Gas Cleaning Technology
High-efficiency Gas Cleaning Systems are vital for the reliable operation and long campaign life of high temperature hot blast systems and steam generation facilities, and allow the operators to meet the relevant pollution control standards.

Thanks to the expertise of Paul Wurth Umwelttechnik GmbH, the Group’s competence centre for the development of environmental protection technologies for the metals industry, we design and supply the full range of gas cleaning systems, gas distribution equipment and processes designed to the highest levels of cleaning efficiency, safety and reliability as well as providing the best possible environmental protection.

Dry Dust Separation Technology

In the field of dry dust separation, the Paul Wurth solution can be based on the following technologies:

- Dustcatcher
- Tangential Cyclone
- Axial Cyclone

The axial cyclone technology, successfully introduced by Paul Wurth for the dry separation in blast furnace top gas cleaning, shows how operational and economic aspects can be perfectly combined. The high separation efficiency of up to 90% helps to minimise the operational cost and to optimise the residue handling downstream of the plants.

Variable design:

- With or without inlet isolation valve
- Wear lining to guarantee long service life
- Dust discharge system
Wet Separation Technology

In the field of wet gas cleaning techniques, the Paul Wurth Annular Gap Scrubber is the state-of-the-art technology for blast furnace gas cleaning and top pressure control. It is designed as a two-stage scrubbing unit in one single vessel. A demister installed downstream guarantees a minimal droplet content at the outlet.

Pre-Scrubber stage
- Cooling and pre-cleaning of the gas
- Variable solution against corrosion and dust deposits

AGE-Scrubber stage
- Top pressure control with annular gap elements
- Fine cleaning of gas below 5 mg/m³ i.N.

Thanks to the Paul Wurth Gritzko® valve, the dust discharge system offers new advantages:
- Very precise control of discharge flow rate
- Better sealing tightness due to inflatable seals
- Less wear and longer life due to hard faced protection

Annular Gap Element
- Wear protected surface for long service life
- Maintenance-free operation due to improved stuffing box design

Droplet separation
- External swirl-type vertical or inclined demister
- Free droplet content of clean gas below 5 g/m³ i.N.
Primary Converter Dedusting with Paul Wurth Annular Gap Scrubber

Given the high accuracy of pressure control and the efficiency of gas cleaning, annular gap elements can also be implemented for other tasks, i.e. for primary converter dedusting.

Relying on an excellent knowledge of the process, combined with operational expertise, the energy consumption can be decreased with accurate air factor control and the clean gas dust content at the flare stack reduced to less than 50 mg/m³ i.N.
Energy & Cost-saving Technologies

Energy recovery by using top gas recovery turbines (TRT) is the most proven technology for blast furnace plants. Integrated solutions can be easily realized and included into the process.

If the blast furnace gas cleaning plant is additionally equipped with bag filter technology, the energy output of the TRT is also increased by approx. 15-20%. Individual solutions for high temperature applications are possible.

For a further increased energy recovery, blast furnace gas preheating can be added. The energy output can be increased by 75% by using excess gases or exhaust gases from neighbouring plants.

Bearing in mind the present and future ecological challenges and further energy and cost-saving requirements, our efforts in the field of industrial gas cleaning will focus on combining existing solutions and new technologies. One of our future projects will concentrate on the carbon dioxide (CO₂) capture by using scrubber and regeneration technology.

We keep on finding the best solution!
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:**
- Systems & Equipment for Non-Ferrous Pyrometallurgy, Electrometallurgy & Residue Treatment
- Intralogistics Solutions for Heavy Loads
- Engineering & Project Management for Civil Construction and Infrastructure Projects


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