



Clean air for the iron & steel industry

Emission Control by GEA Bischoff

Gas Cleaning Technology integrated in the Iron & Steel Production Process

GEA Bischoff GmbH is a leading supplier of innovative gas cleaning and energy recovery technologies and represents together with the GEA Niro technology the strategic business unit „Emission Control“ within the GEA Process Engineering segment.

Along the iron and steel production, environmental and energy saving considerations are an integrated part of the process. Taken this into account, GEA Bischoff offers clean air solutions while keeping the CAPEX/OPEX low.

With our wide portfolio of:

- Exhaust systems
- Dust collection
- Gas conditioning systems
- Dry, semi-dry and wet desulphurization
- NO_x abatement
- Separation of dioxins and furans
- Removal of acid components
- Waste heat recovery

and a long experience of 100+ years, we can handle the challenges posed by your production process .

GEA Process Engineering

Emission Control is a strategic business unit within GEA Process Engineering, a segment of the GEA Group, headquartered in Germany and listed on the stock exchange [G1A, WKN 660200].

GEA Process Engineering develops, designs and markets production plant equipment and processes for mainly the dairy, brewery, food, pharmaceutical and chemical industries. With a turnover of approx. EUR 1.8 billion in 2013 and close to 5,900 employees working in 40 countries, GEA Process Engineering is recognized as a world leader within industrial drying, gas cleaning, concentration, liquid processing, powder processing and handling.



The proven dedusting processes and components by GEA Bischoff

SINTERING AND PELLETIZING PLANTS

Dust collection of sinter strand and cooler exhaust gas by dry type horizontal precipitators. Other relevant pollutants such as SO₂, HF, PCDD/F and heavy metals are treated by waste gas cleaning plants consisting of

- Dry flow adsorber using hydrated lime and activated carbon. This solution consists of an Entrained Flow Reactor (EFR), a dust recirculation unit and dust collection with a low pressure cleaned fabric filter or
- Spray Drying Absorber (SDA) operated with lime slurry and further dust collection with low pressure cleaned fabric filters



BLAST FURNACE GAS CLEANING

Blast furnace top gas cleaning systems comprising of dust catcher or axial cyclone for the collection of coarse dust and Annular Gap Scrubber (Bischoff Scrubber) for the removal of fines and control of top gas pressure.



COKE OVEN PLANTS

Detarring of coke oven gas by wet-type vertical precipitator.

CAST HOUSE AND STOCKHOUSE

Secondary emissions when tapping a blast furnace or transferring hot metal from the torpedo to the paddles and converters are collected by means of hoods and dedusted with low pressure fabric filters.

ELECTRIC ARC FURNACE

Primary gas is cooled by ambient air and mixed with secondary gases from canopy while finally dedusted in low pressure fabric filters.



CONVERTER GAS CLEANING

CO steelmaking generates waste gases containing high temperatures and high levels of dust.

The thermal energy will be recovered by boiler-type cooling stack.

The dust is collected in a dry system with round type electrostatic precipitator (LURGI Thyssen LT process). The extracted dry dust can be re-used in the steel making process. In a second step the CO rich gas will be recovered and stored.

