



An Innovative Technology Company Providing Custom  
Energy and Emission Reduction Solutions



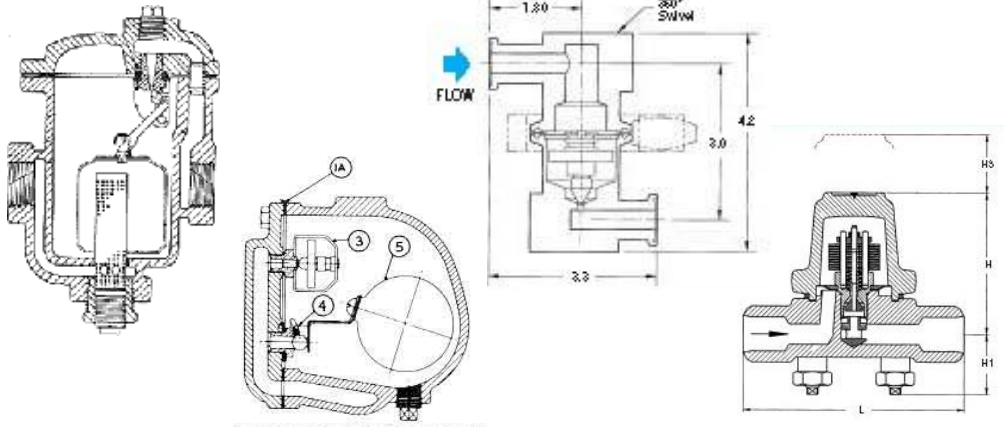
# **Thermal Energy International**

- GEM Steam Traps**
- FLU ACE Heat Recovery**

**Presented by**

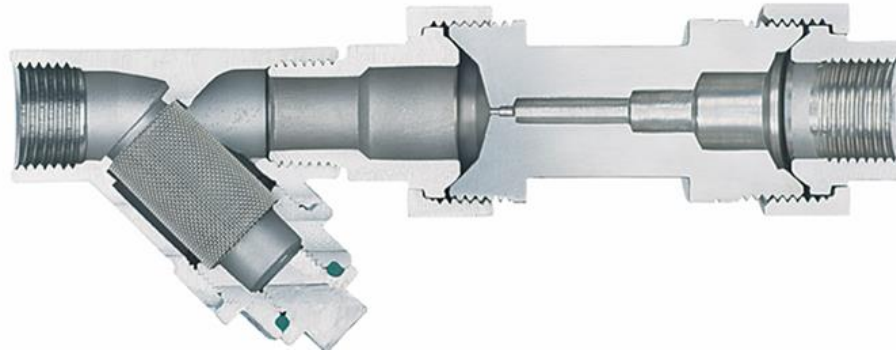
**Gary Brooks - Regional Sales Mgr.**

# The Problem with Mechanical Steam Traps



- Parts, Parts and More Parts
- High Failure Rates, ~10 to 30%
- Complex Mechanisms, Millions of Cycles
- Oversized Orifice, Significant Failure Path for Steam
- On/Off Operation
- Live Steam Passes to Operate Trap by Design

# What is a GEM Steam Trap?



## How the GEM CRS Works

- Each GEM Trap is Purpose Built
- Correct Sizing Guarantee
- Reduces Energy Consumption by Design
- Each GEM Trap is Fully Commissioned
- ALL GEM Traps (1) Piece Construction
- Eliminates Live Steam in Condensate System
- 10 Year Performance Guarantee

