

HEGER EDELSTAHL

HEAT RECOVERY

FOR INDUSTRIAL PROCESSES

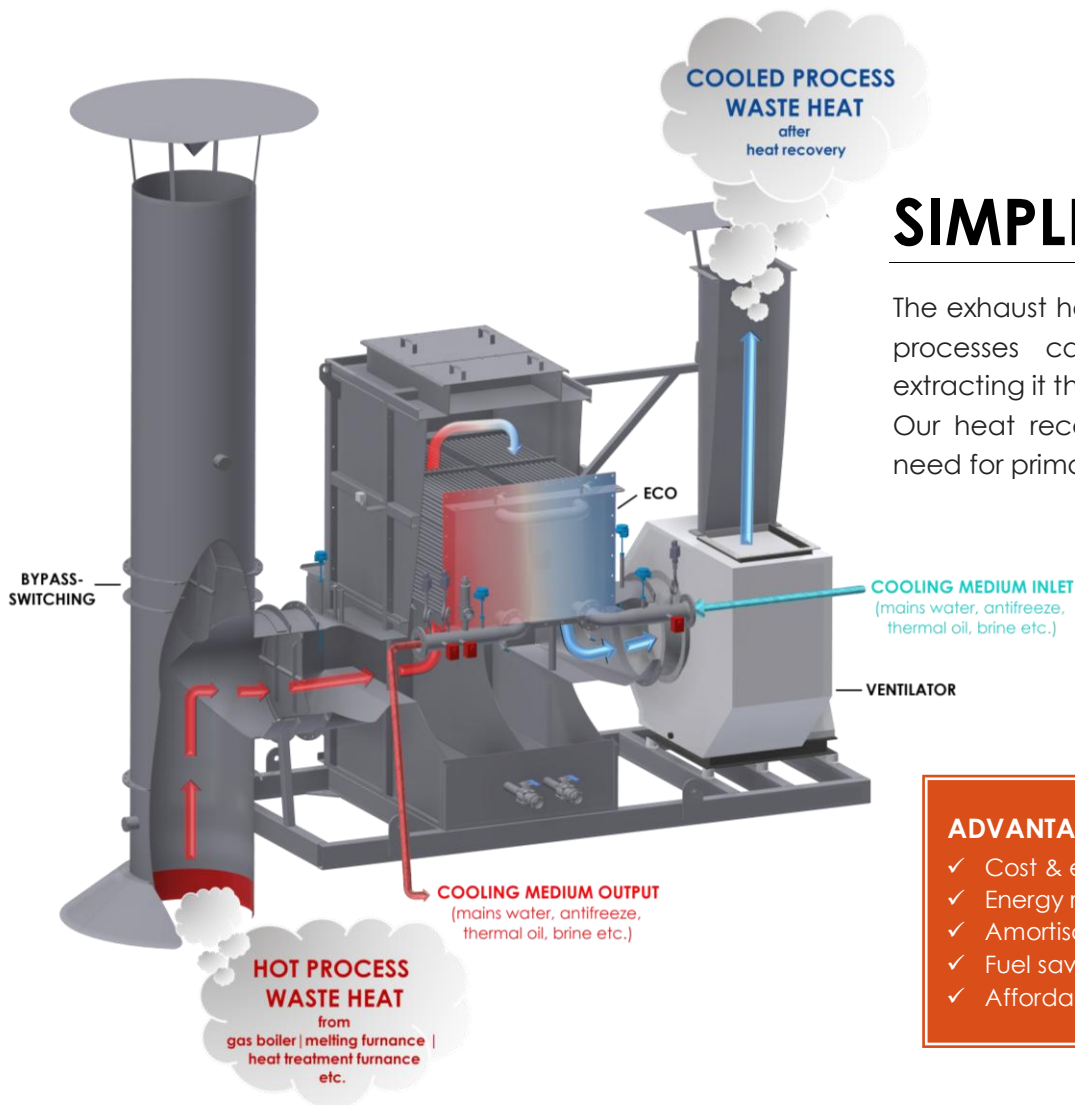
EXAMPLES FOR HEAT
RECOVERY IN INDUSTRIAL
FACTORIES



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SIMPLE PRINCIPLE

The exhaust heat generated by various industrial processes can also be used thermally by extracting it through different temperature levels. Our heat recovery systems aim to reduce the need for primary energy.

ADVANTAGES

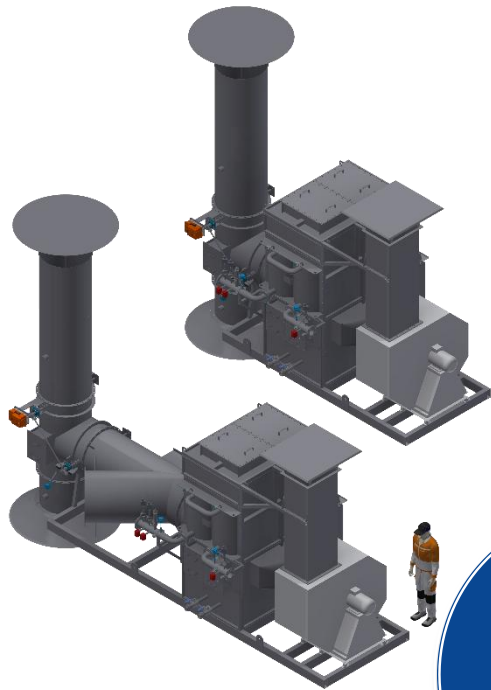
- ✓ Cost & energy savings
- ✓ Energy recovery
- ✓ Amortisation within a few years
- ✓ Fuel savings
- ✓ Affordable investment

HEAT RECOVERY

FOR ALUMINIUM MELTING OVENS

Exhaust gases from two different aluminium melting furnaces are each cooled in a heat recovery system. The energy recovered is fed into the factory's internal water network.

