

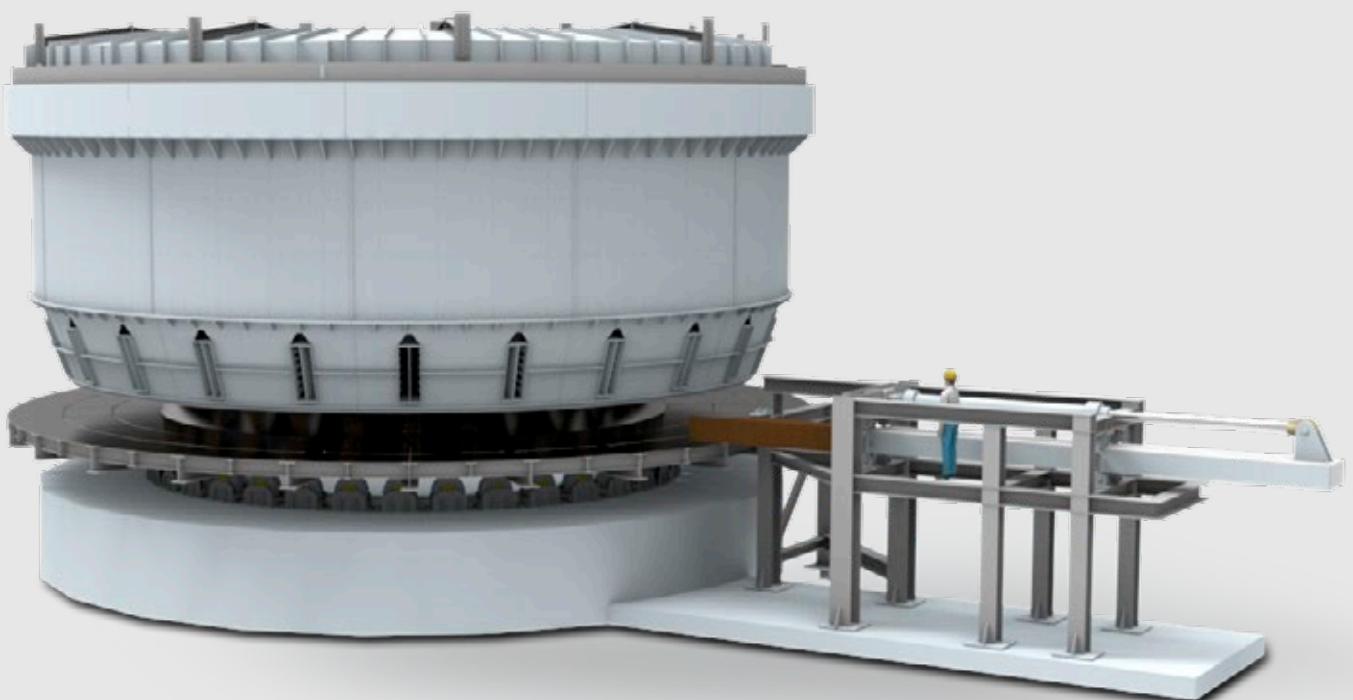
# PAUL WURTH

SMS group

## CCS Cooler

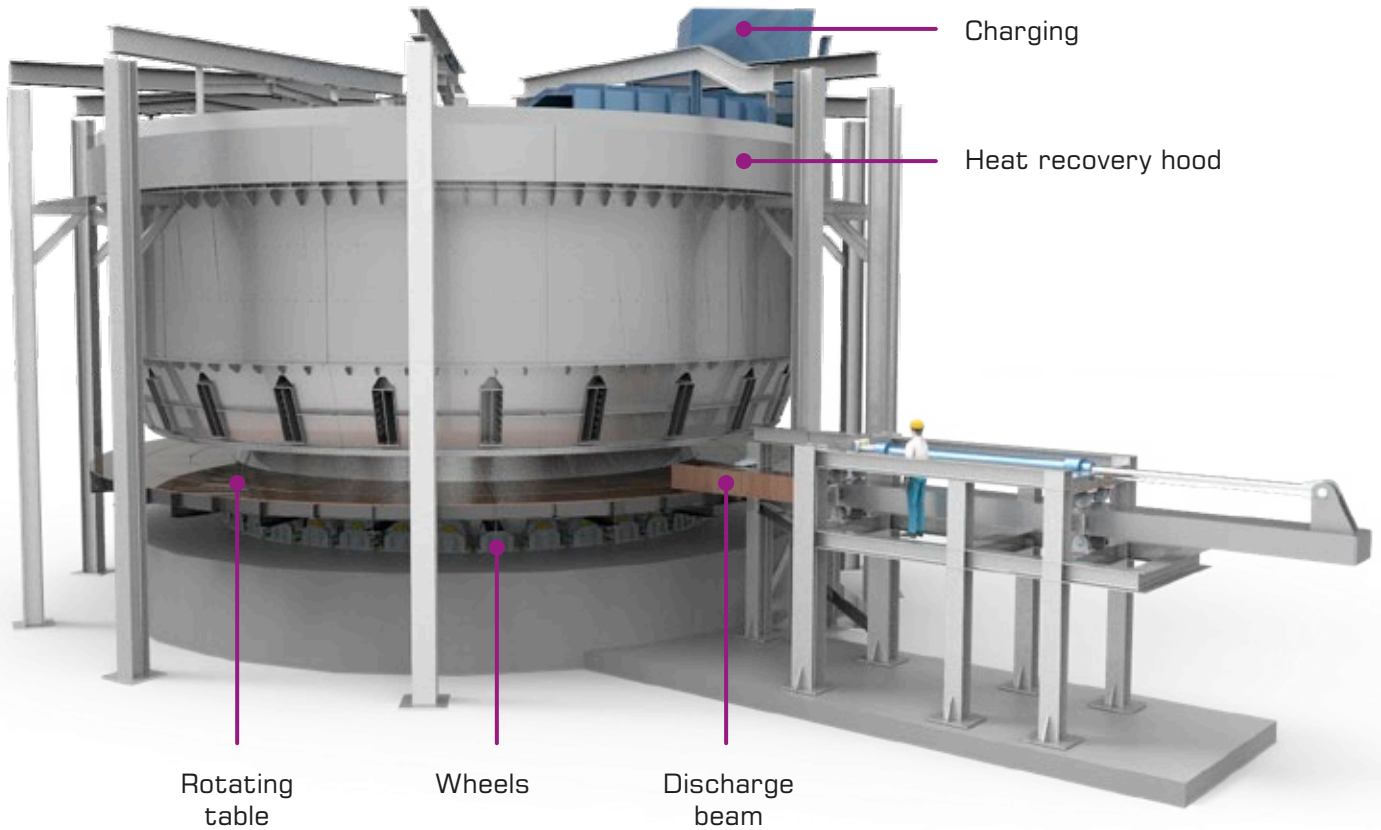
Counter-Current Sinter Cooler

Sinter Technology



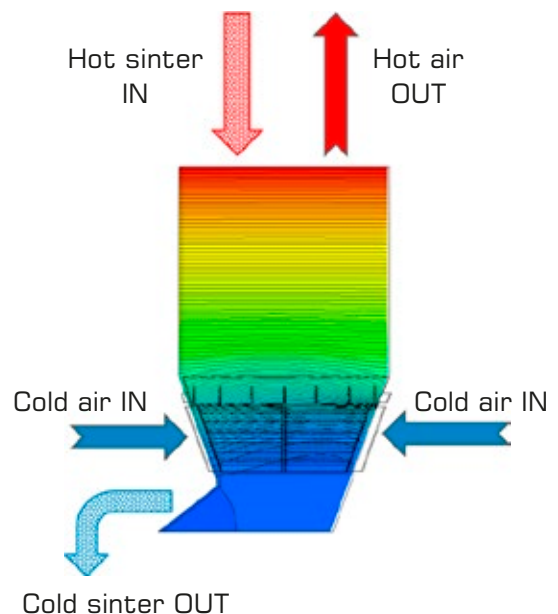
## CCS Cooler

Cooling of hot sinter involves the release of significant quantities of energy and is a source of fugitive dust emissions. In order to address the increasing pressure that steel producers are facing in regard to energy consumption and air emissions, Paul Wurth has developed the **Counter-Current Sinter (CCS) Cooler**, a future orientated and environmental friendly sinter cooling solution.



