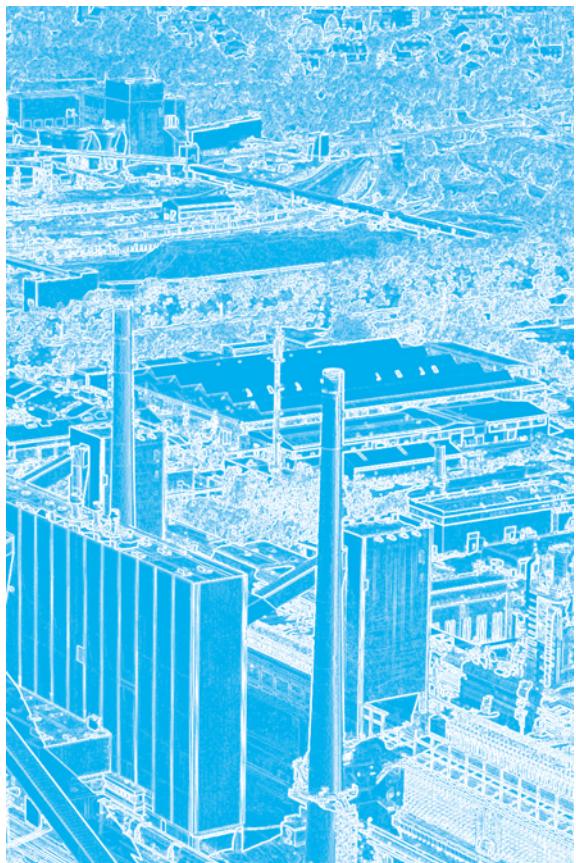
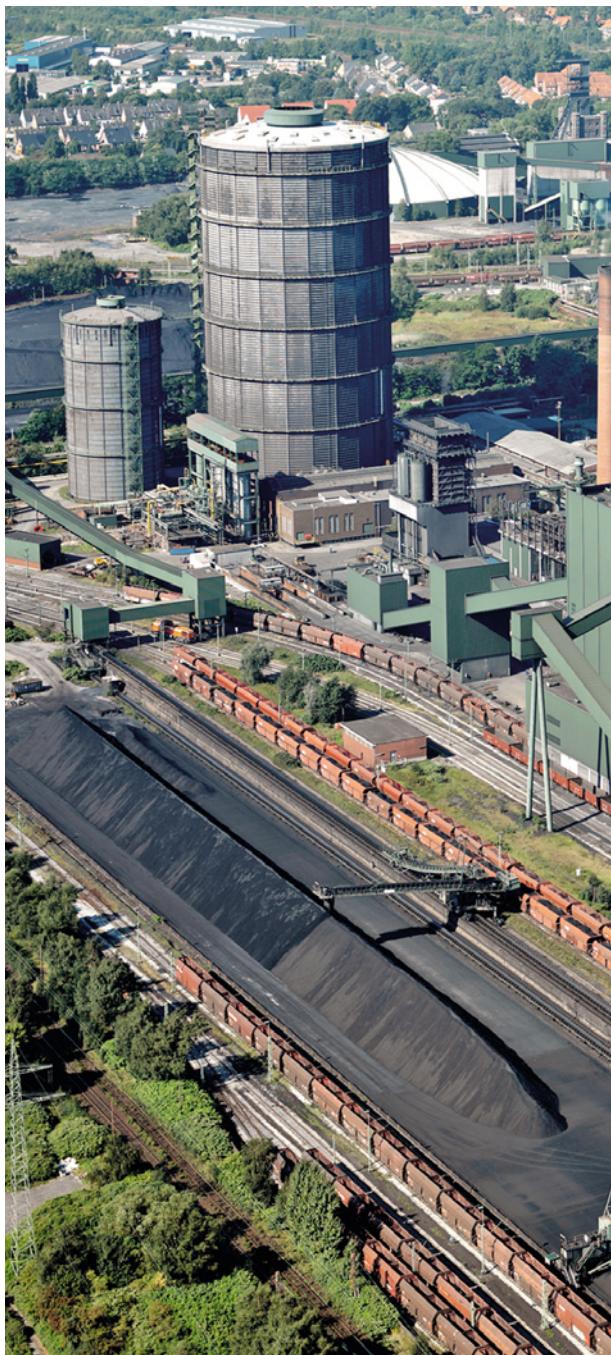