The system is installed on the roof of the building. Due to the high degree of prefabrication, the installation work on site is very low. To ensure trouble-free operation, cold startup is carried out in the factory.



3D visualisation
of the heat recovery systems

NOMINAL POWER

Q,ECO OVEN5
977 kW

Q,ECO OVEN8
838 kW

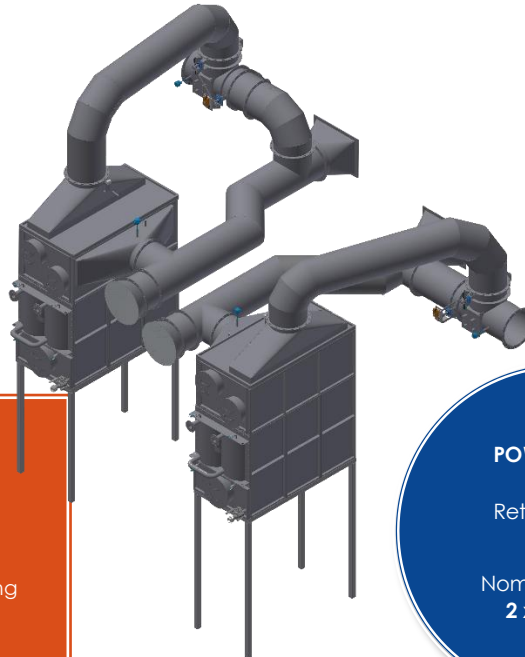
KEY DATA

- Two heat recovery systems
- Incl. engineering, transport, installation
- Incl. flue gas integration incl. flue gas fan, bypass switchover, flue gas pipework and own exhaust air pipe
- Incl. MSR technology incl. safety equipment
- Incl. insulation of heat recovery system
- Incl. switch cabinet, automation, control & startup



HEAT RECOVERY

Before the heat recovery system was designed, the hot exhaust gases from two electrically heated annealing ovens were brought together and cooled to around 170 °C with false air before entering the bag filter. Following the installation of two appropriately designed heat recovery systems, this waste heat is used by cooling and fed into the local heating or plant network. Maximum added value is achieved by reusing the exhaust gases that would otherwise be released into the atmosphere unused.



KEY DATA

- Two heat recovery systems
- Incl. engineering
- Incl. transport, assembly
- Incl. support steel construction
- Incl. flue gas integration, bypass switching
- Incl. MSR technology, safety equipment
- Incl. insulation

POWER DATA

Return temp.
65 °C

Nominal power
2 x 223 kW

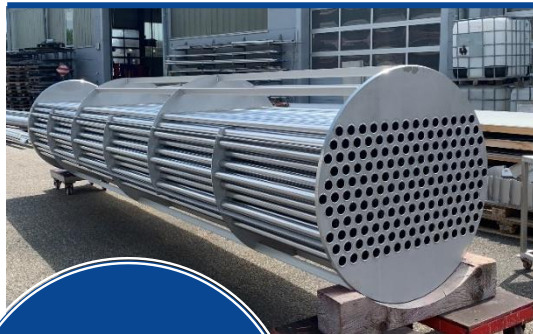


HIGH TEMPERATURE – FLUE GAS AIR PREHEATER

To increase efficiency, the waste heat from a MgO calcination furnace is used to heat fresh air (combustion air for the furnace).

The hot exhaust gases are extracted after the recuperator upstream of the product filter, cooled by a high-temperature flue gas air preheater and then fed to the product filter. The existing secondary cyclone is removed in the process.

The exhaust heat which is released is used to reheat the fresh air, which has already been preheated in the existing air preheater.