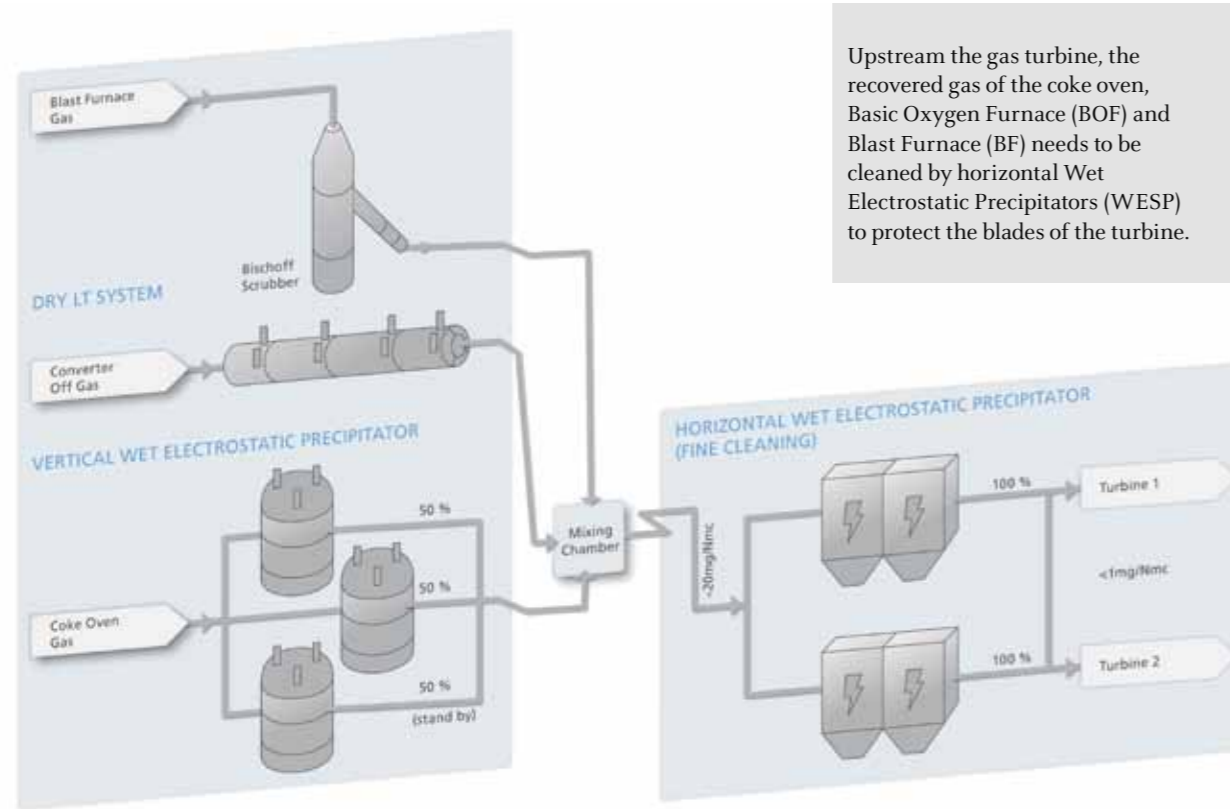
Alternatively we are also offering our wet Bischoff Scrubber system for converter gas cleaning.



THE KEY ADVANTAGES OF LT-PROCESS

- Minimized energy consumption
- High steam / gas recovery rate
- Extremely low clean gas dust content
- Dry gas cleaning process with extraction of dry dust
- No waste water and sludge treatment required

Cleaning of recovered gas for power generation



Upstream the gas turbine, the recovered gas of the coke oven, Basic Oxygen Furnace (BOF) and Blast Furnace (BF) needs to be cleaned by horizontal Wet Electrostatic Precipitators (WESP) to protect the blades of the turbine.

Services provided by GEA Bischoff

GEA Bischoff is a supplier of gas cleaning systems. The range of services includes the planning/ engineering and construction of plants as well as assembling, commissioning and maintenance services of the plant over the whole life cycle.

CUSTOMIZED ENGINEERING

The processes and technologies are the key for efficient and effective industrial gas cleaning. The design and equipment will be customized to local conditions and customer requirements. Experienced GEA Bischoff engineers will guide the entire process from planning to commission. Every step is aligned in cooperation with the customer.

SPARE PART MANAGEMENT

GEA Bischoff gas cleaning systems are service-friendly and contain long intervals between needed maintenance. For every project, the customer will receive a list of recommended spare

parts to keep on stock for planned maintenance work. Our spare part department ensures fast delivery of required equipment. Unplanned downtimes are therefore minimized.

UPGRADES, SERVICES AND TRAINING

Examples: Electrostatic Precipitator (ESP) to Baghouse Conversions or Scrubber upgrades with Energy Recovery Systems to meet current and future emission requirements including:

- Higher removal efficiencies
- Capacity for increased gas volumes
- Opportunities for online maintenance
- Reduced operation costs

ESP-Retrofit for energy optimization by using:

- Variovolt TR-set
- Real-time observation and power management

WORLDWIDE PRESENCE

With world-wide offices, the GEA Bischoff Emission Control business unit ensures you of fast support and service to your plant site.

Innovation is the key: With our own Research & Development department, GEA Bischoff develops new technologies and continuously improves current designs.

WASTE HEAT RECOVERY (WHR) TO IMPROVE ENERGY EFFICIENCY



THE KEY SOURCE

- WHR from sinter cooler transferred by thermal oil for preheating of combustion air or production of electric power.
- GEA Bischoff offers energy recovery systems based on ORC technology (Organic Rankine Cycle), which is the most efficient solution for this application.





We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA Group is a global engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881, the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX® Europe 600 Index.

GEA Process Engineering

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