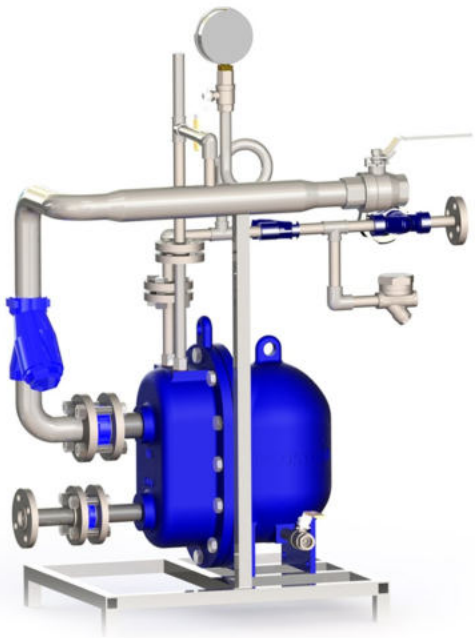
Incosteam

Conserving Energy, Preserving Tomorrow



INCOMPARABLE PUMPING TRAP SOLUTION

Let’s redefine energy conservation and pave the way for a world where efficiency and environmental responsibility go hand in hand.

NEED FOR INCOSTEAM PUMPING TRAP (IPT) IN STEAM SYSTEMS

Understanding Stall Condition in Steam Applications

In steam systems, "stall condition" refers to a scenario where the pressure differential across a heat exchanger or equipment becomes insufficient to allow condensate to flow properly through the steam trap. This can occur when the steam pressure in the system falls below the back pressure caused by condensate, or when heat demand decreases, reducing the steam supply and trapping condensate within the equipment. Stall conditions can have significant implications for system performance, equipment life, and energy efficiency.

Common Causes of Stall Conditions:

Low Steam Pressure

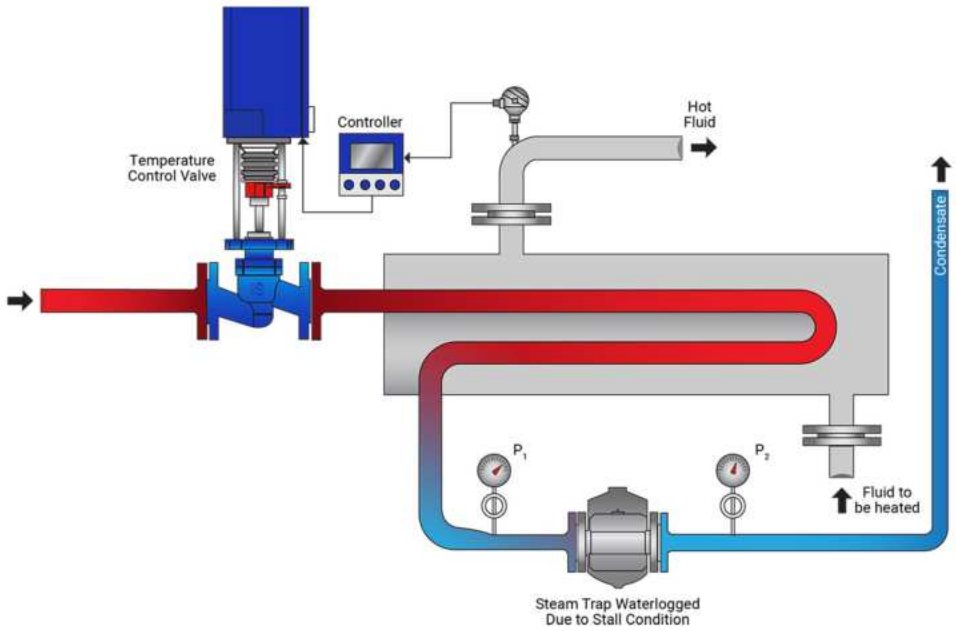
When the steam pressure decreases due to load changes or operating conditions, the pressure differential may not be sufficient to push the condensate through the steam trap.

Elevated Back Pressure

If there is high back pressure downstream of the steam trap (such as from long condensate return lines or multiple pieces of equipment), the condensate can't discharge properly.

Reduced Load or Heat Demand

In applications such as heat exchangers, air heaters, or drying equipment, a decrease in heat load or demand lowers steam flow, further reducing the pressure differential.



IMPACT OF STALL CONDITIONS

Condensate Backup

When condensate cannot be removed from the system efficiently, it starts to accumulate in the heat exchanger or other steam-using equipment.

Water Hammer

The backup of condensate can lead to the dangerous phenomenon of water hammer, causing damage to piping and equipment.

Poor Heat Transfer Efficiency

Condensate build-up results in poor heat transfer as water replaces steam in the equipment, leading to inconsistent heating and reduced process efficiency.

Corrosion

Standing condensate can cause corrosion in heat exchanger tubes or piping, leading to leaks and costly repairs.

USING INCOSTEAM PUMPING TRAPS TO RESOLVE STALL CONDITIONS

The **Incosteam Pumping Trap (IPT)** is specifically designed to address stall conditions by combining the functions of a steam trap and a mechanical pump. The unique design allows it to remove condensate even when there is little or no steam pressure to drive it out, ensuring continuous operation of the steam system.