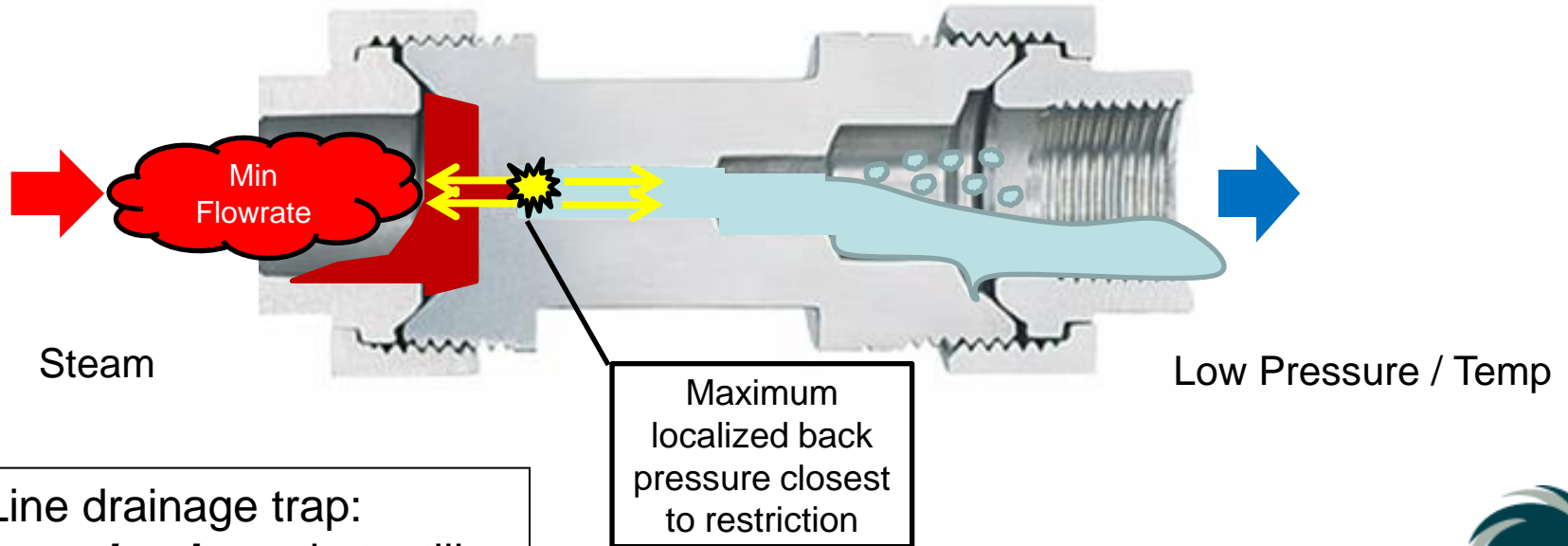


# How the GEM Venturi Trap Works

## How Does the GEM Trap Cope With Varying Loads

### AT MINIMAL LOAD

The different stages of the Venturi facilitate the required restriction point for flash expansion depending on the flow rate. It is this flash expansion that provides the required backpressure for any load



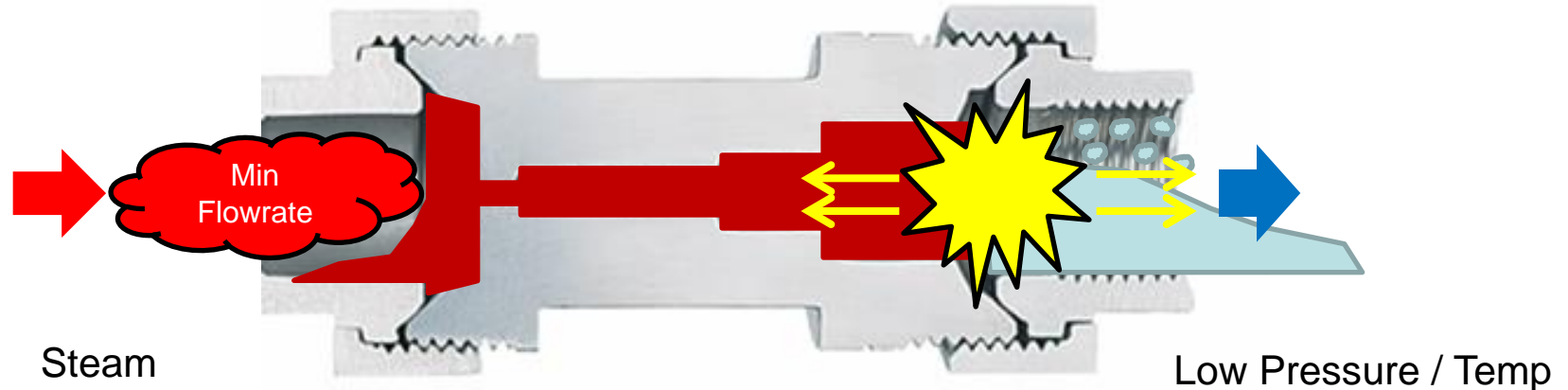
E.g. Line drainage trap:  
**Minimum load** on a hot, still  
summers day

