

Industrial Solutions

Coke oven machines

Plant operating success
through tailored services



thyssenkrupp





thyssenkrupp Industrial Solutions services all stages in the life of an industrial plant – either individual steps or the complete cycle, depending on your requirements. Our highly qualified team can act quickly and flexibly throughout the world thanks to the international network of the thyssenkrupp Group.

All fired up for your success!

Increasing plant capacities, minimizing downtimes, maximizing availability – and all against the backdrop of increasing cost pressure and more stringent environmental regulations: there are countless challenges facing coke oven plant operators. With its comprehensive service portfolio, thyssenkrupp can help to overcome them.

Throughout the world, our specialists offer tailored concepts, customer-specific services and pioneering high-tech solutions to cover all aspects of plant revamps, modernizations, expansions, optimizations and (parts) replacements. Our mission is your success: The purpose of all of our services is to make our customers more successful and competitive – through measures to increase productivity, to improve cost effectiveness and efficiency as well as to ensure compliance with current environmental standards.

A one-stop shop

Our services range from investigations and feasibility studies through the fabrication and maintenance of machines and plants to training your personnel. This makes us a competent all-round partner who can provide all services from a single source in the shortest possible implementation periods. In choosing thyssenkrupp Industrial Solutions, you will also benefit from the combined know-how of our big-name predecessor companies Dr. C. Otto, HKC, Carl Still and Krupp Koppers. Call on our services and you can count on over 100 years of experience as well as our innovative drive!

The following pages contain six real-life examples that illustrate our extensive range of services.

Your benefits in a nutshell

You can benefit from our services in many ways

New-builds, revamps and modernizations

- Feasibility studies
- Process optimizations
- Quality improvements
- Availability enhancement
- Maximum safety and reliability
- Cost efficiency
- Capacity increases

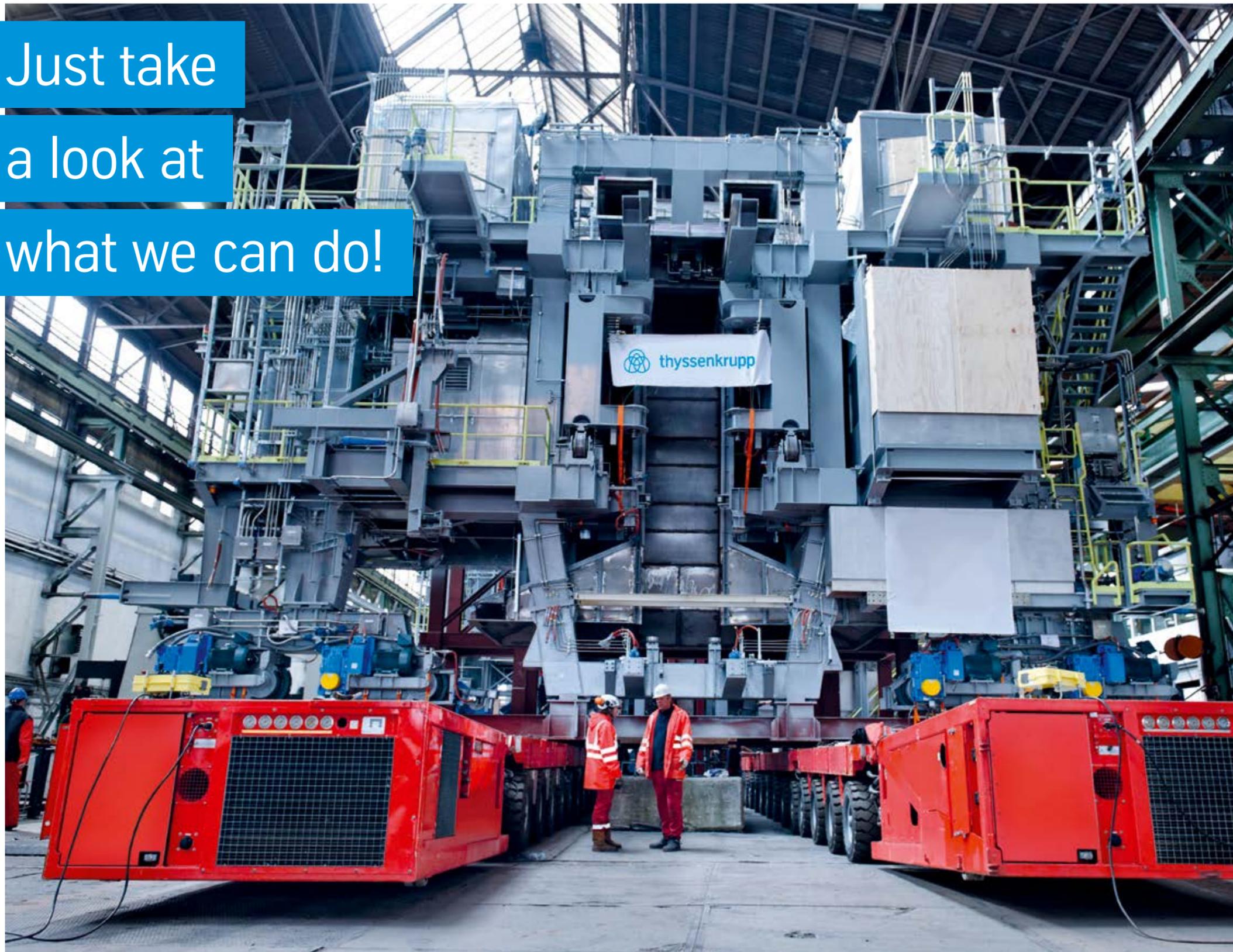
Operation and maintenance

- Customer-specific maintenance services
- Reduced downtimes
- Highly qualified personnel
- Support via special software
- Supply of spare parts

Environmental care

- Health and safety
- Emissions reduction
- Energy savings
- Compliance with statutory limit values

Just take
a look at
what we can do!



