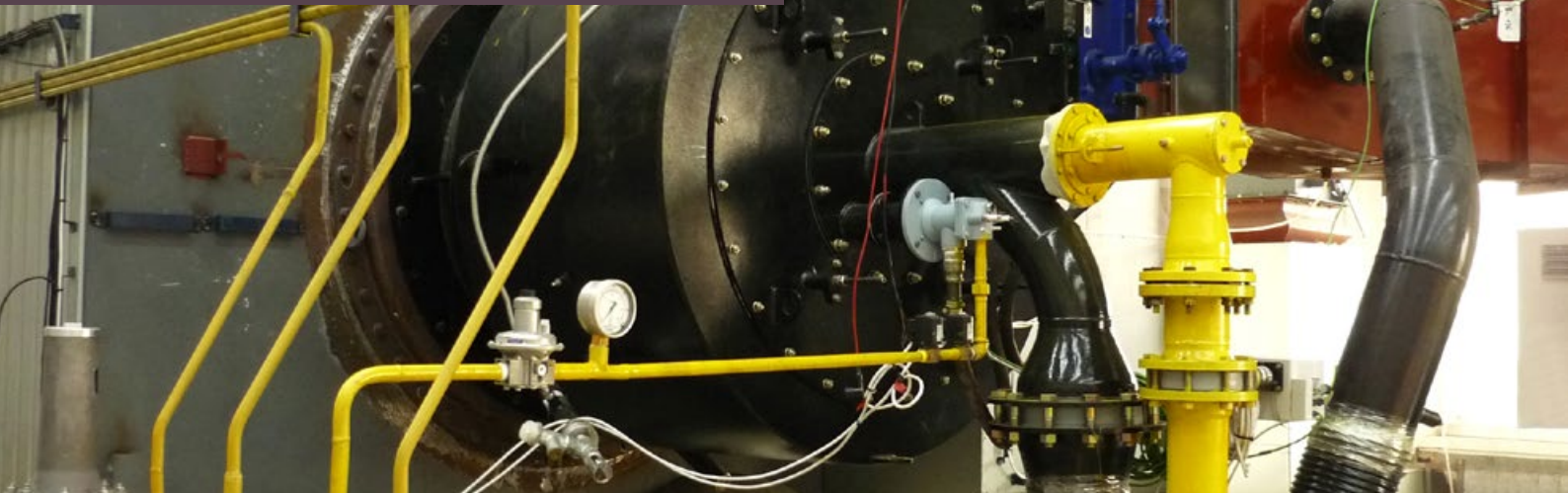


Product information

LONOX UCC (Ultra Clean Combustion) System

SAACKE



Clean combustion for the future

SAACKE LONOX UCC – below 30 mg/m³ NO_x emissions

Worldwide emission limit values for the industry are decreasing. For example, this is demonstrated by the Chinese regulations, which specify since 2017 for new power stations and energy generation plant and public district heating projects a strict NO_x limit value of 30 mg/m³ based on 3% dry O₂ in urban areas such as Beijing. For existing plants, this regulation enters into force in a few years. This demands on sophisticated technical solutions: The SAACKE LONOX UCC (Ultra Clean Combustion) System.

Certified and reliable quality

Compliance with future guideline values has been certified in 2016 by the German TÜV (Technical Inspection Authority). The SAACKE LONOX UCC System ensures compliance with the emission values without expensive additives and works cost-effective and efficient.

Suitable for different boiler design

The burner is suitable for different boiler design, different refractory arrangement in firing chamber and different firing chamber geometry. Moreover the system is covered for different fuel gas supply pressure. The burner draft loss of the combustion air is lower than 25 mbar (depending on the burner design).

Energy and heat supply

Chemical industry

Refineries

Food industry

Building materials industry

Steel and metal production

Waste incineration

And more ...

All benefits at a glance

- ↳ Extremely low NO_x emissions (< 30 mg/m³) based on 3% O₂, dry
- ↳ Control range up to 1:10 (depends on burner design)
- ↳ Excess air ratio under 15% at 100% MCR
- ↳ Also suitable for extremely short furnaces
- ↳ TÜV-certified emissions without secondary measures or additional additives
- ↳ Suitable for shell boilers and water-tube boilers
- ↳ Reduced operating costs due to high-efficiency combustion technology and low auxiliary power requirement
- ↳ Less maintenance time and exceptionally long life
- ↳ Conforms with European and Chinese guidelines

