EFFICIENT DISTRICT HEATING AND THE LOWEST POSSIBLE NOₓ EMISSIONS

Modernization of a power plant: Modular DDG-LN burner system for Régie de Chauffage Urbain, Fontenay-sous-Bois (France)

As part of the modernization of a power plant for the district heat supply, the public operator in Fontenay-sous-Bois, near Paris, switched to a much more efficient and cleaner technology. The company decided to draw on the longstanding expertise of SAACKE.

MODULAR DESIGN SAVES CONVERSION COSTS

In just a short time the customer's plant was equipped with three DDG-LN burners, gas valves and fittings, and a highly efficient control. The project took only two and a half months to complete from the award of contract to commissioning. This was possible thanks, in particular, to the simply, modular design of the components, which also ensured to continued use of existing fans – a significant saving for the operator.

Furthermore, the DDG-LN impressed with its joint air supply for the burner in the boiler and its fuel grading. This ensures convenient operation with maximum availability and increases energy efficiency. Since its commissioning, NOₓ values have been well below the 100 mg/m³ limit, despite a fully brick-lined boiler floor and without secondary measures such as external flue gas recirculation.

» NOₓ values have been well below the 100 mg/m³ limit. «

Ludovic Courtot – SAACKE BRÛLEURS INDUSTRIELS Area Sales Manager
THE SAACKE SOLUTION IN DETAIL

The DDG-LN is an advanced development of the tried and trusted SAACKE steam-assisted pressure jet technology, which externally offers an impressively rugged exterior, but internally also sets very high standards. Graded combustion allows extremely low NOx values:

As a fuel, natural gas is divided into primary and secondary sub-streams, which can be controlled together or separately of one another. Optimized, internal flue gas recirculation ensures a low-emission combustion reaction. The swirl-stabilized primary area is responsible for producing a very stable flame.

SAACKE was also responsible for designing and implementing the firing concept and fuel-air compound control. It generates the optimum conditions using a differential pressure control for the combustion air through a joint fan with a frequency converter. Due to the high turn down ratio and efficient combustion technology of the DDG-LN, the ideal cost-benefit ratio can be achieved - which benefits the environment as well as the operator.

THE MULTI-TALENTED DDZG

The DDG-LN is a component of the subsequently developed DDZG burner series, which is suitable for a variety of custom solutions:

- Standard fuels and almost any special fuel
- Simultaneous combustion of gases and liquids in any combination (gas/gas, liquid/liquid, gas/liquid)
- Variants for use in potentially explosive atmospheres

CONCLUSION

Quick and tailored solutions of exceptional “Made in Bremen” product quality are a given with the DDG-LN from SAACKE. This is equally true of the installation and commissioning, as well as its convenient operation and efficient heat supply with the lowest possible NOx values.

ADVANTAGES AT A GLANCE

- Consistent adherence to the limit value of 100 mg/m³ NOx
- Highly efficient combustion technology with fuel grading
- Convenient operation and maximum availability
- High turn down ratio
- Smooth project management and fast order tracking
- Extremely durable and easy to maintain

Key technical data

<table>
<thead>
<tr>
<th>Boiler type</th>
<th>36 MW water-tube boiler, brick-lined furnace</th>
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<tbody>
<tr>
<td>Burner type</td>
<td>3 x DDG-LN 150</td>
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<tr>
<td>Burner capacity</td>
<td>3 x 12 MW</td>
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<tr>
<td>Fuel</td>
<td>Natural gas</td>
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<tr>
<td>Peripherals</td>
<td>Differential pressure control system for combustion air</td>
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<tr>
<td>Turn down ratio</td>
<td>1:5</td>
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<tr>
<td>NOx-emissions</td>
<td>Safely under 85 mg/m³ (based on 3% O₂) without secondary measures</td>
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<tr>
<td>Design</td>
<td>Internal gas grading, single-entry air with moderate pressure loss</td>
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