

Boiler stack economizer

Concept

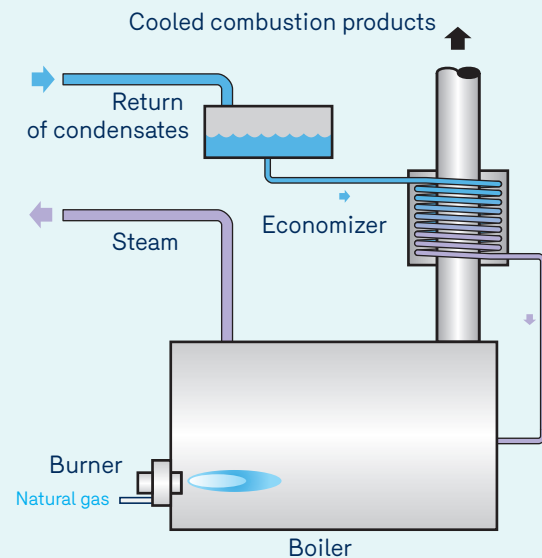
A stack economizer is an exchanger designed to recover the heat contained in the hot flue gases from boilers; the heat is transferred to a hot water system.

In the case of a steam boiler, about 20% of the energy required for the burner ends up in the flue, often at high temperatures. It therefore makes economic sense to use this heat to preheat the feedwater to the boiler or process.

There are two methods of heat recovery from steam boiler stacks:

1. For sensible heat: an economizer
2. For sensible and latent heat: a condensing recuperator

This information sheet covers the first method, which increases a boiler's efficiency by 3%-6%. This gain pays for the investment required and ensures long-term savings.



Advantages

- Improves efficiency of steam boilers
- Potential gain is 3-6%; a gain of 1% for a lower temperature (22°C [40°F])
- Increases feedwater temperature from 16.6°C to 33.3°C (30°F to 60°F)
- Technology is known and proven
- Simple operation and low maintenance when boiler operates on natural gas
- Can be installed on an existing stack
- Payback period is often very short in the case of a process
- Distributors and manufacturers offer a wide range of selection criteria

Selection criteria

- Boiler capacity
- Energy consumption
- Minimum, average and maximum boiler loads; steam pressure
- Temperature and percentage of oxygen in gases at different loads
- Dimension and height of stack; pressure of gases
- Diameter of piping and pressure of feedwater
- Temperature of feedwater
- Easy access for inspection and maintenance
- Weight of economizer
- Supplemental fuel
- Designed to prevent corrosion with controls over feedwater temperature and gases

List of manufacturers

Here is a non-exhaustive list of manufacturers.

- Cannon Boiler Works, Inc.
- Le Groupe Simoneau
- Cain Industries
- Nébraska Boiler
- Kentube Engineered Products

Energy Efficiency Financial Assistance*

Technology eligible for the Feasibility Studies and Implementation of Energy Efficiency Measures Grants. See energir.com for more details. The assistance is subject to a calculation of energy savings by the engineer of the customer requesting the assistance.

Applications

- Process steam boiler
- HVAC steam boiler

Installation standards

According to the requirements of the various installation codes and the manufacturer's recommendations.

* Certain conditions apply. The financial assistance is subject to change without prior notice.

These data are provided for guidance only. This Information Sheet is for general use and must not be considered advice. Please ask for assistance on the questions that concern you and do not rely only on the text in this Information Sheet.

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