# How the GEM Venturi Trap Works

## How Does the GEM Trap Cope With Varying Loads

### AT MAXIMUM LOAD

The different stages of the Venturi facilitate the required restriction point for flash expansion depending on the flow rate. It is this flash expansion that provides the required backpressure for any load



E.g. Line drainage trap:  
**Maximum load** on a cold or  
wet day



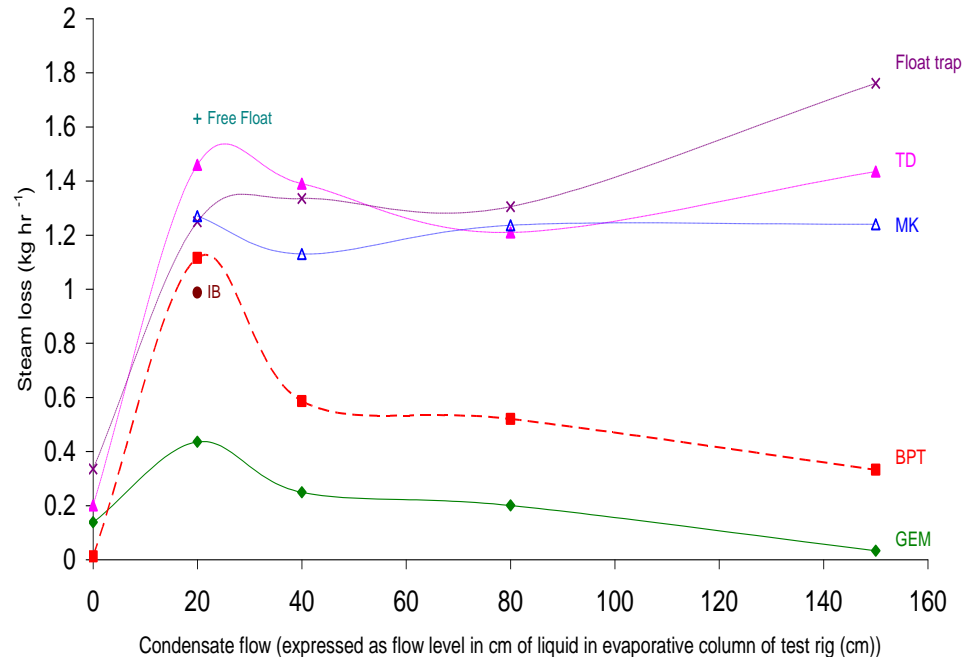
# Research Queen's University Belfast Feb 2004

## Method

- According to EN27841 Accepted Practice Among Trap Manufacturers
- New Mechanical Traps
- Over Varying Condensate Loads; 0% to 100%

## Results

- GEM Most Efficient Over Full Range of Load Conditions
- GEM Modulates its Capacity
- No Condensate Build Up in Front of GEM Traps

