

Coke Oven Gas

Renaissance of a fuel

In the 19th and the first half of the 20th century coke oven gas was one of the main sources of energy for urban households. It was used for gas lamps, for heating and cooking. In many parts of the world the population was supplied with purified coke oven gas as town gas. In the 1960s coke oven gas (town gas) was replaced by natural gas as a fuel – and fell into oblivion as a source of energy in many places.

However, fossil fuels like natural gas are precious and expensive and in times of climate change, reliable alternatives are in demand worldwide, particularly in industry.

Coke oven gas – from a by-product to a reliable source of energy

What, therefore, is coke oven gas? Large amounts of this gas, which represents a high-quality and low-cost fuel in purified or partially purified form, result from gasification of coal or as a by-product of coal degassing at coking plants. It consists of 50 % hydrogen and approx. 25 % methane and is thus a valuable source of energy that is available near coking plants and in coal mining areas and should be exploited optimally.

Coke oven gas places special demands on combustion technology, due to large volumes, low pressures, high hydrogen content and frequently high degree of contamination.

SAACKE burner systems for coke oven gas

SAACKE combustion technology today makes possible a reliable, low-emission and highly available utilization of this demanding fuel. Besides purely coke oven gas burners, SAACKE also offers combined burners for two-gas operation or operation in combination with liquid fuels.

The following burner series have proven effective in operation with coke oven gas:

- SG / SKVG for all areas of application, output 1 – 55 MW
- TEMINOX GS / GLS for flame tube boilers and thermal oil heaters, output 4 – 25 MW
- DDG / DDZG and TF-DDG / TF-DDZG for water tube boilers, output 10 – 80 MW
- SSB for combustion chambers and special applications (low gas pressure, contaminated combustion gas), output 1.5 – 90 MW

In addition, SAACKE offers:

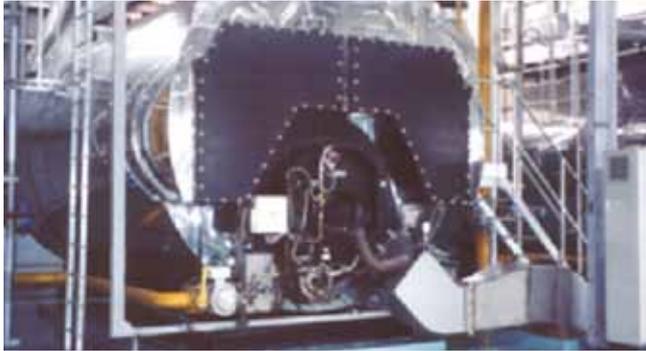
- Intelligent EMSR technology
- Special gas trains for coke oven gas with increased contamination, e.g. due to traces of tar or oil

Depending on the configuration, systems for coke oven gas combustion can also be combined with other efficiency-enhancing measures and with alternative fuels. This makes it possible to further reduce operating costs while efficiency is increased even more. SAACKE offers tailored technical solutions to utilize energy efficiently.

The following examples impressively show how combustion of different alternative fuels can be optimally combined with intelligent EMSR technology and equipment for maximum energy efficiency:

Coke oven gas firing system at a steel plant in China

The system is run with the extremely rugged SAACKE SG 150 gas burner on a 20 t/h steam boiler.



Coke oven gas firing system in China with SAACKE gas ring burner

Technical data

Application	Shell boiler; 20 t/h; 16 bar, saturated steam
Burner model	SKVG
Burner output (max.)	14.5 MW
Coke oven gas	
Emission values	NO _x : < 300 mg/m ³ CO: < 50 mg/m ³
Lower heating value (LHV)	16.8 MJ/m ³

Coke oven gas firing system at a steel plant in Germany

This system is run with six SAACKE TEMINOX GS Low-NO_x gas burners on three 30 t/h steam double flame tube boilers. Two boilers are fired with natural gas and one solely with coke oven gas.



Coke oven gas firing system in Germany with SAACKE Low-NO_x gas burners

Technical data

Application	3x Double shell boiler; 28 t/h; 23 bar; 285° C
Burner model	TEMINOX GLS
Burner output (max.)	2x 10.8 MW (each boiler)
Coke oven gas	
Emission values	NO _x : < 200 mg/m ³ ; CO: < 50 mg/m ³
Lower heating value (LHV)	18 MJ/m ³
Natural gas	
Emission values	NO _x : < 100 mg/m ³ ; CO: < 50 mg/m ³
Lower heating value (LHV)	36 MJ/m ³

For further information, please visit: www.saacke.com