CCS Cooler

Counter-Current Sinter 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 - 130 kW/t sinter)
- Low specific cooling air requirement (~800 Nm³/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


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