COKEMAKING

in harmony with the environment



Best Available Technology

Safe / Reliable Operation

Sustainability

Eco & Envirofriendly

KÜTTNER

MATERIAL LOGISTICS AND HANDLING

ThyssenKrupp
Steel Europe,
Germany

Coal handling
from harbour
to the battery



Tata Iron &
Steel, India

Lid luting for
charging hole
cleaning



Beijing
Coking,
P. R. China

Coke trans-
ferred by
CGC coke
guide car



Coal & Coke Transport and Preparation

Modern metallurgical coke production requires lean and proper logistics starting from the oversee coal mines to the coke oven battery. Since the volumes produced in modern coke making facilities cannot be supplied by a single source only for several reasons, proper blending of different coal types from various sources is required. The most efficient solution is to blend the coal on site of the coking plant by using stacker/reclaimer mixed-beds. In the next step the coal is screened for alien elements and oversize and is mixed with fines, petcoke and oil to guarantee a uniform density of the bulk material before sending it to the bins in the charging tower. Sampling and testing of the raw coal charge is included to an modern preparation plant as well as accommodated dust and noise emission control. Fully automated operation and control of the conveyors, screens, bins, feeders and other equipment is state of the art in this business area.

When the produced coke is coming back from the quenching tower a sizing and stabilizing procedure is started to separate the product in useable fraction on BF coke, small coke and coke breeze to be utilized in metallurgical processing.

The long term experience of Küttner in all these fields of logistics supply guarantees for the success of your coke business.

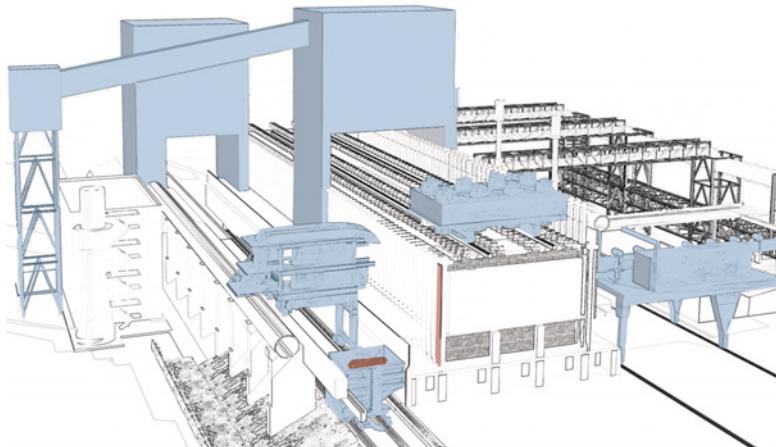
Coal Charging Systems

The standard charging operation of a modern coke oven battery is limited in the coal types to be processed in the volatile matters between 24 % and 28 %. By using HuDe supplied coal stamp charging technology the range of coal types to be processed in a conventional battery can be opened up remarkably from 25 % to 31 %, which opens the door for coal sourcing. HuDe provides this technology being involved in the long term production experience at Zentralkokerei Saar, Germany.

ALL CARS FOR COKE OVEN SERVICE & OPERATION

All Manipulators for Operation

All manipulators for coke oven service & operation as well as equipment for environmental protection and operation automation are designed, delivered and assembled by one overlapping team: KÜTTNER & Hude. Both companies are linked together by ownership relations within the KÜTTNER group.



Coke oven operation typical set-up

Coke Oven Service

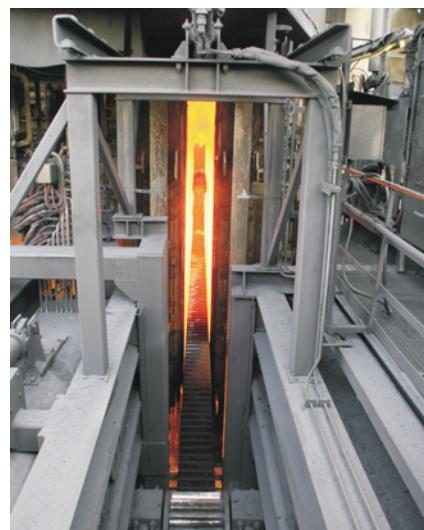
Supplies for the service of the battery:

- Pusher cars,
- Charging cars,
- Coke & Gas transfer cars,
- Hood cars and coke guide cars,
- Quenching towers, cars and movers
- Discharging & unloading systems



SSAB Oxelösund, Sweden

Arrival of CTC Coke transfer car on site



SSAB Oxelösund, Sweden

Rack steering to push coke out

Coke Oven Operation Tools

Supplies for the operation of the battery:

- Coal stamping machines,
- Charge hole lid lifting & cleaning devices
- Door extractors and cleaners
- Frame cleaners
- Coke transfer guide machines
- Spillage coke handling systems
- Vacuum cleaners and installations
- Bench side emission control & hood systems



