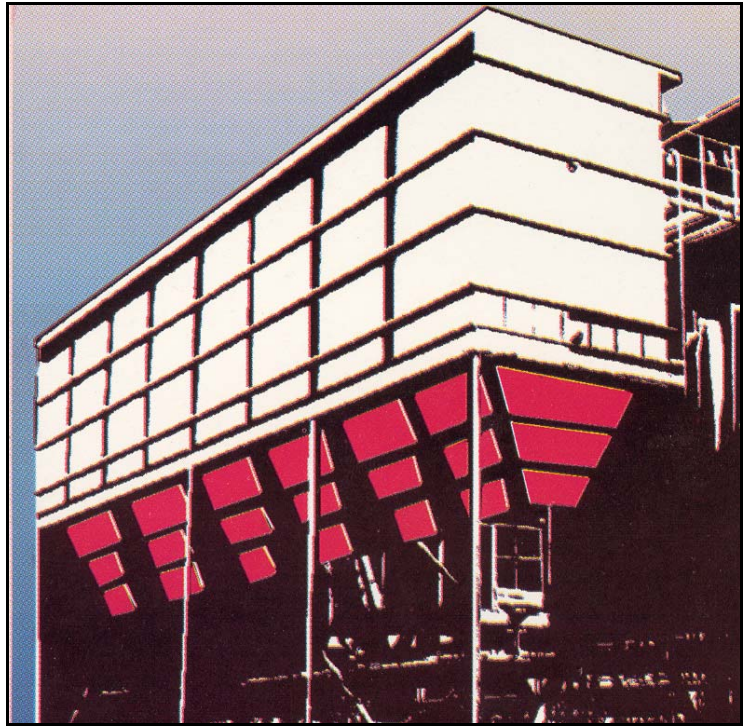




# HB HEATING MODULE



## FLYASH HOPPER HEATING SYSTEMS



## *INTRODUCTION*

The objective of this brochure is to outline HTD's solution to a very serious and expensive problem that exists for most power plants and industrial boiler installations that burn fossil fuels.

These plants typically use Electrostatic Precipitators, Baghouses, Fabric Filters or other forms of Air Pollution Control Equipment to clean the dirty flue gases from the boiler before they can be vented to the atmosphere.

During the gas cleaning process, flyash is extracted from the gas stream and directed to collection hoppers prior to disposal. The problem outlined in this brochure and addressed by this product and system is HOPPER PLUGGAGE due to condensation in the flyash collection hoppers.

Condensation occurs in the flyash collection hoppers when the hot flue gases are allowed to cool to temperatures below dew point. Flue gas dew point temperatures vary between 250 to 350° F for coal fired boilers and between 300 to 400° F for oil fired boilers. When condensation forms in the collection hoppers, the dry, normally smooth-flowing flyash quickly turns into a thick, pastelike, immobile mud. The hopper throat area rapidly becomes blocked and evacuation of the flyash from the hopper becomes impossible. Depending upon the style of Air Pollution Control Equipment being used, continued build up of flyash within collection hoppers that are "blocked" can result in :

- *Shorting of high voltage buss sections*
- *Hopper fires*
- *Structural damage to, or actual destruction of the collection unit (Precipitator, Baghouse etc)*
- *The necessity to use plant personnel to manually clean out the collection hoppers.*

