HEGER
EDELSTAHL

HEAT **RECOVERY &**
FLUE GAS **CONDENSATION**

FOR BIOMASS BOILERS
50 kW and above

EXAMPLES TO REDUCE PRIMARY ENERGY DEMAND

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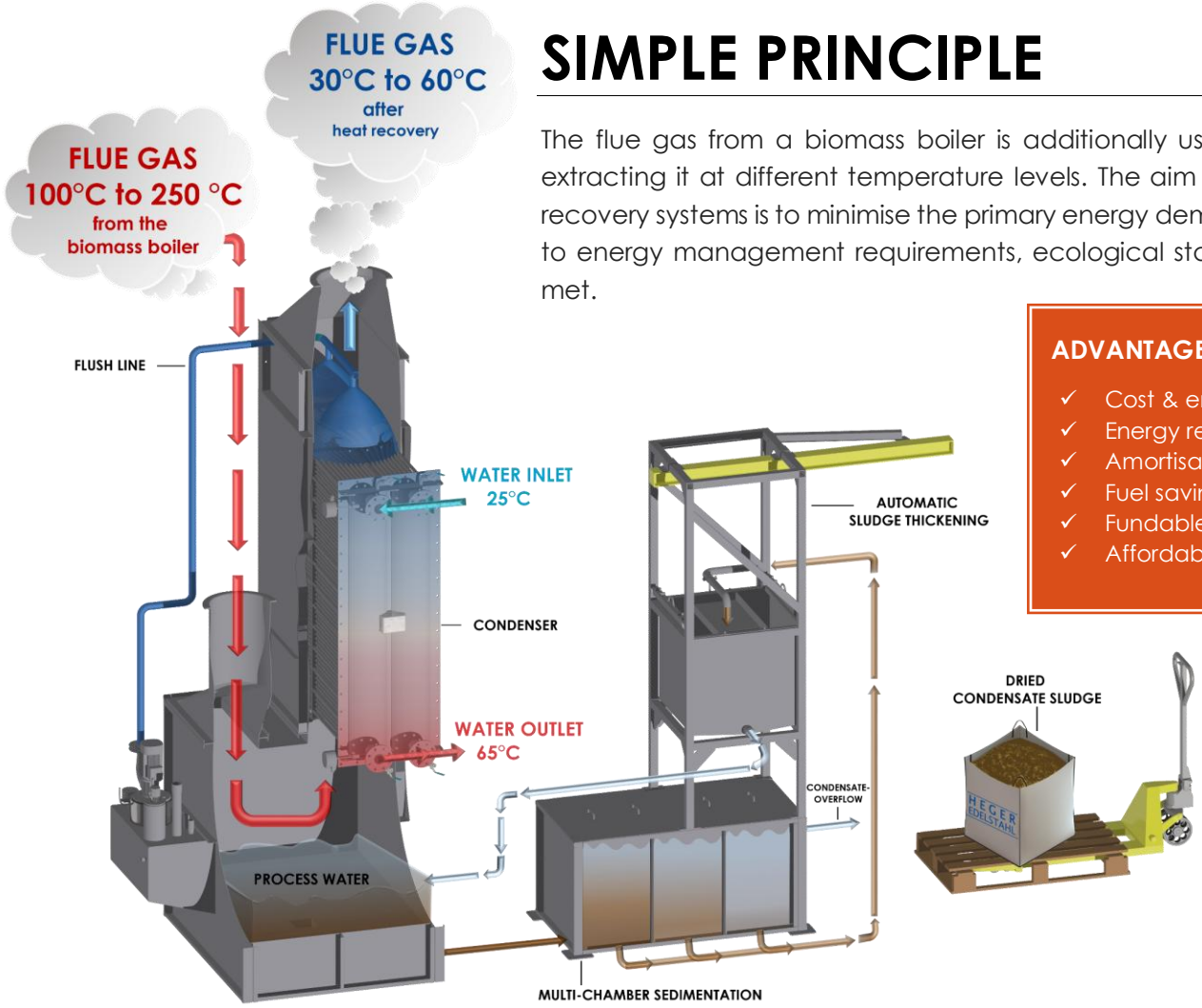
SIMPLE PRINCIPLE

The flue gas from a biomass boiler is additionally used thermally by extracting it at different temperature levels. The aim of HEGER's heat recovery systems is to minimise the primary energy demand. In addition to energy management requirements, ecological standards are also met.