How Incosteam Pumping Traps Work in Stall Conditions:

Automatic Detection and Activation

During normal operation, the Incosteam Pumping Trap functions as a conventional steam trap, allowing condensate to be removed through differential pressure. However, when a stall condition occurs and the pressure differential drops, the pumping mechanism automatically engages.

Pumping Action

The Incosteam Pumping Trap uses motive steam as an external motive force to activate the mechanical pump, forcing condensate out of the system even when the pressure differential is insufficient.

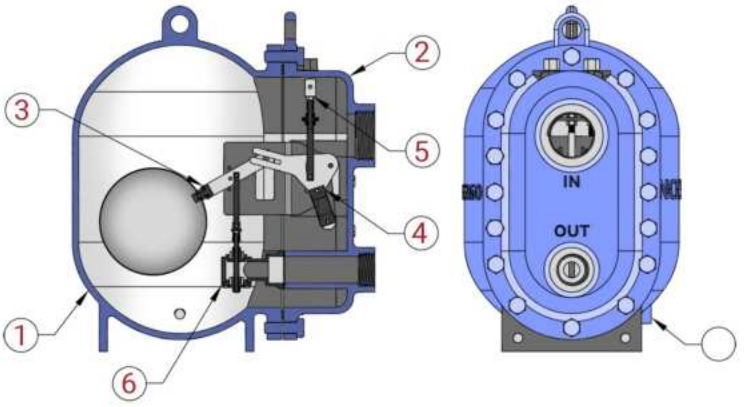
Maintaining Steam System Efficiency

By ensuring continuous removal of condensate, even under stall conditions, the Incosteam Pumping Trap prevents condensate buildup, maintains heat exchanger efficiency, and reduces the risk of water hammer and corrosion.

No Electrical Power Required

The Incosteam Pumping Trap operates without the need for electricity, making it an ideal solution for environments where power is unavailable or where electrical components might pose a risk.

CUT SECTION



NO	DESCRIPTION	MATERIAL	QTY
1	BODY	C.I. IS210 FG260	1
2	COVER	C.I. IS210 FG260	1
3	FLOAT LEVER ASSEMBLY	STAINLESS STEEL	1
4	SNAP UNIT ASSEMBLY	STAINLESS STEEL	1
5	INLET /EXHAUST VALVE	STAINLESS STEEL	1
6	PUMPING TRAP ASSEMLBY	STAINLESS STEEL	1
7	DRAIN VALVE	STAINLESS STEEL	1

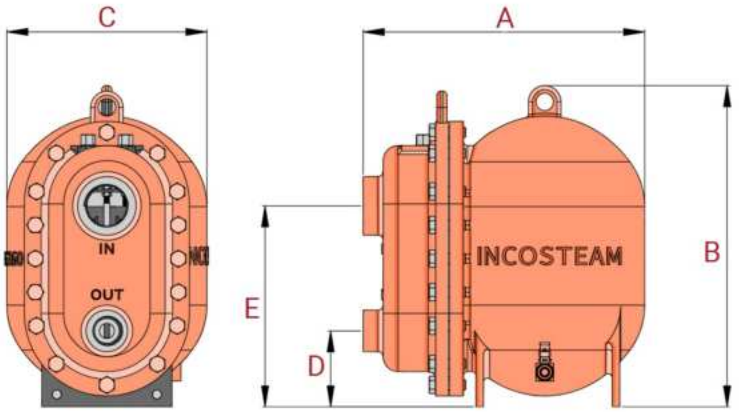
DIMENSIONAL TABLE

SIZE	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
DN80x50	565	645	400	152	402
DN40x40	370	475	260	122	280
DN40x25	370	475	260	122	280

SPECIFICATIONS

MAXIMUM OPERATING PRESSURE – 10.5 Kg/cm2(g)
MAXIMUM OPERATING TEMPERATURE – 186 °C
MATERIAL OF CONSTRUCTION – C.I. IS210 FG260

Size	Condensate Inlet	Condensate Outlet	Discharge Capacity
DN80 x DN50	DN80 #150	DN50 #150	06 TPH
DN40 x DN40	DN40 #150	DN40 #150	2.2 TPH
DN40 x DN25	DN40 #150	DN25 #150	1.5 TPH



APPLICATIONS WHERE STALL CONDITIONS COMMONLY OCCUR:

- **Low Steam Pressure**
  When the steam pressure decreases due to load changes or operating conditions, the pressure differential may not be sufficient to push the condensate through the steam trap.
- **Jacketed Vessels and Reboilers**
  Used in chemical processing, where batch operations may cause steam pressure and load variations.
- **Dryers and Calenders**
  In industries like paper, textiles, and printing, where low-pressure steam is used, and heat demand fluctuates.
- **Air Heaters and Unit Heaters**
  HVAC systems where steam usage is subject to wide variations depending on climate or operational factors.