Coke transport to quenching

SUSTAINABLE COKEMAKING

Environmental Management

With our line card for cokemaking plants we fully meet the stringent regulatory requirements and prohibitions for environmental protection. Küttners cokemaking machinery thoroughly reveals two strategies: first, the prevention of process emissions and second, exhaustion and filtering of process gas. This is achieved by:

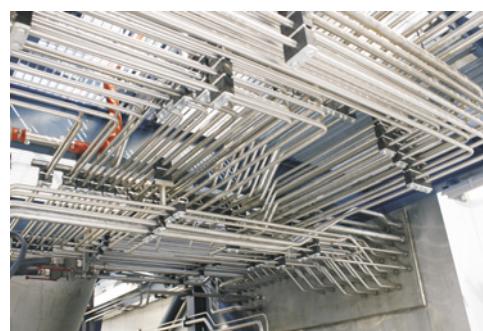
- Minimization of apparent process-related emissions even down to zero,
- Efficient suction and exhausting systems to capture residual emission,
- State-of-the-art dry bag filter systems



Standpipe control and interlock system with flame control for envirofriendly performance

Safety

Safety of the workers and reliability of the process is top priority for a successful operation. Together with generally accepted rules of technology this gives directions to our technological development from the very first draft. Extensive risk assessment and the involvement of approved bodies support us.

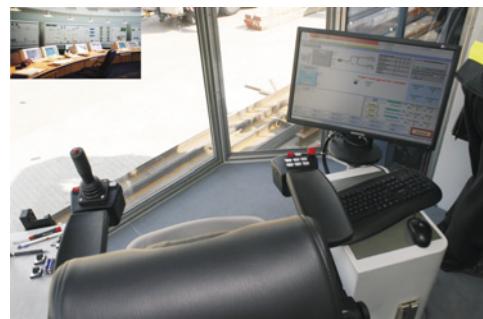


CTC
Hydraulic piping for individual control

Automation Systems

Our total process automation service covers all automation levels (1, 2 and 3) in industrial scale operations is rounded off by

- Automatic positioning systems
- Oven filling height level control
- Stamping device control
- Cycle boosters
- Process synchronization & visualization



SSAB,
Sweden
ArcelorMittal,
France

CTC Control
Level 1~3

SOUND SOLUTIONS

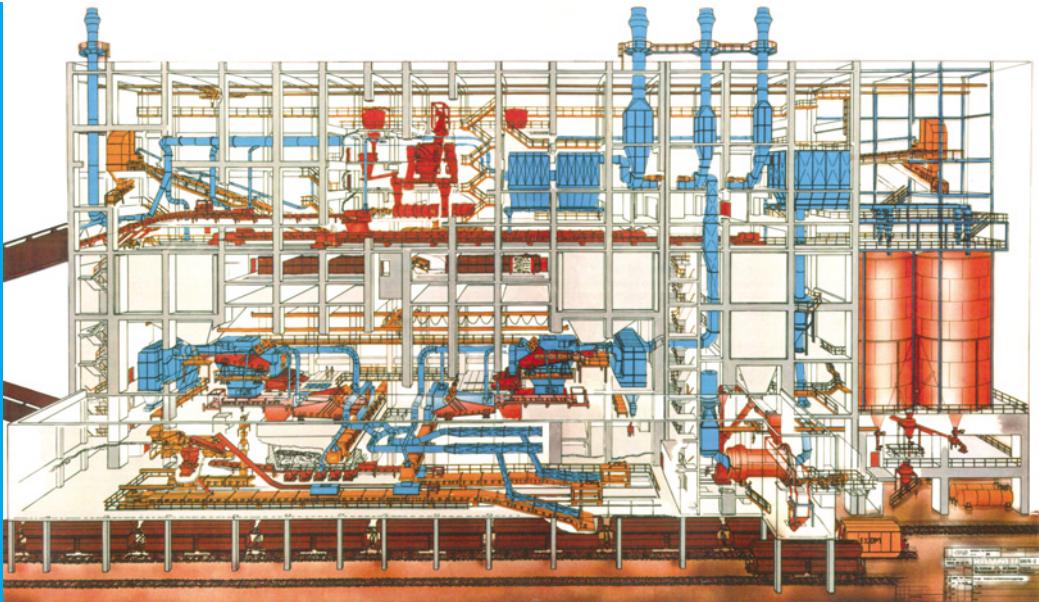
Prosper,
Germany

Sampling and
testing

Coal handling
and grinding

Coke
classification

De-dusting



Coke is an indispensable charge material for iron & steel making in integrated steelworks.

State-of-the-art coking plants produce high-quality metallurgical coke meeting the advanced requirements of the blast furnace process and the environment.

