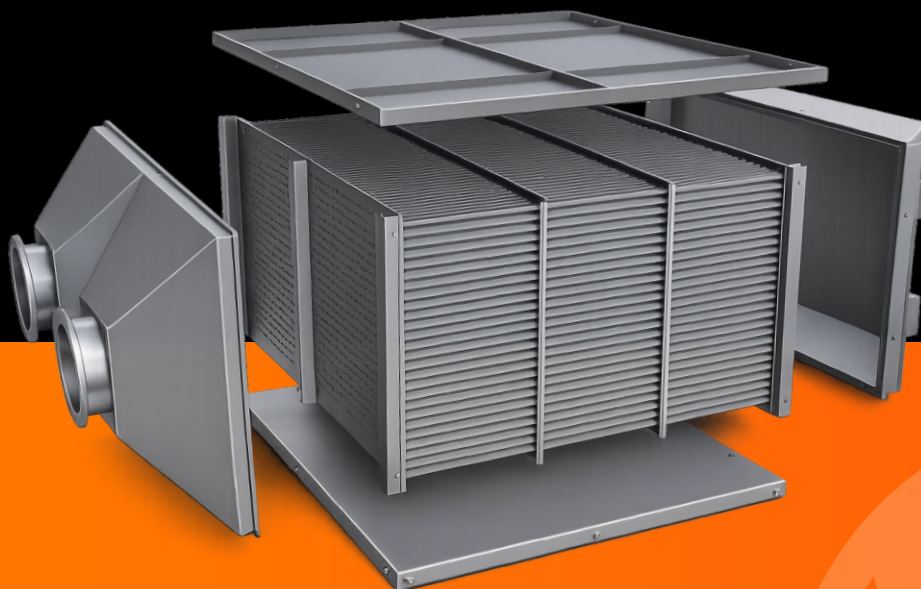




FLEXIBLE-DESIGN HEAT RECOVERY

Heat recovery units are designed to **recover residual thermal energy from exhaust air, flue gases, or process gas streams**, and to transfer this energy back into the process. The recovered heat can then be used for air pre-heating, process gas heating, or other thermal applications, depending on the application.

Depending on the process conditions and installation requirements, **the units can be designed as gas-to-gas recuperators or other heat recovery systems**. The design can be customized to gas composition, temperature level, fouling risk and cleaning requirements thanks to smooth or finned tube systems, different flow arrangements and suitable material options.

KEY TECHNICAL ADVANTAGES

Matched Design

Selected according to gas composition, temperature profile, flow volume, pressure drop limits, fouling risk and cleaning requirements.

Flexible Integration

Available in crossflow, counterflow or combined flow arrangements, with casing and connection layouts adapted to new or existing plants.

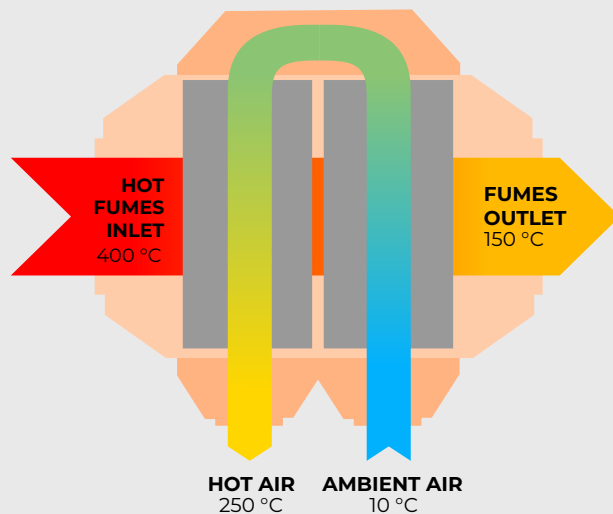
Reliable Operation

Smooth or finned tube systems, carbon steel or stainless steel versions, and tight construction support durable operation and reliable separation

Energy Saving

Recovering otherwise wasted heat improves process efficiency, reduces primary energy demand and supports lower operating costs.

SAMPLE HEAT RECOVERY CONFIGURATIONS

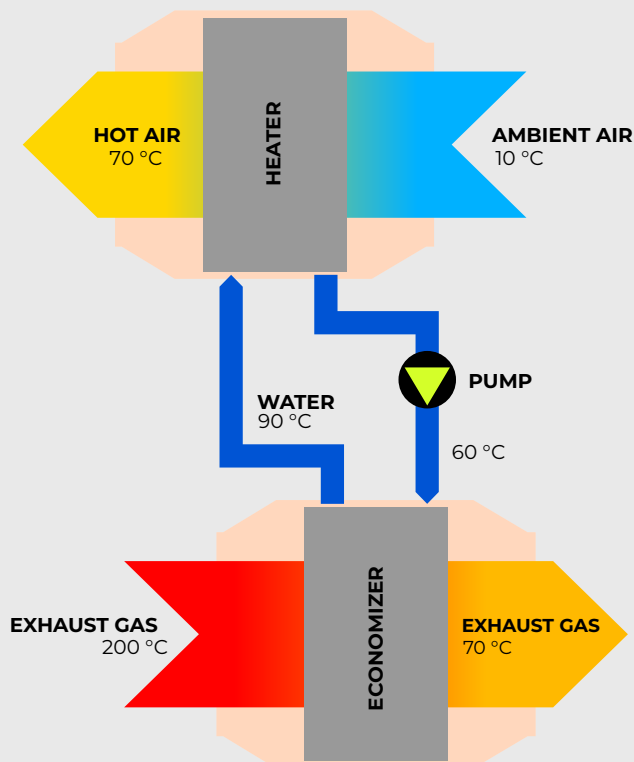


DIRECT GAS-TO-GAS HEAT RECOVERY

Heat is transferred directly from the hot exhaust gas stream to the colder process air stream within a single heat exchanger. While this solution does require suitable duct routing for both gas streams, **the non-pressurized design eliminates the need for intermediate liquid circuits or additional heat transfer equipment.**

TECHNICAL ADVANTAGES

- Non-pressurized system design
- High recovery potential
- No intermediate liquid circuit required
- Simple operation with fewer auxiliary components
- Suitable where duct routing allows both streams to be integrated in one unit



HEAT RECOVERY WITH INTERMEDIATE LIQUID LOOP

Heat from the exhaust gas is transferred to an intermediate liquid circuit and then used in a separate air heater or process heat exchanger. **This solution enables heat recovery even when the heat source and heat consumer are located in different parts of the plant.**

TECHNICAL ADVANTAGES

- Flexible connection between heat source and heat consumer
- Easier integration into existing plants
- Controlled heat transfer through a pumped liquid loop
- One heat source can supply several heat consumers
- Good solution for separated exhaust and air-handling systems
- Suitable when gas streams cannot be routed to one unit