ADVANTAGES OF INCOSTEAM PUMPING TRAPS IN PREVENTING STALL ISSUES:

- **Reliable Condensate Removal**
  Even under low-pressure or no-pressure conditions, ensuring the system stays operational and efficient.
- **Enhanced Heat Transfer**
  Maintains optimal performance of heat exchangers, dryers, and other steam-using equipment by removing condensate promptly.
- **Prevention of Equipment Damage**
  Eliminates the risk of water hammer and corrosion caused by condensate backup.
- **Energy Efficiency**
  Reduces steam waste and energy consumption by preventing steam from being trapped behind condensate in the system.

KEY FEATURES OF IPT

- **Automatic Condensate Removal:**
  The Incosteam Pumping Trap removes condensate from systems without the need for manual intervention, ensuring smooth and uninterrupted operations.

- **Dual Functionality – Pump and Trap:**
  Combines a mechanical pump and a trap in one device, simplifying installation and reducing space requirements. It efficiently pumps out condensate when differential pressure is insufficient – Stall Condition.

- **Energy-Efficient Operation:**
  The IPT optimizes energy usage by ensuring minimal steam loss during condensate removal, contributing to overall system efficiency and lower operating costs.

- **Non-Electric, Self-Actuating Design:**
  Operating without electricity, the Incosteam Pumping Trap leverages differential pressure and mechanical mechanisms, making it ideal for environments where power availability may be an issue.

- **Versatile Application:**
  Suitable for a wide range of industries, including HVAC, petrochemical, rice mills, pharmaceuticals, food and beverage, and more, the Incosteam Pumping Trap is compatible with both high-pressure and low-pressure systems.

BENEFITS OF IPT

Increased System Efficiency

By automatically removing condensate, the IPT maintains optimal steam pressure and temperature levels, improving the overall efficiency of your steam system.

Reduced Downtime & Maintenance

The automatic nature of the Incosteam Pumping Trap reduces the need for manual condensate removal and system checks, minimizing maintenance costs and preventing downtime.

Extended Equipment Life

Effective condensate management prevents water hammer, corrosion, and other issues that could shorten the lifespan of critical system components.

Compact and Easy to Install

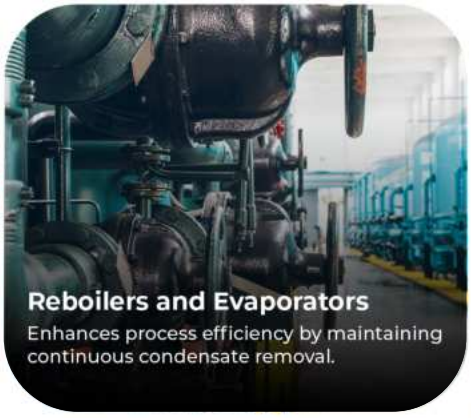
With its compact design and straightforward installation process, the Incosteam Pumping Trap fits into tight spaces and integrates seamlessly with existing systems.

APPLICATIONS OF IPT

Steam Heating Systems
Manages condensate removal and maintains steam quality.

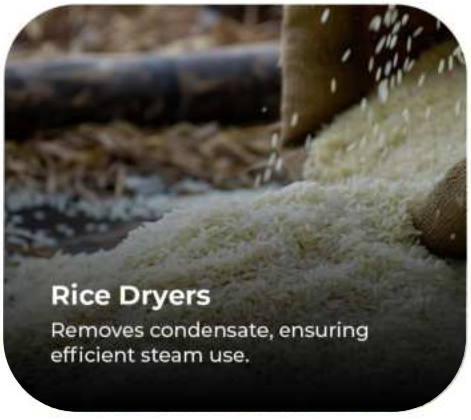
Process Heat Exchangers
Ensures optimal heat transfer and efficient operation.

Dryers and Jacketed Vessels
Prevents condensate backup, ensuring consistent product quality.



Reboilers and Evaporators
Enhances process efficiency by maintaining continuous condensate removal.

Dairy
Air Radiators, Pasteuriser



Rice Dryers
Removes condensate, ensuring efficient steam use.

About Us

Incosteam International is a leading solution provider supplying Energy Conservation steam products for the process industries.
As pioneers in the realm of energy conservation, we take pride inrevolutionizing the way industries harness and preserve energy. Our mission is simple yet impactful: to engineer a sustainable future by providing cutting-edge steam solutions Established with a vision to reshape energy efficiency, we specialize in the manufacturing of state-of-the-art steam products. At Incosteam, weunderstand the crucial role steam plays in various industrial processes. Our meticulously crafted steam solutions not only ensure optimal performance but also contribute significantly to environmental conservation. What sets us apart is our unwavering commitment to innovation. Our team of dedicated engineers works tirelessly to develop and refine steam products and solutions that redefine industry standards. We believe in pushing boundaries and constantly strive to exceed expectations, providing our clients with solutions that are not just efficient but also cost-effective.

Incosteam – Conserving Energy, Preserving Tomorrow.

Get in Touch

www.incosteam.com

+91-8055813179

A/P - Dehu,Gat No. - 73, Parandwal Chowk, Bypass Road, Vitthaalwadi, Tal - Haveli,Dist.-Pune, Pin- 412109