ADVANTAGES

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

TYPE HEGC-0300-XXL

NOMINAL POWER

CONDENSER
790 kW
(w50, 40°C RL)

The HEGC-0300-XXL heat recovery system uses the moist flue gas from the biomass boiler (2,500 kW) to recover thermal energy by cooling it in the condenser. The heat content of the flue gas is converted directly into valuable heat for the heating network in a smooth tube heat exchanger (CONDENSER).

KEY DATA

- Tubes made of duplex stainless steel 1.4462
- Incl. MSR technology, control cabinet, automation
- Incl. engineering, transport, installation
- Incl. Warm-startup, training
- Incl. operating data acquisition
- Incl. XXX-LARGE condenser design
- Incl. safety device, VL-RL collector
- Incl. bypass switchover, flue gas damper, flue gas-side pipework

The integrated XXXL heat exchanger enables maximum heat recovery, achieving an efficiency of around 31%. The temperature difference between the main return and flue gas outlet temperature is <1°C (coarseness). The result is an efficient and sustainable solution for optimising the energy supply.

HEGC-0300-XXL
after warm startup

TYPE HEG-CC-0150

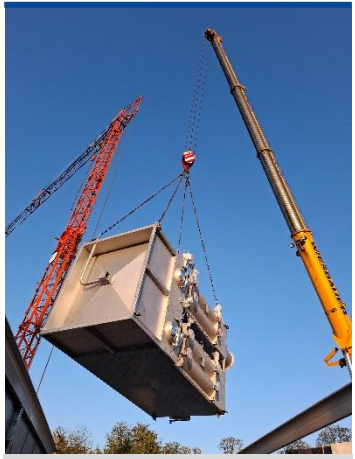
By installing a HEG-CC-0150 heat recovery system, the humid flue gases from the biomass boiler (1,500 kW) are additionally used thermally through two-stage cooling in the network condenser and in the heat pump condenser. The heat content of the flue gases is converted directly into useful heat for the heating network and into source heat for the heat pump in two smooth-tube heat exchangers made of high-quality 1.4571 stainless steel. In addition to heat extraction, the HEG-CC-0150 also achieves a dedusting effect. A degree of dedusting of around 50-60% can be assumed.

NOMINAL POWER

Network-CONDENSER
279 kW (w50, 50°C RL)

Heat pump-CONDENSER
267 kW (w50, 20°C RL)

HEG-CC-0150
during cold startup



HEG-CC-0150
during assembly

KEY DATA

- Both condensers including housing in cross-counterflow design made of 1.4571
- Tubes made of stainless steel 1.4571
- Automatic freshwater feed
- Automatic compressed air backwash, process tank with maintenance unit
- Extensive pre-assembly in the factory
- Incl. insulation, engineering, transport, assembly
- Incl. MSR technology, control cabinet, automation, warm-start, training

TYPE HEG-CD-0150

With the HEG-CD-0150 heat recovery system, the moist flue gas from the biomass boiler (1,500 kW) is additionally used thermally by cooling it in a condenser and a AIR PREHEATER. The heat content of the flue gas is converted directly into useful heat for the heating network in a smooth tube heat exchanger and the residual heat of the flue gas is used in a single-stage bimetallic finned tube air preheater to preheat the atmosphere. The built-in de-steaming stage in the air preheater enables de-steaming down to -5°C / 95%RH at a boiler load of 1,500 kW and 50°C mains return (w45 case):

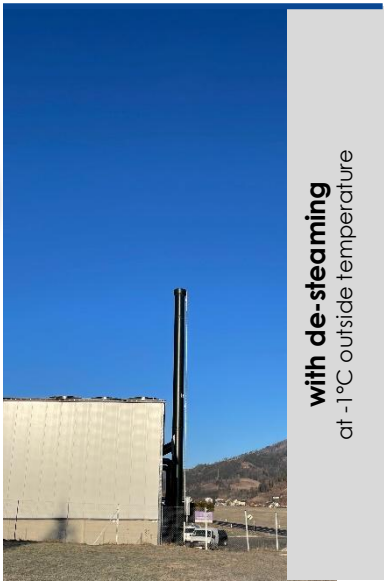
NOMINAL POWER

CONDENSER
211 kW
(w45, 50°C RL)

