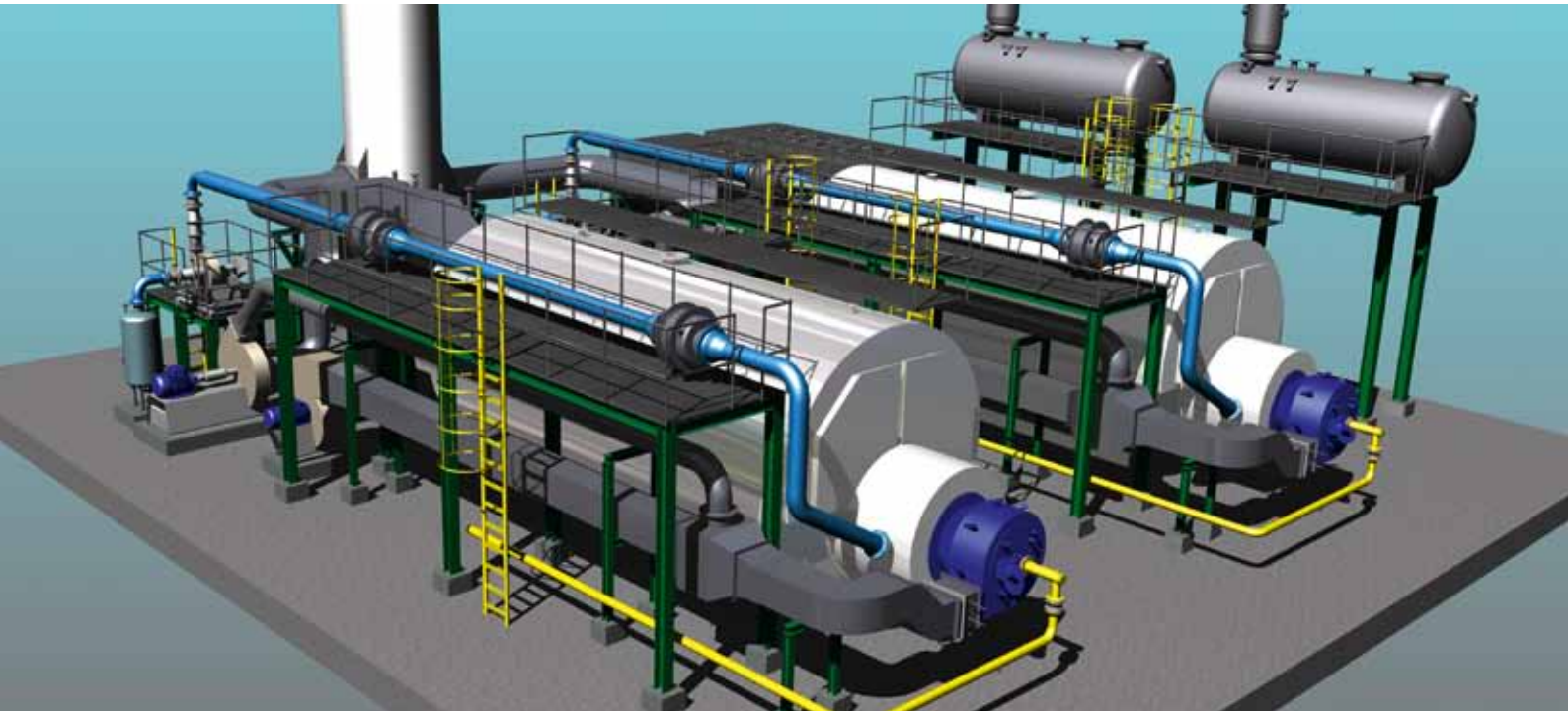

Utilizing tank ventilation gases Reducing energy costs

A significant volume of displacement air is generated when tanks are filled. These gases, so-called vents, are in most cases harmful, have a strong odor and are often combustible or explosive. Greatly fluctuating and low heating values as well as small volumetric flows tend to make reliable thermal exploitation unattractive.

SAACKE solutions enable reliable, easy and economical utilization of these gases – even at fluctuating heating values from 0 to 40 MJ/m³ and in difficult environments. At maximum availability low-emission combustion supplies energy that can be immediately reutilized on the spot. The need for supporting fuel has been considerably minimized in comparison to other systems available on the market. This makes short amortization periods possible – thanks to the energy and disposal costs saved.

