



## **SAACKE LONOX UCC System already complies with future Chinese emission limits**

**Nitrogen oxide emissions < 30 mg/m<sup>3</sup> based on 3.0% dry O<sub>2</sub> certified by the German TÜV**

From 2017, particularly strict emission guidelines will apply in selected urban areas in China, such as Beijing. New heat generation plants and power stations will then be subject to a NO<sub>x</sub> limit value of a maximum of 30 mg/m<sup>3</sup> based on 3.0% dry O<sub>2</sub>, while the regulation enters into force in five years for existing plants. The optimized SAACKE LONOX UCC (Ultra Clean Combustion) System, based on burner technology that has proven its worth over decades, already complies with the future guideline values in all areas – without expensive additives or secondary measures. This was verified by the German TÜV (Technical Inspection Authority) in January 2016, based on measurements at a test facility at the SAACKE research and development location in Bremen.

The new statutory regulations are the Chinese government's response to rising air pollution and smog formation, especially in urban areas. These are the result of released nitrogen oxides, which are unwanted by-products of combustion processes that use high temperatures in many sectors of industry or are also released by motor vehicles in traffic. "We want to use our technology to contribute to a better climate and better living circumstances for the inhabitants", says Dr. Norbert Schopf, Director Business Development at SAACKE. "The guidelines for new plants may only enter into force from 2017, but they also affect power stations that supply heat. The goal is to be able to commission the first SAACKE Low NO<sub>x</sub> burners at the start of the 2016/2017 heating period." Plants that are already in operation can also be fitted with the technology, so that they can continue to be used.



Managing Director: Malcolm J. Cook

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### Cost-effective and efficient compliance with limit values

The reduction of nitrogen oxides in industrial processes is generally achieved by cooling the flame temperature in the burner, such as by installing cooling fins or water injection. NO<sub>x</sub> reduction measures of many SAACKE competitors often lead to a high amount of excess O<sub>2</sub> or a high level of CO. Significant reductions in the released nitrogen oxide can often only be achieved using expensive, catalytic (SCR) or non-catalytic (SNCR) processes. However, all of these options increase fuel consumption, material costs and the use of necessary additives at the operator's expense. By contrast, the SAACKE LONOX UCC System is based on an internally developed technology, whose core elements are a swirled and particularly stable spherical flame as well as a specially-engineered flame control. "This function has proven itself in practice over many years and has undergone constant optimization", explains Dr. Norbert Schopf. The SAACKE burner fires all gaseous fuels cost-effectively and efficiently in compliance with the limit values of 30 mg/m<sup>3</sup> NO<sub>x</sub> based on 3.0% dry O<sub>2</sub> – with a low flue gas recirculation rate of < 30%. Specifically, measurements by the TÜV Nord, under low, partial and full load, resulted in NO<sub>x</sub> values (averaged over half an hour) of < 19 mg/m<sup>3</sup> at an output of 1 MW, < 28 mg/m<sup>3</sup> at 4 MW and < 24 mg/m<sup>3</sup> at 8 MW. The CO value is below 100 mg/m<sup>3</sup>. The SAACKE LONOX UCC System does not require any external measures for NO<sub>x</sub> or CO, and has a capacity range of 8 to 64 MW, making it suitable for plants with shell boilers or water-tube boilers with capacity ranges between 10 and 80 tons per hour. The burner solution is also ideal for extremely short furnaces due to the special flame geometry.

[The SAACKE LONOX UCC System](#) can be customized to customer requirements and the local infrastructure. Besides the test plant at the research and development location in Bremen, a 32 MW demonstration plant is also in planning at SAACKE's Chinese site in Qingdao.

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