

VERTIMAX

LAIMURA GAS COOLERS

Heat Exchangers for Gas Cooling



EASTERN

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RECUPERATOR • AIR PREHEATER • GAS COOLER



Efficient excess gas cooling

Key benefits

- Long lifetime of downstream filter bags or ESP
- Low power consumption for the cooling fans
- Minimal maintenance demands
- Proven performance and design
- Low initial costs and fast installation onsite
- Futureproof installation that can be extended to handle increases in production

Based on more than 40 years of experience, the EASTERN Forced Draft Cooler (FDC) / Air Blast Cooler an air-to-air heat exchanger is a proven product for handling hot dirty gas.

Operating principles

The Excess gas from the process is ventilated to the FDC, where it passes evenly through vertical parallel tubes. Cooling air is blown horizontally over the outer surface of the tubes by axial flow fans. The upper fan row has full-speed cooling fans whereas the rest of the fan rows have a common frequency drive per row. The outlet temperature is controlled by changing the speed of the fans and the number of rows in operation. This method minimizes the power

consumption.

Performance and design

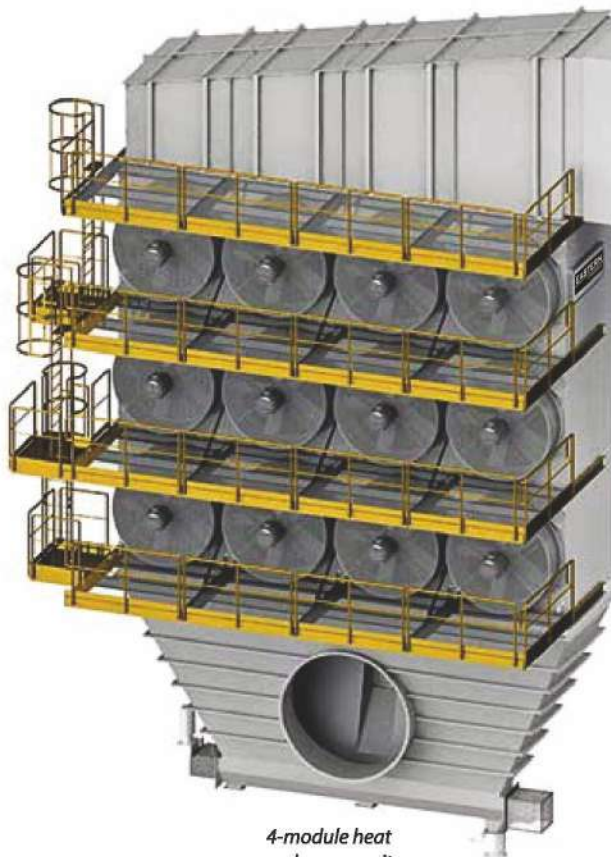
The heat exchanger is designed to handle cooling from 900°C to 120°C for any range in between and the size can be made for any klin and cooler known in the industry.

The design of the heat exchanger includes pre assembled modules and fans, making it fast to install onsite and reducing initial costs. Energy efficient fans are used to cool the hot excess gas, reducing operating costs due to decreased power consumption. The optimised design also keeps civil cost low.

Long filter bag life

The heat exchanger is designed to reduce the temperature of the dirty hot gas to the desired operating temperature of the downstream filter or ESP.

A constant outlet temperature level is maintained, eliminating problems such as filter bag damage, unstable hood draft control and limited vent system capacity even during flushes from the process. In case of extreme temperature fluctuations, the installation includes safety dampers that take in fresh air to protect the filter bags/ESP.



4-module heat exchanger unit

Modular design

Mechanical concept

Heat exchanger modules are assembled in the workshop and transported to site in standard containers. Each module consists of a bundle of stainless steel or carbon steel tubes, assembled within a structural frame. The tubes are shop welded to upper and lower tube sheets, located between fan levels to guide the tubes. The tubes are welded to the tube sheets on either sides. A bellow in between the tube sheets on the casting, allows the tube sheets to float to allow for tube expansion.

For extreme high temperature application, design with individual tube expansion bellows are also available which allows for the differential expansion of individual tubes.

Easy maintenance

Easily replaceable wear parts at each tube inlet, where wear is known to occur, make maintenance easy. In addition, each fan motor can be maintained while the remaining heat exchanger is in operation.

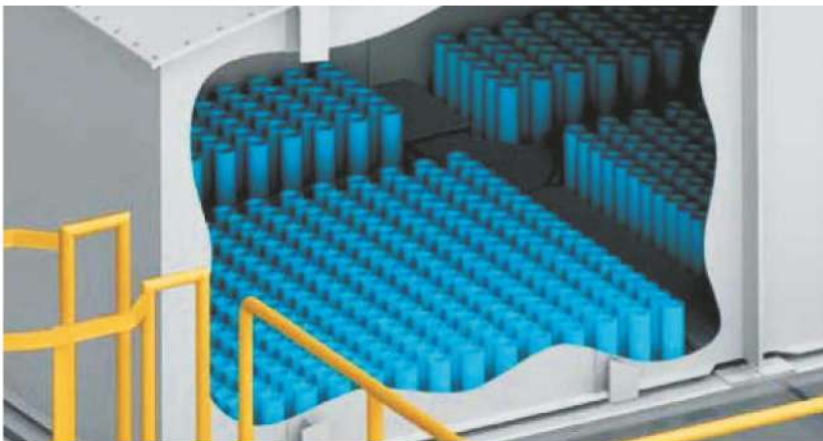
Dust discharge

The dust precipitated from the gas steam is collected in a bottom hopper and transported out by a screw conveyor. At the discharge of the screw conveyor, a valve minimizes false-air intake before passing the dust to the subsequent conveying system.

Design flexibility

The heat exchanger can be configured to allow gas to enter from either sides or the top/according to the layout of your system. The tube surface area is adjusted to provide optimum performance, depending on the desired temperature drop and the expected gas flow.

The basic heat exchanger can easily be extended to meet your requirements. Modules can be added to match an increase in production, making this a future proof solution to cool excess gas efficiently.



Inlet plenum



Individual Tube bellows independent differential expansion

VERTIMAX



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EASTERN EQUIPMENT & ENGINEERS P. LTD.

12, Pretoria Street, Kolkata - 700 071, INDIA

+91 33 22900187/88

central@recuperators.in

www.recuperators.in



EASTERN

www.recuperators.in