

Pilot plant in operation

The idea for the E-CO Energy Collector was developed by SMS group, and implemented and successfully commissioned at the facilities of our cooperation partner Salzgitter Flachstahl GmbH as the first plant of its kind worldwide.

The E-CO was integrated at an existing roller table. The cover hoods were modified to suit the recovery process.

One special feature of the plant is the reliable control system. Thanks to the sophisticated automation system, a permanently reliable operating condition is achieved. In the case of an indispensable emergency shutdown, no additional switching operation is required.

Here, we would like to provide you with the following information:

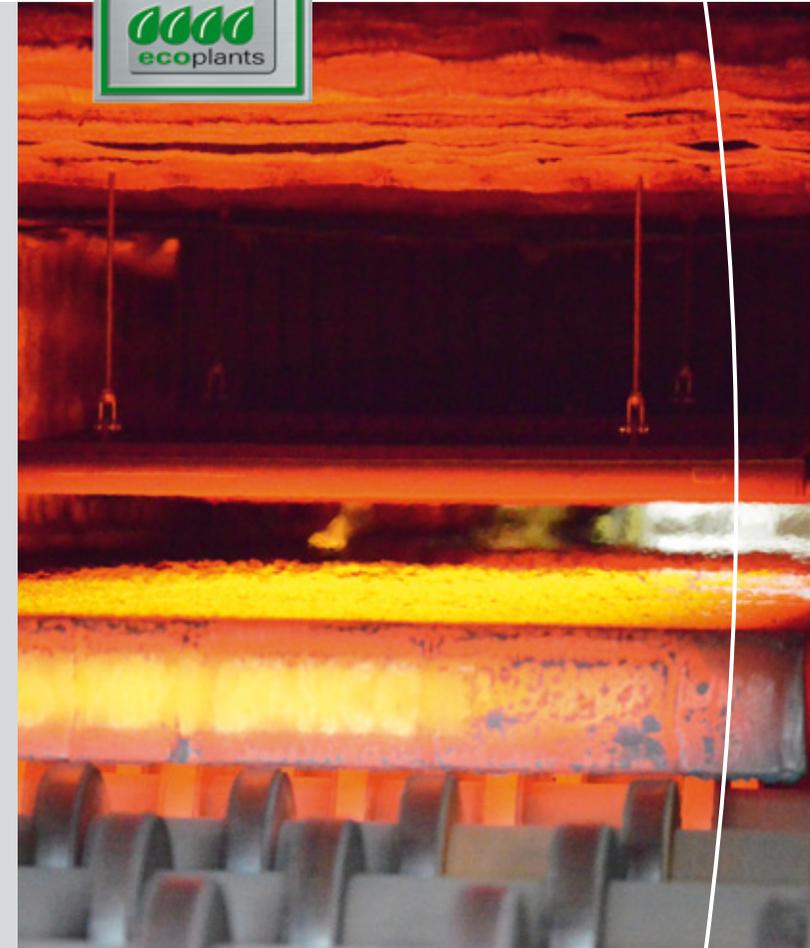
- interview with Dr. Peter Müller, Head of Continuous Casters & Finishing Lines at Salzgitter Flachstahl GmbH.



<https://www.sms-group.com/interview-peter-mueller-en>



E-CO Energy Collector Energy recovery on the continuous caster



Funded by the German Federal Environmental Foundation (Deutsche Bundesstiftung Umwelt)