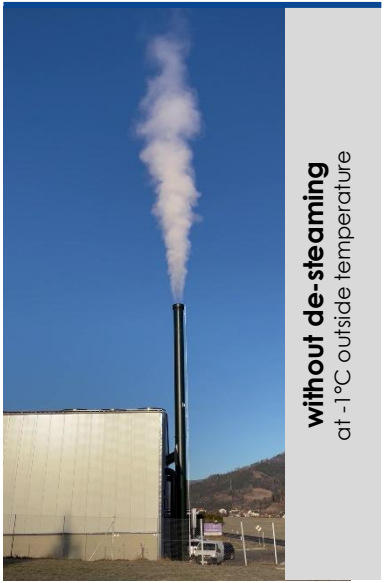
AIR PREHEATER
189 kW

KEY DATA

- Incl. MSR technology, first equipment package
- Incl. mixed air fan
- Incl. control cabinet, automation
- Incl. engineering, transport, installation
- Incl. warm-startup, training
- Incl. flue gas-side integration between electrostatic filter, system and chimney incl. bypass switching
- Incl. inspection, optimisation after trial operation
- Incl. XL condenser in stainless steel 1.4462



with de-steaming
at -1°C outside temperature



without de-steaming
at -1°C outside temperature

TYPE HEG-I-2200

Through the installation of a HEGI-2200 heat recovery system, the moist flue gas from the biomass boiler (22,000 kW) is additionally used thermally by cooling it in a CONDENSER.

The heat content of the flue gas is converted directly into useful heat for the two heating networks in a smooth-tube heat exchanger made of high-quality 1.4571 stainless steel.

In addition to heat extraction, the HEGI-2200 also achieves a dedusting effect. A degree of dedusting of approx. 50-60% can be assumed.

Heat exchanger
in production

HEGI-2200
during assembly

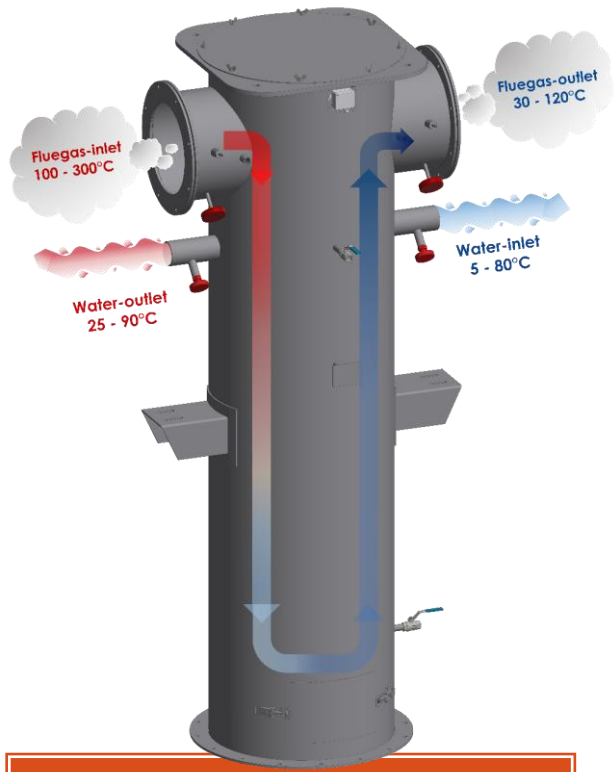
NOMINAL POWER

CONDENSER
4.966 kW
(w36, 30°C RL)

KEY DATA

- X-LARGE design heat exchanger made of stainless steel 1.4571
- Tubes made of stainless steel 1.4462
- Bypass switchover with connecting pipe
- Pipe and duct parts in stainless steel 1.4571
- Incl. MSR technology
- incl. control cabinet, automation
- Incl. engineering, transport, assembly
- Incl. warm start-up, training

TYPE H-EB1.0 TO H-EB15.0



ADVANTAGES

- Can be retrofitted regardless of boiler type
- Improved use of biomass boiler systems
- Saving of valuable fuel
- CO2 savings
- Cost savings
- Corrosion-resistant
- Simplified cleaning
- Use of high-quality stainless steels
- Space-saving due to the upright design
- Less fly ash

The Heger Energy Booster is a heat recovery system that can be retrofitted to smaller biomass boiler systems to increase energy efficiency.

Exhaust gases, which usually leave the boiler unused, are used to heat the heating water with the Heger Energy Booster.

As a result, we achieve a considerable heat recovery effect and save fuel, which can be converted into cash. The output of the flue gas heat exchanger is approximately 5-10 % of the boiler output.

EB 3.0 for
biomass boiler 300 - 500 kW

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