractor will complete the project at the jobsite. All ATC installers have completed the Office of Homeland Security's security screening and approval process. They also have completed the ATC safety training program and conform to all of ATC's safety guidelines.

100% Satisfaction Guarantee

For 24 years Advance Thermal Corp has been proud to assist its clients in achieving their energy conservation, personnel protection and operational efficiency objectives. By providing both an exceptional removable/reusable insulation product and superior customer service, Advance Thermal Corp built a reputation as the industry leader.



ABOUT ADVANCE THERMAL CORP.

For more than 30 years, the company pioneered and manufactured the most durable, removable insulation jackets in North America. With three production facilities, Advance Thermal Corp. supports local, nationwide and international industrial customers. Using the highest grade jackets and insulation materials, the company's products last within the harshest industrial environments.

An ISO 9001:2008 and NuPIC registered company. Advance Thermal Corp. is an exceptional, consistent and reliable partner to industrial companies, industrial insulation contractors and OEMs providing a wide range of removable insulation systems for fittings and mechanical equipment.



Manufacturing the best engineered, removable insulation systems for over 30 years.

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