



## Rotary bed regenerator

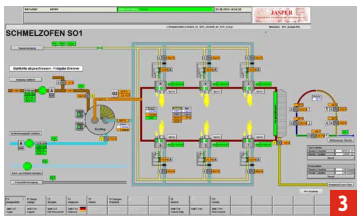
- Extremely high level of efficiency
- Greater productivity
- Process optimisation
- Reduction of fuel consumption / CO<sub>2</sub> up to 62%
- Air preheating up to 1,250°C

# EcoReg®

## Rotary bed regenerator



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EcoReg® is an innovative product offering significant reductions in fuel consumption and CO<sub>2</sub> emissions. The rotary regenerator is custom built for high-capacity and high-productivity gas, oil and coal dust furnace systems. It represents the logical development of our pulsed regenerators. It replaces therefore the classic recuperators and pulsed regenerators.

**Advantages:**

- > Stationary conditions during active operation
- > Precisely adjustable waste gas temperature
- > 50% smaller filter area for new systems
- > Space-saving application
- > Simple installation
- > Any number of burners
- > High melting capacity
- > Various ratings from 600 kW to 15 MW
- > Continuous preheating
- > Optimised furnace pressure control – without pressure surges

**Individually customisable**

Burner characteristics, such as radiant and pulse burner, can be freely selected. Their power control can also be individually adapted. A control range of

10:1 can be achieved without difficulty in this respect. A waste gas inlet temperature control normally required on regenerators can be omitted.

**Fuel consumption/CO<sub>2</sub> emission reductions**

The peak flue gas temperature regularly reaches 1,200 °C; in the version for high temperatures this may even reach 1,400 °C. This results in a peak average combustion air temperature of about 1,060 °C (LT\* version), respectively 1,250 °C (HT\* version). The waste gasses from the regenerator, which is fitted with an integrated heat exchanger, lie between only 140 °C–310 °C. This results in a fuel consumption/CO<sub>2</sub> emission reduction of up to 62%.

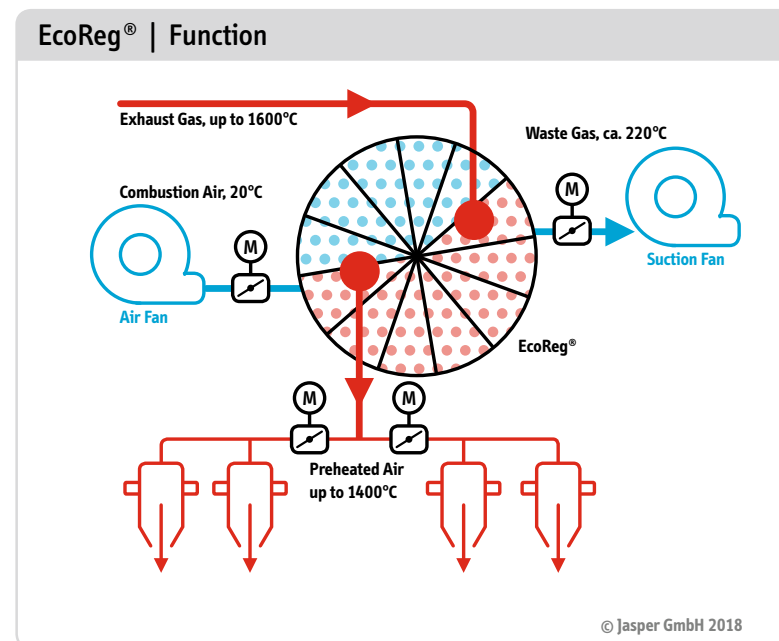
\* LT = Low temperature  
HT = High temperature

**Mode of operation**

**Three-part system with a central heat exchanger**

EcoReg® consists of a three-part regenerator with a fixed substructure and superstructure. It is located centrally in the installation. The heat exchanger consists of a rotating container which is divided into

- 1 EcoReg® regenerator 10 MW
- 2 EcoReg® regenerator 12 MW
- 3 Visualisation







chambers with a refractory lining and seals. These chambers contain the heat storage filling which draws its energy from the hot furnace waste gas. The central section is rotated into the combustion airflow on the opposite side where the cold combustion air is heated and the heat storage medium cooled. The heated combustion air is mixed with fuel in the burner and ignited – and so heats the furnace. The cooled chamber rotates further towards the waste gas side where it stores fresh energy. This cycle of continuous heat recovery is controlled by a thermo-

couple in the cold waste gas whereby the temperature of the waste gas is determined by the speed of the regulator.

#### Optimum NO<sub>x</sub> reduction

High air temperature promotes the formation of NO<sub>x</sub>. This problem has been solved by the design of the burner head and through the possibility of bringing procedural additions to the system or retrofitting these at any time (e.g. flue gas recirculation or water injection into the flame). The injection



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of water in particular proves to be very beneficial as the overall efficiency of the furnace is undiminished and remains high.

### Freely programmable control

All systems are fully programmable and larger systems are equipped with visualisation software.

The software, which can link to any PLC, provides system representation and process logging.

On request, we provide formula management and/or connection to a host computer to optimise the furnace.



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Technical data EcoReg® (example)	Full load	Partial load
Burner performance	2,400 kW 100%	720 kW 30%
Temperature of the hot waste gas	930 °C	990 °C
Air preheating	830 °C	910 °C
Temperature of the cool waste gas	170 °C	155 °C
Heat transfer to the air	917 kW	202 kW
Waste gas loss after the regenerator	251 kW	46 kW
Reduction in fuel consumption	42%	47%

Firing with Lambda 1.08; fuel: Fuel oil EL; furnace pressure + 2 mm WS;  
HMWCO = 10 mg/Nm<sup>3</sup>r.

- 5 EcoReg® DR 8000, 8 MW
- 6 EcoReg® DR 3600, 3.6 MW

### An overview of our regenerators:



**EcoReg®**  
Rotary bed regenerator



**PulsReg®**  
Regenerator burner



**PulsReg®-Zentral**  
Pulsed regenerative burner system



**PulsReg®-Medusa**  
Pulsed regenerative burner system



**RegClean® (option)**  
Cleaning system for regenerators

More information at:  
[www.jasper-gmbh.de](http://www.jasper-gmbh.de)