Cost-effective, non-site-bound production capacity increase: from the basic engineering to the commissioning of coke oven machines including trainings.

To increase its production capacity, an existing coke oven plant in the USA has been expanded to include a new battery comprising 85 ovens. The new battery was fitted with two sets of oven servicing machines for which thyssenkrupp Industrial Solutions carried out the engineering as well as the fabrication, installation, commissioning and training.

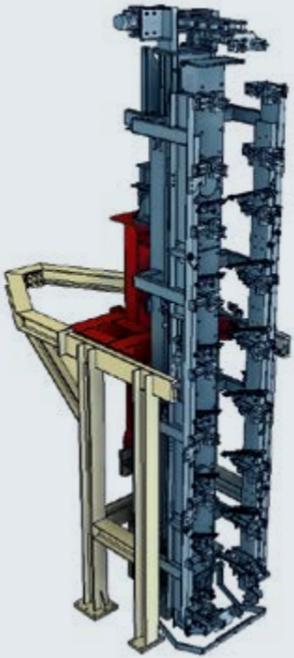
While the transfer and pusher machines serve only the new battery, the charging cars must also be able to reliably serve the old battery. Due to their age, the charging hole frames of the existing battery exceeded the tolerances. So as to avoid a costly, time-intensive oven top repair, both charging cars were equipped with a shifting device along the oven axis to ensure safe, low-emission oven operation. At the same time, pneumatically operated telescopic seals developed by thyssenkrupp were also installed. Both systems are protected by thyssenkrupp patents. A further development now allows deviations of the battery axis to be corrected.

“A high-quality, tailored solution saves money and ensures the desired capacity.”

Due to a lack of space on site, the assembly, tests and cold commissioning were carried out in an assembly hall in Germany, protected from the elements, before the new machines were transported to the USA by ship. On arrival, the maritime securing devices and transport support structures were removed in no time; the first coke followed soon after hot commissioning and the personnel training.

Clean and green

Modernization of door and frame cleaners



In Europe thyssenkrupp has carried out the engineering as well the supply, installation and commissioning of four door and frame cleaners, which were mounted on existing pusher machines and door machines. In order to ensure reliable oven operation and optimum cleaning results, the existing door machines were modified with a sensor to record the tilt angle of the coke oven doors. The installation, commissioning and optimizations were conducted during ongoing operation so as to avoid shutdowns.

Process and technology optimization to achieve a production increase and to protect man and the environment

At a steelworks in Germany, Industrial Solutions compiled a feasibility study concerning the upgrade of existing coke oven machines. Based on this study, the charging cars were retrofitted with a shifting X-Y frame for the charging centers – enabling them to meet the highest requirements with respect to protecting man and the environment. In order to satisfy the new production requirements, the hydraulic systems of all the machines as well as the associated electrical systems and instrumentation were replaced.



No time for stoppages

Retrofitting of an emissions control system

In order to reduce pushing emissions, a pushing emissions control system has been retrofitted in a coke oven plant during ongoing production. Installing and commissioning the system during ongoing production was a challenge. The scope of services rendered by thyssenkrupp Industrial Solutions included the basic and detail engineering, fabrication, installation and commissioning of a hood car, the gas collecting main and the complete bag house for scrubbing the gases extracted. In addition, the operating personnel was trained to handle the newly supplied units.



All air-tight

thanks to modification of the charging telescopes

To reduce charging emissions that were occurring in the vicinity of the charging machine telescopes, the entire assembly was fitted with pneumatically operated seals. For this, the charging telescopes were redesigned. thyssenkrupp was responsible for the engineering relating to the implementation of the new sealing system as well as the supply of key equipment, process diagrams and operating instructions.



Full service portfolio

Under a servicing contract Industrial Solutions is handling the scheduled inspection and maintenance of coke oven machines. This includes identifying and assessing the current condition, defining the action that needs to be taken, documenting the work carried out and any deviations in the operations control system as well as exchanging information with the maintenance department on a weekly basis.

At the same company, thyssenkrupp took on the repair of coke oven machines. To allow maintenance work to be carried out on the gas collecting main during ongoing pro-

duction, thyssenkrupp Industrial Solutions developed a service car concept. Once it had been engineered and fabricated, the service car was installed and extensive maintenance measures were conducted on the gas collecting main.

To reduce the residence time of the pusher rod in the oven, thyssenkrupp compiled a feasibility study followed by the engineering and installation of a standpipe blowoff cleaning device that is mounted on the frame cleaner to reduce the residence time of the pusher rod in the oven.

Industrial Solutions
Service

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