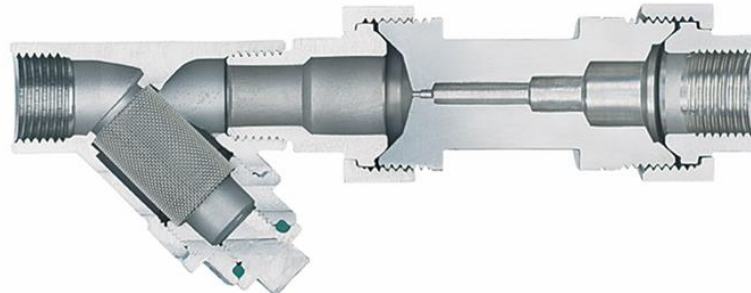


# GEM Trap Benefits

## Reliability



- Single Piece Stainless Steel Body – 303 or 316  
*NO MOVING PARTS*
- An Inverted Cone Trap Design Minimizes Possibility of Blockage
- Reinforced Strainer Basket with Large Surface Area
- All Joints on a GEM Trap are Sealed with SS Reinforced Graphite 'METACAM' Gaskets
- 100% Traceability on Each Trap Linking Back to the Design Conditions and Orifice Size





# 10 Year Performance Guarantee

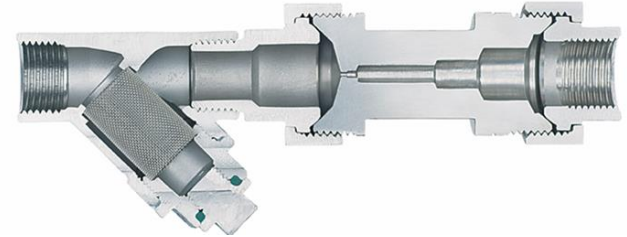


## 10 YEAR PERFORMANCE GUARANTEE

All GEM Steam Traps are guaranteed against wear or loss of performance for a period of 10 years from date of purchase.

Conditions:

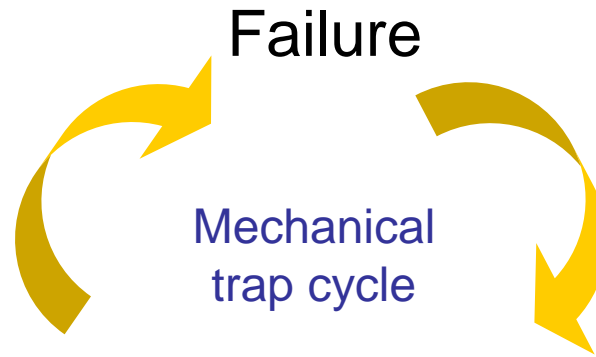
1. All GEM Steam Traps, must be fitted in their correct positions as indicated on delivery schedule.
2. GEM Traps must be fitted in accordance with our installation instructions by a competent person and according to standard practice.
3. The steam system water should be suitably treated to avoid corrosion and system clogging.
4. This guarantee refers to the trapping performance of all GEM Traps and does not relate to standard components such as strainers, mesh baskets, unions or gaskets.



