THE STEAMGARD SYSTEM®

WORLD CLASS TECHNOLOGY
FOR A WORLD OF STEAM

STEAMGARD

ENGINEERING RESOURCES inc.

WORLD CLASS TECHNOLOGY FOR A WORLD OF STEAM

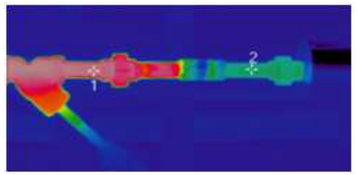
The Pioneer in Modified Venturi Nozzle Technology

With an innovative heritage of engineering excellence that spans more than four decades, STEAMGARD is the leader in optimizing the performance of steam systems worldwide.

THE STEAMGARD SYSTEM® is a proprietary technology which utilizes a modified venturi nozzle and knowledge of two-phase flow for the removal of condensate from steam systems. It is used in applications ranging from industrial facilities to United States Navy aircraft carriers, hotels, manufacturing plants, universities, hospitals and other institutions around the globe. Its benefits—reduced energy consumption, lower operating costs, improved productivity, enhanced safety and decades of virtually maintenance-free operation—are especially attractive to organizations pursuing Green Initiatives and seeking long-term economic gains.

The United States Department of Energy, in a 2008 report, wrote: “What DOE found was a patented U.S. manufactured technology that…presented a significant opportunity for energy efficiency, reduced maintenance, improved sustainability, and significantly longer useful life than mechanical steam traps… applying this technology creates significant life cycle cost benefits for any user, and improves the safety of the steam operations.”

STEAMGARD, LLC holds ISO 9001:2015 certification.



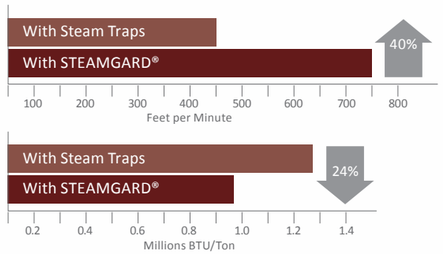
THE STEAMGARD SYSTEM® is energy efficient and effective in an ever-expanding array of industrial, institutional and commercial steam applications worldwide, including:

- Commercial Laundries
- Corrugated Manufacturing
- Food and Seed Processing
- Government and Military
- Hotels
- Institutions
  - Colleges and Universities
  - Hospitals
- Paper Manufacturing
- Petrochemical Processing
- Pharmaceutical Manufacturing
- Power Generation
- Textile Production

Improve Process Consistency

STEAMGARD recently completed an on-site inspection and analysis of a complete plant retrofit installation in continuous service for more than five years. The units were installed at a facility operated by one of the world’s premier processors of grains, oilseeds and other agricultural commodities. In a year-to-year comparison, the facility earned a project payback of less than 12 months while increasing process consistency and reducing its carbon footprint.

Greater Productivity and Efficiency



1977

STEAMGARD begins operations with experiments and trial installations utilizing nozzles for removing condensate to develop effective replacements for traditional steam traps.

1980

STEAMGARD files first patent application showing a design utilizing a “modified venturi” nozzle.

1982

STEAMGARD conducts first comprehensive energy audit, to evaluate plant steam system, to propose energy- and cost-saving improvements and to establish guaranteed return on investment paybacks with THE STEAMGARD SYSTEM®.

1985

STEAMGARD expands its international operations with its first major plant conversion in a South African petrochemical plant.

1986

THE STEAMGARD SYSTEM® is installed at Drexel University, Philadephia, PA, and in the intervening period of three decades, no failures have been reported.

1990

STEAMGARD®s are installed for the first time in a nuclear-powered electrical generation facility.

1993

The Agency for International Development, the United States Army Corps of Engineers and the Bechtel Corporation retain STEAMGARD to conduct training related to environmental protection and steam technology in the Middle East.

1996

First STEAMGARD®s are tested, approved and installed on the USS Theodore Roosevelt, a Nimitz-class super carrier.

1997

In response to serious and continued water hammer incidents at the Rocky Flats Environmental Technology Site, U.S. Department of Energy investigating engineers “decided to replace the existing ‘bucket’ style steam traps with newer, more effective ‘venturi nozzle’ traps.” (i.e. Steamgard®)

2001

After the STEAMGARD conversion, Thomas Jefferson University, Philadelphia, PA, receives the Corporate Energy Management of the Year Award and the Energy Manager of the Year Award for 2001 from the Association of Energy Engineers.

2003

The Hunter Holmes McGuire Medical Center, a Veterans Administration facility in Richmond, VA, is awarded the Energy Star Building Award for Superior Performance in energy efficiency. The facility converted to THE STEAMGARD SYSTEM® in 2000.

2008

The United States Department of Energy calls for replacing “antiquated” mechanical steam trap technology “wherever possible” and cites venturi nozzle’s reliability and design in its “Benchmarking and Lessons Learned Report.”

2010

STEAMGARD® technology helps the world’s largest hotel—The First World Hotel—reduce energy costs 27 percent with virtually maintenance-free operation in two core steam system applications.

2019

An independent laboratory program, which was funded by major U.S. utility companies, confirms the benefits of STEAMGARD’s modified Venturi technology.

THE STEAMGARD SYSTEM®

World Class Technology For A World Of Steam

Our five-step methodology leverages our engineering expertise, our experience with steam systems in applications the world over and our commitment to helping every STEAMGARD customer use steam most efficiently.

1. Project Goals

We identify the chronic problems associated with traditional mechanical steam traps in use in your facility that can be remedied permanently with our modified venturi nozzle technology and engineering expertise. We look for trends; tabulate labor, parts and maintenance costs; and compile fuel consumption over time.

2. System Engineering Evaluation and Analysis

A STEAMGARD engineering team collects quantitative and qualitative data to develop a custom evaluation and analysis of your steam system. Our recommendations are based on this analysis and on our considerable experience with steam system applications like yours.

3. Installation/Retrofit/Commissioning

Our expert installation and retrofit teams are on-site to ensure efficient and high quality installations with minimal operational interruptions.

Three options are available: We can perform the installation; we can teach your staff and/or your local contractor how to install the STEAMGARD® units and monitor their work; or we can provide you with the documentation your staff can use to perform the installation prior to commissioning.

4. Measurement and Verification of Performance

Our engineers utilize procedures that conform to the U.S. Department of Energy and industry engineering standards to measure project performance following installation.

5. Extended Warranty/Inspection, Testing and Maintenance

The performance of THE STEAMGARD SYSTEM® is guaranteed for five years and, with additional services available to you, can be extended to the life of your service contract—up to 25 years.

THE STEAMGARD SYSTEM® replaces virtually all mechanical steam traps on all applications, up to:

- **3,000 PSIG / 206 BAR (g)**
- **and 950°F / 510°C**
- **from 0.5 inches to 4.0 inches**

STEAMGARD
ENGINEERING RESOURCES inc.

AudIT3 inc.
REGISTERED FIRM
ISO 9001:2015

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