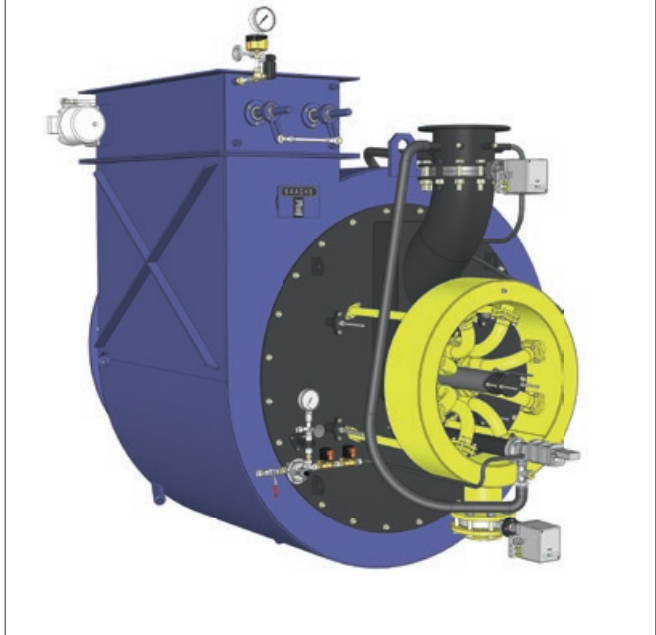
The SAACKE solution in detail

A special, swirled flame geometry as well as a specially-engineered flame control enables the burner to do without common methods of nitrogen oxides reduction, such as catalytic (SCR) or non-catalytic (SNCR) processes, installing cooling fins or water injection. The burner combusts reliably all standard gaseous fuels in compliance with the strictest limit values – with a low flue gas recirculation rate of < 25%.

Conclusion

The SAACKE LONOX UCC is a reliable and market-tested combustion solution. The burner is characterized by extremely low, environmentally friendly nitrogen oxide emissions as well as low investment and operating costs. The System can be customized to the respective customer requirements and plant infrastructure and is suitable for extremely short furnaces due to the special flame geometry.

LONOX UCC System



Technical data: LONOX UCC System

Applications	Shell boilers and water-tube boilers in a capacity range of 10 - 80 t/h
Burner capacity (max.)	8 - 64 MW (other sizes on request)
Fuels	All standard gaseous fuels
NO _x emissions	< 30 mg/m ³ (depends on boiler design) based on 3% O ₂ , dry
Control range	Up to 1:10 (depends on burner size)

German TÜV certificate



CERTIFICATE

about the emissions of a burner provided for operation with natural gas

Type: LONOX UCC
 Design: Burner with external exhaust gas recirculation
 Manufacturer: SAACKE GmbH
 Südweststraße 13
 28237 Bremen
 Germany

TÜV NORD Umweltschutz GmbH & Co. KG investigated the exhaust gas of a water tube boiler with the burner named above on 27 January 2016 by emission measurements. The measurements were carried out according to the standards EN 15259, EN 14789, EN 14792 and EN 15058. Three load levels (minimum load, half load and maximum load) were investigated.

TÜV NORD Umweltschutz GmbH & Co. KG certifies: the burner LONOX UCC complied in all three load steps

the emission limit for nitrogen oxides expressed as nitrogen dioxide at 30 mg/m³ and the emission limit for carbon monoxide at 50 mg/m³.

The oxygen content in the exhaust gas at full load was below 2.5 vol.-%.

The concentration data relate to dry gas under standard conditions.

A complete representation of the measurements is in our report No. 8000656406 / 416EFK008.

Bremen, February 26, 2016

Andreas Jahn
 Dipl.-Chem. Andreas Jahn
 Expert witness

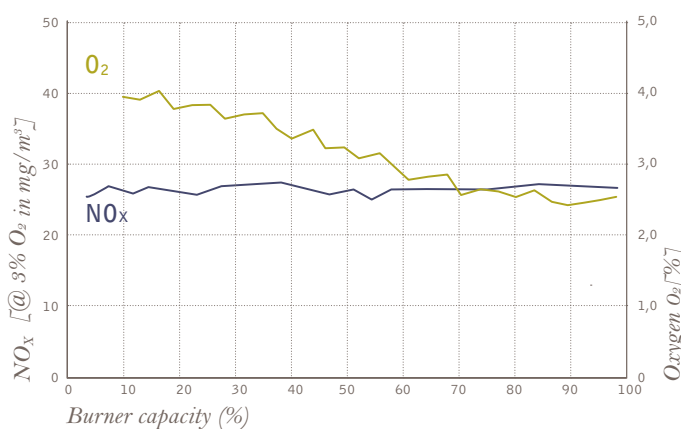
Stefan Dirks
 Dipl.-Chem. Stefan Dirks
 Technical supervisor (disputy)

Nach DIN EN ISO/IEC 17025:2005 durch die DAKKS - Deutsche Akkreditierungsstelle GmbH - akkreditiertes Prüflaboratorium
 Die Abbildung gilt für die in der Urkunde aufgeführten Prüfverfahren.



Sitz der Gesellschaft: TÜV NORD Umweltschutz GmbH & Co. KG Große Bahnstraße 31 22628 Hamburg Tel.: 040 8881-2421 Fax: 040 8881-2118 umwelt@tuvnord.de www.tuvnord.de	Amtsgericht Hamburg HRA 16733 USt-IdNr.: DE 813276237 Steuer-Nr.: 2316200000	Konzernverb. TÜV NORD Umweltschutz Natur-Service-Technik GmbH, Hamburg Amtsgericht Hamburg HRB 10176 Geschäftsführer Jara Peters	Commontek AG, Hamburg BüL 200 40 00 Kurz-Nr.: 400403 BG (SWIFT-Code): COBDE33P BIC-Code: DE 44 2504 0000 0408 0408 0408 00
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Emissions diagram LONOX UCC System*



* Depends on burner size

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