To continue following this path in the future, new plants have to be built and existing cokemaking facilities often need to be upgraded and modernized.

Performance & Profitability

We take it for granted that our solutions always focus on performance than mass. Thus we use to find the best answer to every question. Küttnner & HuDe are well known for solving customer's problems straight to the point – so as to satisfy them with the best available technology of optimum price performance ratio. Some striking figures support cokemaking technology by Küttnner & HuDe:

- Robust plant layout for heavy environments,
- High plant availability and long service life,
- Sophisticated process automation,
- Reduction of running costs by up to 75 % due to unmanned operation increase in production by up to 2 %.

Investment versus revamping

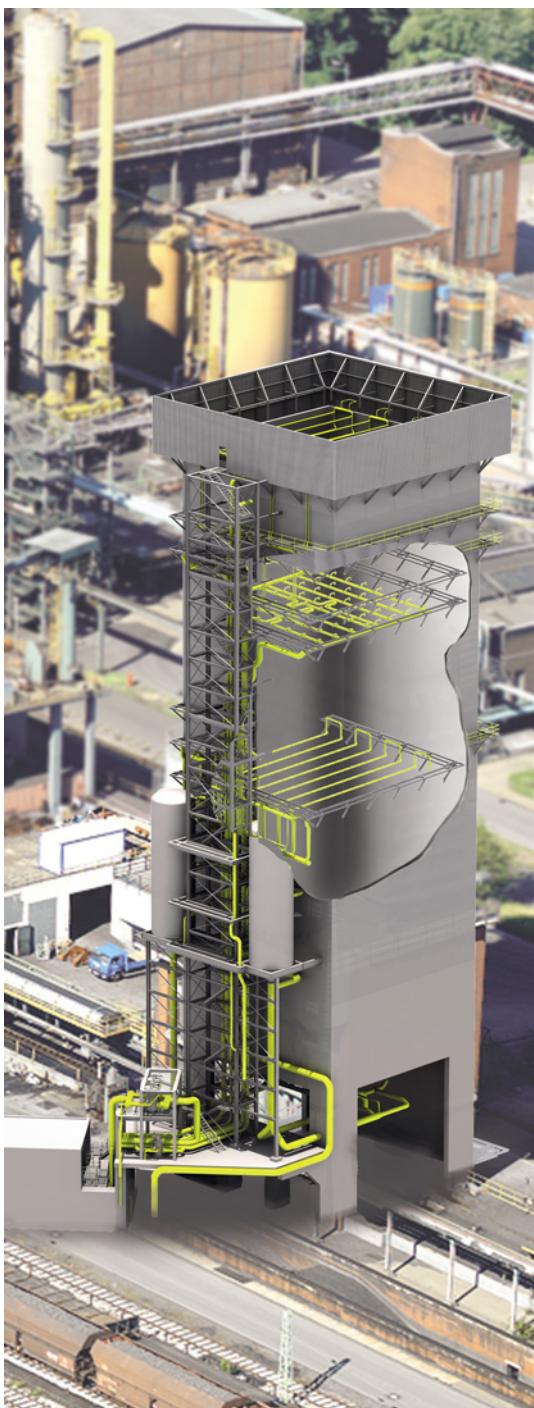
Will an upgrade prove the best solution or an investment in a new plant? Backed up by long-lasting experience in cokemaking and continuously updated, the Küttnner & HuDe team is your partner should you be looking for assessments of the hidden potential in your plants and processes.

Our scope of service further comprises the design and engineering, delivery, assembly, as well as the start-up and commissioning of the entire plant including control system and data processing. Küttnner is also your essential partner in modernization, revamps and upgrades.



KÜTTNER & HUDE

joined specialists for cokemaking



A globally acting group of companies has developed from the engineering company once founded in 1949 by Dr. Carl Küttner. Nowadays their main focus is on building turnkey plants for the metal producing and processing industry, especially in the fields of process and smelting technology as well as of materials handling.

Complying with the strong demand for holistic solutions by the cokemaking industry, all comprehensive experience gained in the numerous projects in the field of coking coal and coke production is concentrated in the team of Küttner & Hude. Together we commit ourselves to providing our customers with integrated solutions – all available at one stop.

We are suppliers of world leading technology for the enviro-friendly production of metallurgical coke. We offer the whole range from coal preparation up to coking coking plants including all auxiliary facilities. Innovative in-house developments are based on wide expertise. Equipment and technology optionally extended by service is always individually tailored to fully meet the distinct requirements of our customer as we are well-known for.

Worldwide personnel of Küttner group counts more than 550 employees, their owners themselves being active within the management of the company.