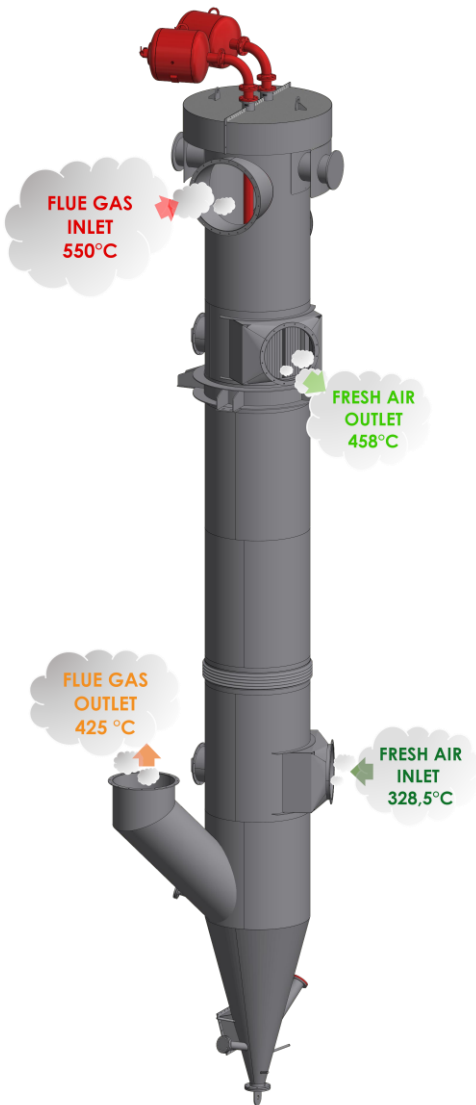
POWER DATA

Max. temperature
550 °C

Design pressure
± 65 mbar

KEY DATA

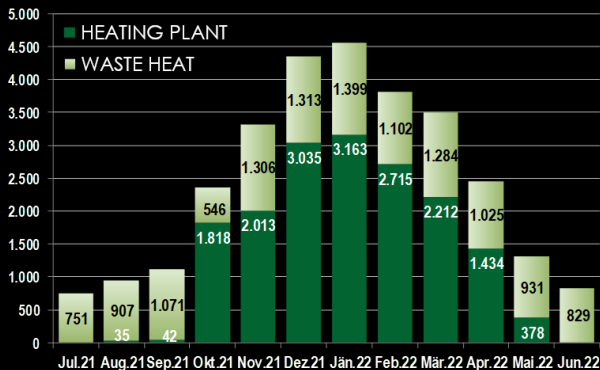
- HIGH TEMPERATURE FLUE GAS AIR PREHEATER
- made of heat-resistant stainless steel 1.4828
- Tube bundle heat exchanger with vertical heat exchanger tubes made of stainless steel 1.4828
- Including factory insulation 200 mm
- Complete pre-assembly in the factory
- Process engineering design & test statics
- Transport & assembly



HEAT RECOVERY

company is converted into useful heat for the regional district network by retrofitting various heat recovery systems. This makes it supply the district heating network entirely with industrial waste heat

HEAT GENERATION IN MWh



In winter, the two biomass boilers with 2MW and 5MW and two installed flue gas condensers are also used.

Produced heat from waste heat within 10 years = **96.000 MWh**

WASTE HEAT SOURCE 1

Exhaust gas from RTO

60.000 Nm³/h
at 130°C to 150°C

= 700kW - 1.200kW



KEY DATA

- Heat recovery after CTP flue gas
- Heat exchanger material test
- flue gas side integration incl. flue gas dampers, exhaust air pipe, steel construction & insulation
- Cooling frame / rectangular frame /
- Graphite block cooling
- Connecting pipes
- Engineering & construction
- Assembly & startup



WASTE HEAT SOURCE 2

Cooling heat from longitudinal graphitisation ovens

500°C hot graphite blocks per oven run
approx. 800 kW
(peak power)

HEAT RECOVERY

The exhaust gases from four different heat treatment ovens for castings are each cooled down in a heat recovery system. The energy released in the process is fed into the plant's internal hot water supply network, while any surplus is fed into the local district heating network.

POWER DATA

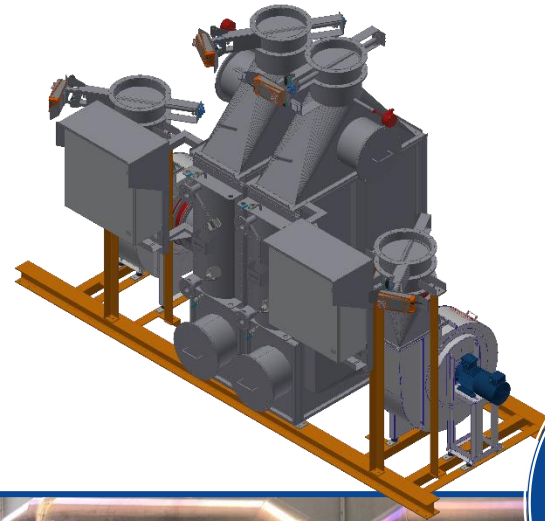
Exhaust gas temp.
500°C (70°C RL)

Nominal power
304 kW

To overcome the pressure losses on the exhaust gas side, a fan with a speed-controlled function was installed downstream of the heat exchanger. The speed is regulated to optimise the extraction of heat from the exhaust gases, considering the plant's internal requirements. If the heat cannot be used, the flue gas flows directly into the chimney via the bypass. For safety reasons (flue gas max. 650 °C), a bypass damper is not installed.

KEY DATA

- Heat exchanger with tubes in stainless steel 1.4571
- Housing parts, inlet and outlet bonnet made of heat-resistant stainless steel 1.4828
- Flue gas fans and flue gas pipework including required dampers
- Adaptation of main gas pipe
- Engineering, transport & assembly
- Cold and warm-startup, training
- Automation with on-site control cabinet





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