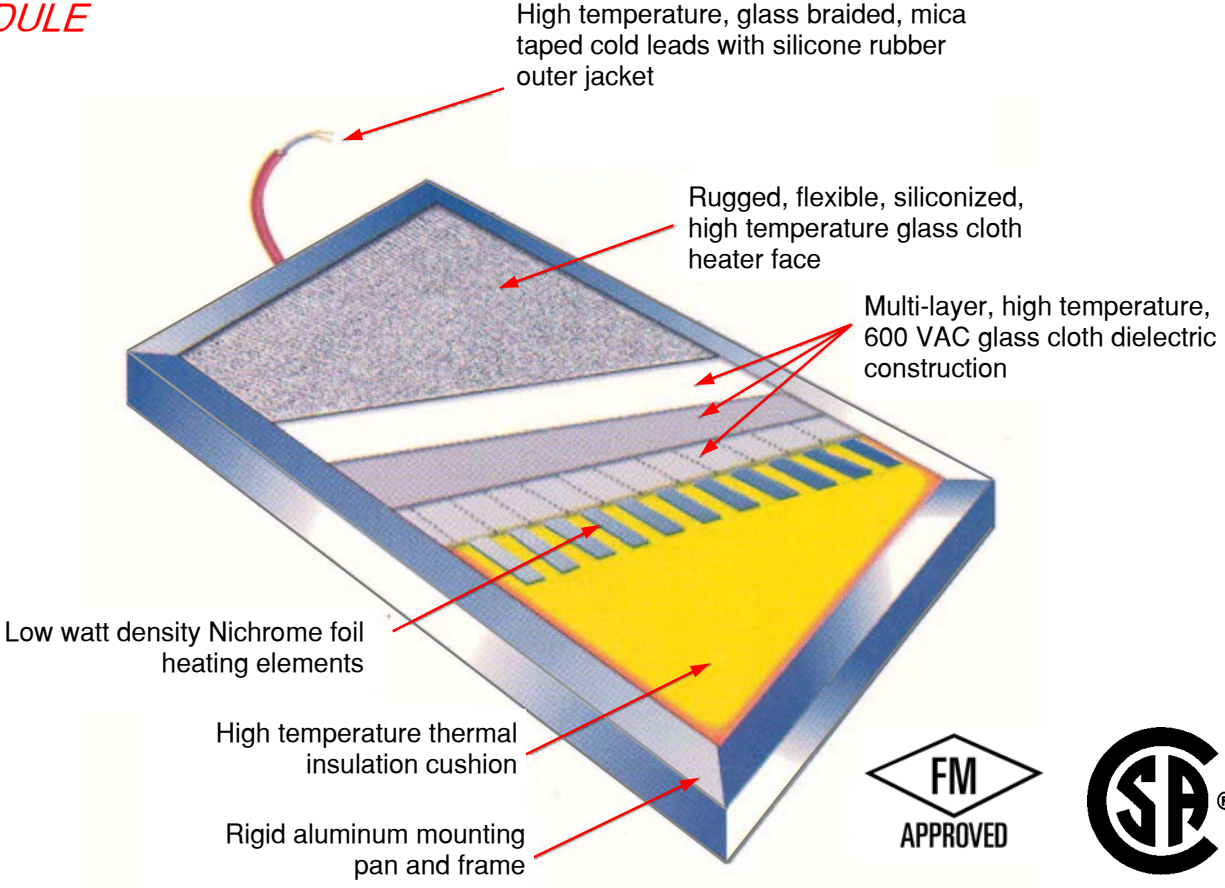
The HB Heating Module System was developed and introduced in 1976 when HTD Heat Trace, Inc operated as the Heat Tracing Division of Cooperheat. The product and heating system were exclusively developed to address the unique and specific requirements for the prevention of condensation in flyash hoppers.

The HB Heating Module System has been successfully used on hundreds of major power and industrial Air Pollution Control Projects around the world. Many HB Heating Module Systems installed over 25 years ago are still performing perfectly today without any heater failures.

***There is no competitive heater or system that can offer or rival the EFFECTIVE and PROVEN performance of the HB Heating Module and System.***

# HB HEATING MODULE

## THE HB HEATING MODULE



## PRODUCT SPECIFICATIONS

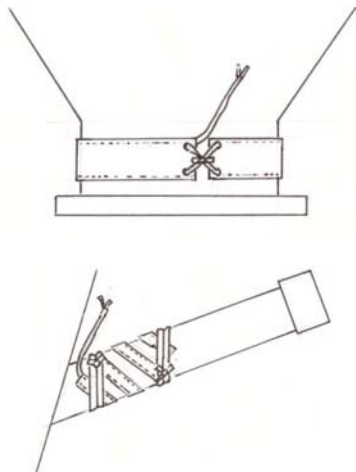
Maximum operating temperature	850° F
Service voltage	Up to 600 VAC
Power Density	Up to 360 w/sq.ft
Module sizing	Customized to suit area being heated

## SYSTEM COMPONENTS

HB Heating Module Systems can be designed and engineered for any size and number of hoppers. No application is too small or too large. HTD has successfully engineered and supplied hundreds of small industrial installations involving just one or two hoppers and a few kilowatts. Equally, HTD has engineered and supplied most of the largest hopper heating installations in the world, involving several hundred individual systems and connected loads up to 4 Megawatts.

