



Investment in flexibility and project efficiency

SAACKE modernizes combustion system from third-party production in refinery furnace, including complete project management

For nearly 100 years, Hamburg-based H&R Ölwerke Schindler GmbH, a company working in the field of specialty chemicals, has been operating a refinery for the production of base, white and specialty oils. In order to make the location more flexible and sustainable, especially in times of volatile market conditions, H&R requested SAACKE GmbH to perform the natural gas upgrade of an existing co-firing system of the vacuum distillation plant. Due to the conversion and the use of natural gas, a significant part of the ancillary production oils is now being further refined to produce specialty products. In addition to the resulting increased energy efficiency, additional specific goals consisted of increasing the degree of automation, the reduction of emissions in accordance with applicable NO_x and CO limits and a higher resistance against failure.

Precise planning from a single source

A particular challenge was the tight time frame for implementation, because plant downtime means loss of production for the customer. In addition, the original manufacturer of the combustion plant was no longer active in the market, making technical documents difficult to access. Thus, the focus was largely on exact analysis and extensive planning in order to reduce the implementation time to a minimum. In the engineering phase, it was necessary to define both line paths and connections as well as to coordinate with additional trades, experts and certification authorities. After several months of preparation, the actual conversion was successfully carried out within one week.



“We can thoroughly recommend SAACKE as a problem-solver for complex projects.”

*Dr.-Ing. Guido Breidenich, Division Manager,
H&R Ölwerke Schindler GmbH*

H&R Ölwerke Schindler GmbH

Refinery / petrochemicals

Conversion of refinery furnace

Task

Conversion of an existing co-firing system of a vacuum distillation plant to natural gas, including complete modernization of a third-party plant, within a very short time.

Solution

Detailed, low-emission design, implementation of 42 natural gas guns and 14 pilot burners, as well as comprehensive consultation in every project stage.

The SAACKE solution in detail

The 14 burners, which were previously operated with condensate oil, fuel oil and biogas, were upgraded with 42 natural gas guns (three per burner), providing for safe operation and reduced emissions using sophisticated fuel grading. Whereas every single burner had to be ignited manually before, ignition is now automated. The scope of services also included all associated gas supply routes, completely renovated control and monitoring equipment, as well as installation and commissioning. Since the conversion, the plant thus satisfies all relevant legal regulations and guidelines (EN 746-2, EN 61508, EN 61511, VDE0116, VDE0810 Part 2).

Conclusion

The bases for the success of the retrofit were a detailed inventory of the status quo with the customer, specific know-how in combustion technology, sophisticated engineering and trouble-free implementation. As a result, cost savings of approximately 30 % and a CO₂ reduction of approximately 20 % were achieved through the use of natural gas. With an estimated amortization period of two years, the plant has gained flexibility, a higher real net output ratio and process efficiency at a relatively low financial cost.

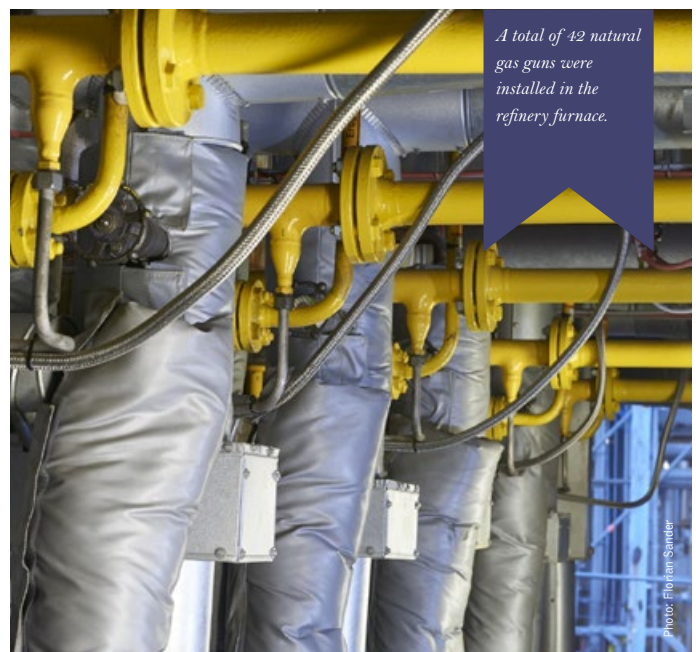


Satisfied with the implementation of the project (from left): Dieter Köhler (H&R Project Manager), Guido Breidenich (H&R Division Manager) and Bernhard Rieger (SAACKE Plant Engineering Manager)

Photo: Florian Sander

All benefits at a glance

- ✔ Integrated energy and process efficiency optimizes the real net output ratio and fuel flexibility
- ✔ Short ROI period
- ✔ Lower CO₂ and NO_x emissions
- ✔ Short downtimes thanks to precise planning and training
- ✔ Increase in the plant's level of automation
- ✔ Increased resistance against failure due to modern flame detector monitoring technology
- ✔ Compliance with current legal regulations
- ✔ Complete project and approval management



A total of 42 natural gas guns were installed in the refinery furnace.

Photo: Florian Sander