SMS group GmbH

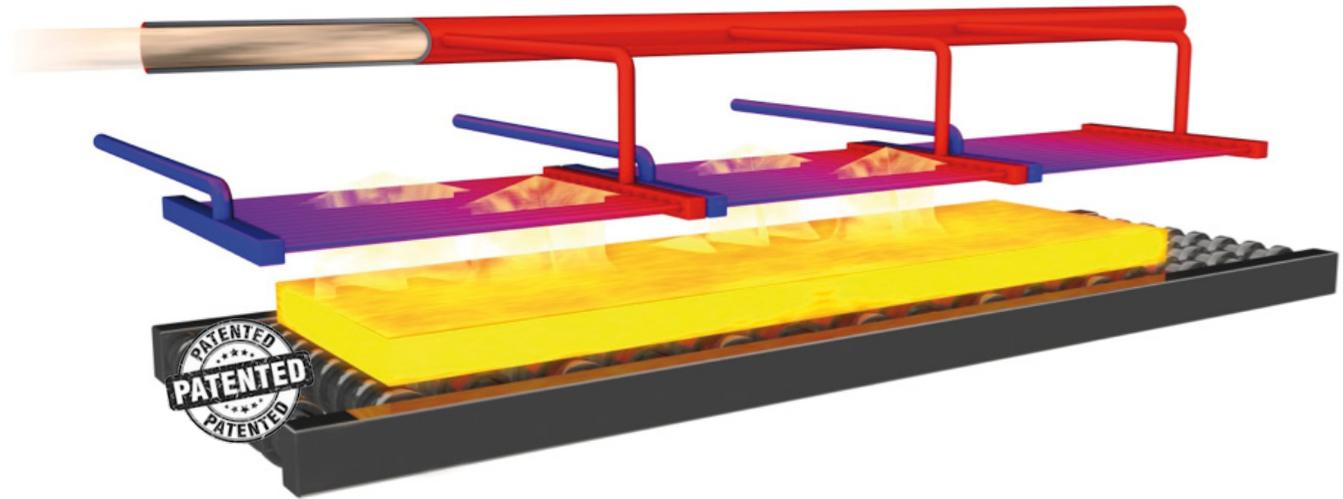
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Principle

The prerequisites for using an Energy Collector (E-CO) for the recuperation of radiant heat are red-hot material at temperatures exceeding 750 degrees Celsius over a long roller table.

The slabs are transported to the heat exchangers via the roller table. There, depending on their surface temperature, they radiate between 45 and 70 kW thermal energy per square meter. The heat exchangers take up the radiant energy and transform it into a water-steam mixture. The mixture is separated in the drum and the separated saturated steam is fed to the plant network. Optionally, it is also possible to produce hot water, for example to supply a district heating network.

Upon arrival of the next slab, the automatic control system of the roller table signals slab removal, allowing another E-CO procedure to take place.

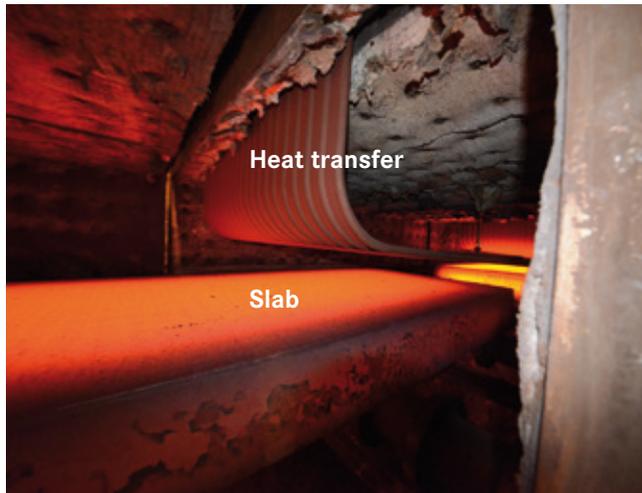


Advantages

- ✓ Suitable for all plants involving surfaces with temperatures exceeding 750 degrees Celsius
- ✓ Low input rating
- ✓ Batch and continuous operation possible
- ✓ Fully developed control system, fully automated
- ✓ Maintenance-free
- ✓ No effects on the process or the product
- ✓ Modular design, extendable
- ✓ Short payback period
- ✓ Quick run-up in only 5 days

Benefits

- ✓ Radiant energy is collected and converted to saturated steam or used for the production of hot water
- ✓ Energy already generated is used further
- ✓ Reduction of the energy costs for the entire works
- ✓ Improvement of the carbon footprint



Ecoplants Main criteria



Ecological benefits

Reduction of emissions from fossil fuels that would otherwise be used 1000 t/a CO₂ savings [coal equivalent]

Economic benefits

Reduction of energy costs

Example: For a roller table 15 meters in length and a slab 2000 mm in width, 1 ton of steam per hour is generated