Every system is custom engineered to meet the exact needs of each project and the complete hopper heating package may consist of HB Heating Modules, mounting hardware, flexible throat and poke tube heaters, power junction boxes, temperature controllers, control and monitoring panels and power distribution cabinets.

### *FLEXIBLE HEATERS*

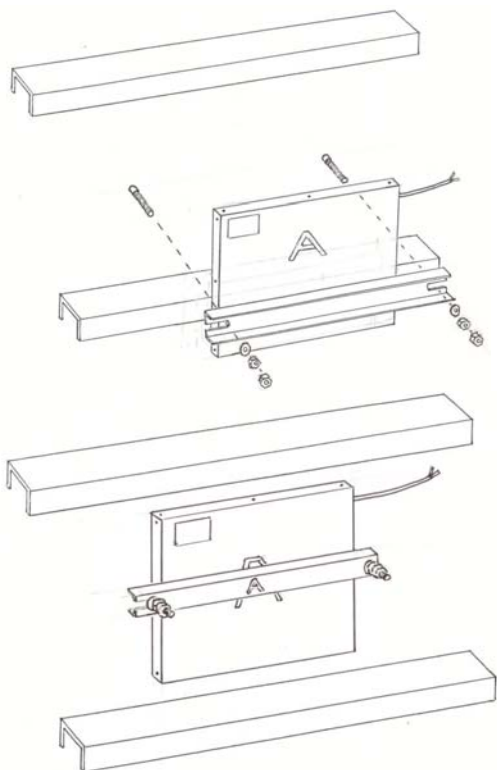


The coldest and narrowest part of any hopper is the throat. Frequently, this is the first part of the hopper to experience condensation and it is the first area within the hopper to be plugged with wet flyash. HTD designs and manufactures flexible, wrap-around heaters to provide supplemental heat directly to this critical area. Arguably, the flexible Throat Heater may be the most important single heater in the total heating system.

Poke tubes are also significant heat sinks that promote condensation near to the hopper throat area. Flexible, wrap-around Poke Tube Heaters are also offered to address this specific area and problem.

Throat and Poke Tube Heaters are custom sized for each application and they are supplied with custom length cold leads that route directly to the main Hopper Heater Power Junction Box for connection into the HB Heating Module System.

### *LOW COST, EFFECTIVE INSTALLATION*



The installation of HB Heating Modules systems is quick and simple, requiring no special tools, equipment or knowledge.

Depending upon size, each HB Heating Module is supplied with one or more aluminum mounting channels that are pre-slotted to fit over mounting studs that are spot welded to the hopper surface. Templates are provided to pinpoint exact stud locations and each mounting channel is marked to match the HB Heating Module being installed. All mounting hardware, including studs, nuts and washers are supplied with the system.

The installation method used with the HB Heating Module is a very effective factor in the performance of the heating system. As the nuts are tightened, pressure is exerted on the mounting channel, which in turn presses the flexible face of the HB Heating Module onto the hopper surface. This uniform compression forces the "cushion-like" heater face to conform to any and all dents and undulations in the hopper surface such that intimate contact between heater face and hopper surface is continually maintained. This continual contact between heater and hopper ensures fast, high levels of heat conduction directly into the hopper.

Uniform conduction of heat through and across the skin of the hopper is fundamental to the elimination of cold spots on the inside surfaces of the hopper. If there are no cold spots within the hopper, condensation cannot take place, the flyash stays dry and the potential for hopper pluggage is eliminated.

Since 1976, through every facet from conceptual design, physical design, material and manufacturing quality to installation simplicity, the HB Heating Module System continues to prove why it is the most viable, safe, effective and reliable solution to flyash hopper pluggage.

Please contact us if we can help you with this problem.



HTD Heat Trace, Incorporated  
8 Bartles Corner Road  
Unit #104, Flemington, NJ  
USA 08822-5758

sales@htdheattrace.com  
Voice - +1.908.788.5210  
Fax - +1.908.788.5204  
www.htdheattrace.com