Vent combustion in steam boilers

The SSB-LCG swirl burner enables utilization of ventilation gases with little pressure as well as of several waste gas flows in parallel. If an existing facility already has a steam boiler, the gas previously not utilized can replace valuable standard fuels. Operation of such boiler systems is just as efficient and safe and offers the same high availability as with conventional fuels.

Vent combustion in thermal oil heaters

Thermal oil heaters can also be employed to make economical use of the energy of vents. Operated with the SSB-LCG, they provide valuable process heat and in combination with a heat exchanger supply steam for production or heat, such as for a building heating sventiystem.

Vent combustion in combustion chambers

The SSB-LCG swirl burner has proven exceptionally effective in this context. In combination with a downstream combustion chamber it utilizes gases with a fluctuating heating value, extremely low pressure and energy content even without supporting fuel. In addition, this technology guarantees maximum availability with very clean combustion – the SSB-LCG also reliably complies with the strictest limits for NO_x, CO and CO_2.

Everything from a single source

SAACKE's team of specialists designs and looks after every facility individually. The decades of experience of the Engineering Department and coordinated project management ensure that

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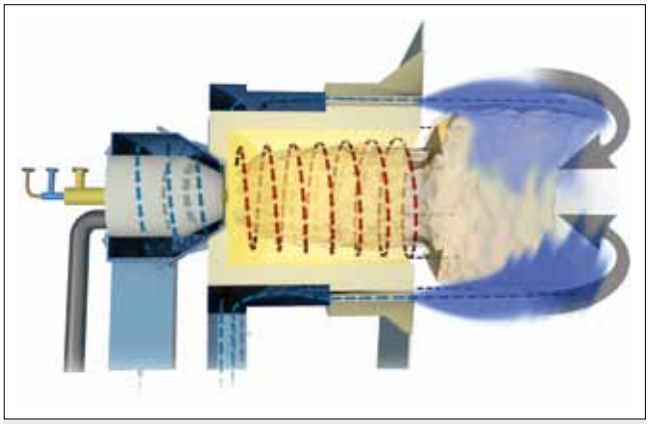
even the most sophisticated turnkey solutions are planned, implemented and commissioned very quickly. That not only saves costs, but also time – just like the safety analyses (HAZOP) and documentation for the facilities and processes in line with official requirements.

The SAACKE solution in detail

The SSB-LCG swirl burner also burns several waste gas flows safely and reliably at the same time. By virtue of its special flue gas duct system within the flame zone, it not only ensures complete burnout, but also extremely low NOx emission values. Its flue gas duct system can be designed very flexibly thanks to the lined burner muffle.



Functional principles of SAACKE SSB swirl burner

Minimal amortization periods

When the SSB-LCG is combined with a thermal oil heater, the energy of the ventilation gases provides for valuable process heat and thus saves large amounts of standard fuel. This takes pressure off the environment and budget alike. Here is a sample calculation:

Payback period (example)

Fuel	tank ventilation gases
Gas volume involved	1.500 m³/h
Lower heating value	Ø 10 MJ/m³
Operating hours, full load	3.100 h/a
Savings	
Fuel costs	413.00 €/a (at 32 €/MWh)
Disposal costs	individual
Amortization periods	between 1 and 3 years

Lean gas flame – stable combustion without any supporting fuel

Lean gas flame

The many advantages of SAACKE technology are especially perceptible in connection with gases having an extremely low heating value. Thanks to the special design, the SSB-LCG also utilizes fuels with less than 3 MJ/m³ without making use of any supporting fuel. Since even very low gas pressures can be utilized reliably, extensive investments for pumps or compressors are not necessary. Particularly for gases of zones 0, 1 and 2 the investment expenditures thus drop drastically and make exploitation of vents even more profitable.

Technical data

Applications	Steam boilers, thermal oil heaters, combustion chambers
Burner model	SSB-LCG
Burner capacity (max.)	2 – 100 MW
Fuel	Tank ventilation gases, process and lean gases, blast furnace gas, coke gas
Lower heating value	2 – 20 MJ/m³
Emission values	NO_x: 10 – 100 mg/m³ *; CO: 0 – 30 mg/m³

*Individual calculation

Summary

The SAACKE team provides solutions for complex challenges in firing systems and incineration facilities using high-end technologies and refined engineering. From planning security to smooth commissioning SAACKE is an absolutely reliable partner.

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

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