### Main features:

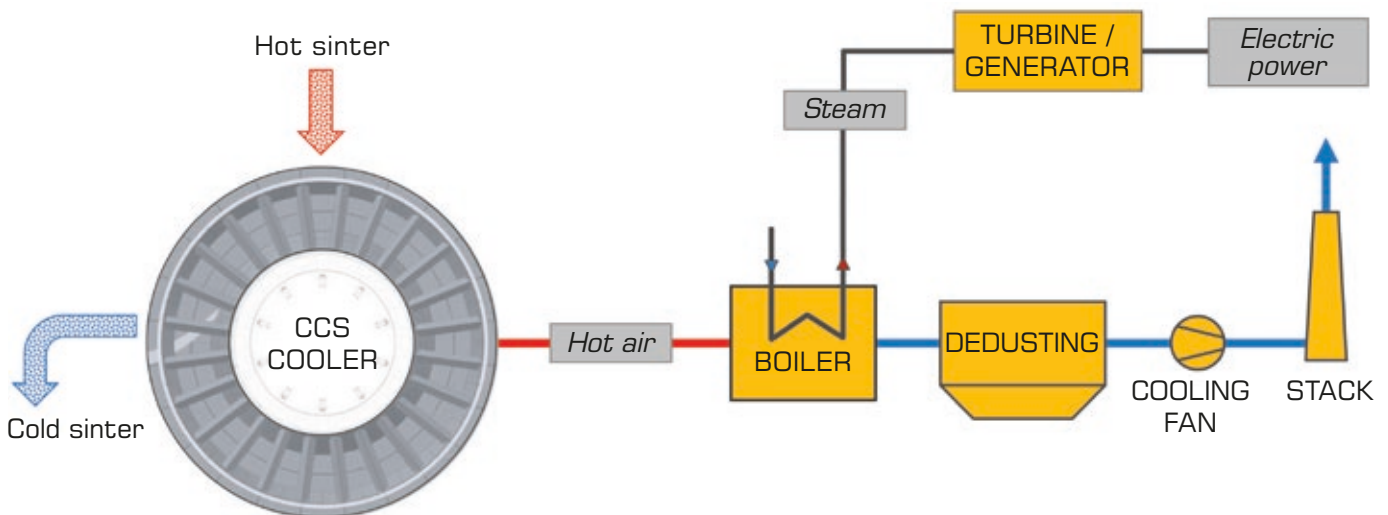
- ▶ **Counter-current** process for maximum heat transfer between sinter and cooling air.
- ▶ Process based on **suction** of cooling air through the bed of hot sinter, reducing diffuse dust emissions to a minimum.
- ▶ Based on the traditional **shaft cooler**, a proven and robust technology operating in many sinter plants in the world.
- ▶ **Compact design**, ideal solution for retrofits in existing plants.
- ▶ Optimised **material flow** and **cooling air distribution** by means of DEM and CFD respectively.



## Energy recovery:

The higher energy recovered from sinter cooling allows boosting the efficiency of processes that reuse this energy. Paul Wurth proposes tailor-made energy recovery solutions according to the plant operator's requirements and boundary conditions. As an example, heat recovery solutions can include one or several of following technologies:

- ▶ Partial recirculation of hot air to ignition hood and/or the sinter strand
- ▶ Generation of steam
- ▶ Production of electricity by using the produced steam in a turbine



### Process & environmental benefits:

- ▶ Significantly higher **energy recovery** compared to traditional sinter coolers (100 - 130kW/t sinter)
- ▶ Low **specific cooling air** requirement (~800Nm<sup>3</sup>/t sinter)
- ▶ 100% of cooling air usable for energy recovery
- ▶ Very low diffuse **dust**
- ▶ Long sinter **residence time**
- ▶ Low **sinter temperature** at discharge
- ▶ **Continuous discharge** operations

### Technological benefits:

- ▶ One single cooler adaptable to the capacity of the sinter strand (up to 1000 t/h or more)
- ▶ Small **footprint**
- ▶ Minimum **civil works**
- ▶ Few **moving parts**
- ▶ Efficient **sealing system** (water cup)
- ▶ Low **maintenance**, easy exchange of wear parts
- ▶ Cooling air supply, dedusting and heat recovery combined in a single system
- ▶ Proven and reliable friction **drive** system

# Engineering & Technology worldwide

The Paul Wurth Group is today one of the world leaders in the design and supply of complete plants, systems and processes as well as specialised mechanical equipment for

■ **the iron & steel industry:**

Blast Furnaces & Auxiliary Plants  
Coke Making Plants  
Agglomeration Plants  
Direct Reduction Plants  
Environmental Protection, Recycling & Energy-Saving Technologies

■ **other industries:**

Valve Solutions for Oil & Gas Downstream Processes  
Solutions for Decentralised Energy Production  
Intralogistics Solutions for Heavy Loads  
Engineering & Project Management for Civil Construction and Infrastructure Projects

**Feasibility Studies – Conceptual, Basic and Detail Engineering – Project Management – Plant and Components Supply – Turnkey Projects – Assistance in Plant Assembly and Commissioning – Technology and Operations Consultancy – On-site and Remote Operational Assistance – After-sales Services**

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