# GEM Trap Benefits

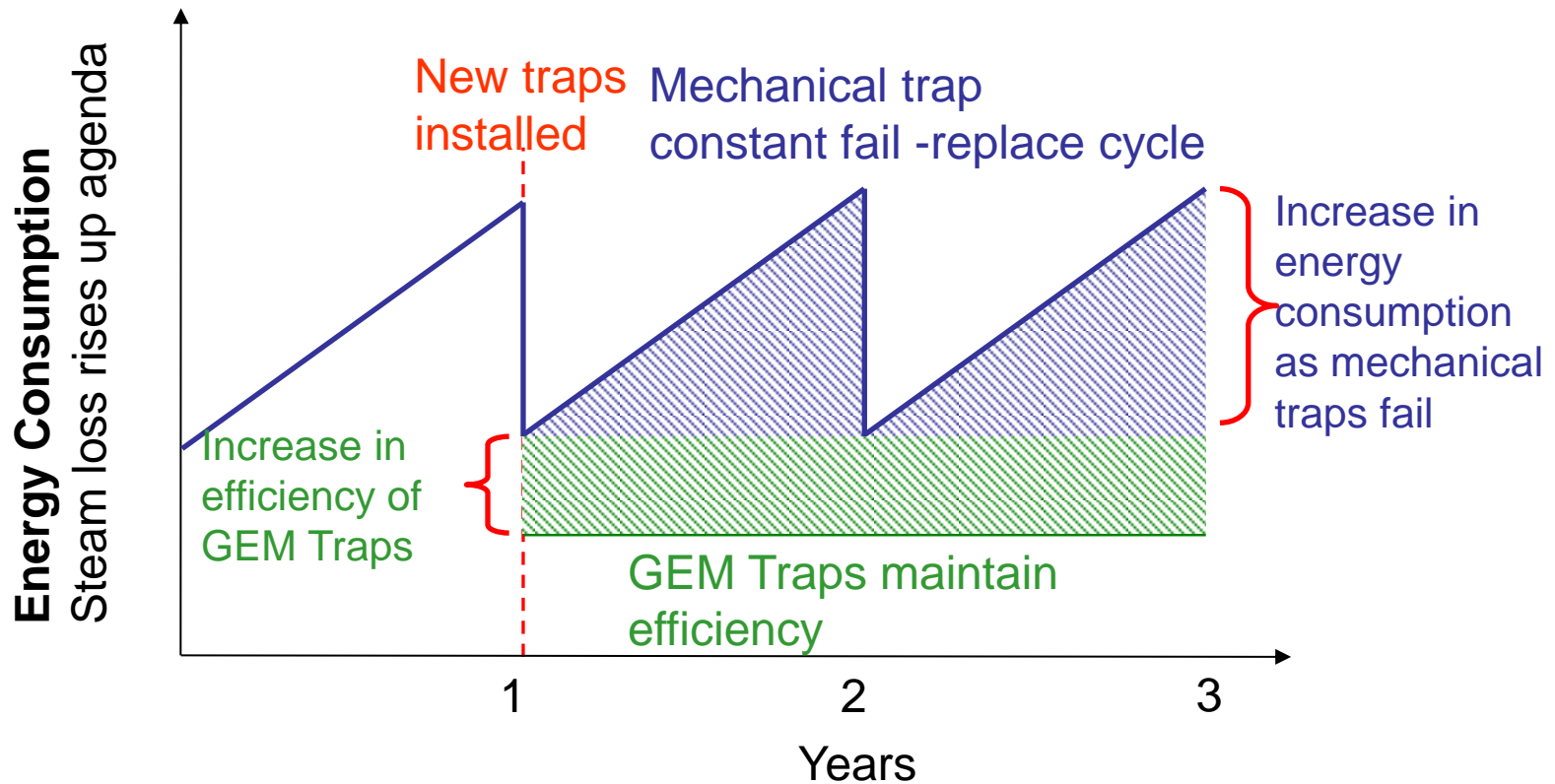
Reliability

Constant Cycle of Failure – Identify – Replace



# GEM Trap Benefits

## Reliability





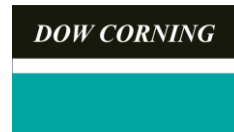
**BEFORE**



**AFTER GEM Steam  
Trap retrofit**



# What Companies Use GEM Steam Traps?



# Summary

- Proven Technology
- Typical System Savings 20% or More
- GEM Global Preferred Supplier to Fortune 500 Corporations
- Excellent Record of Providing Customers With:
  - Significant Bottom Line Energy Savings
  - Reduced Water Consumption
  - Improved Condensate Return Levels
  - Reduced GHG emissions
  - Reduced Maintenance Costs
  - Improved Product Quality
- ***Permanent Solution for Steam Trapping***







An Innovative Technology Company Providing Custom  
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**Cleaner Future  
Brought to You by**

**Thermal Energy International Inc....**