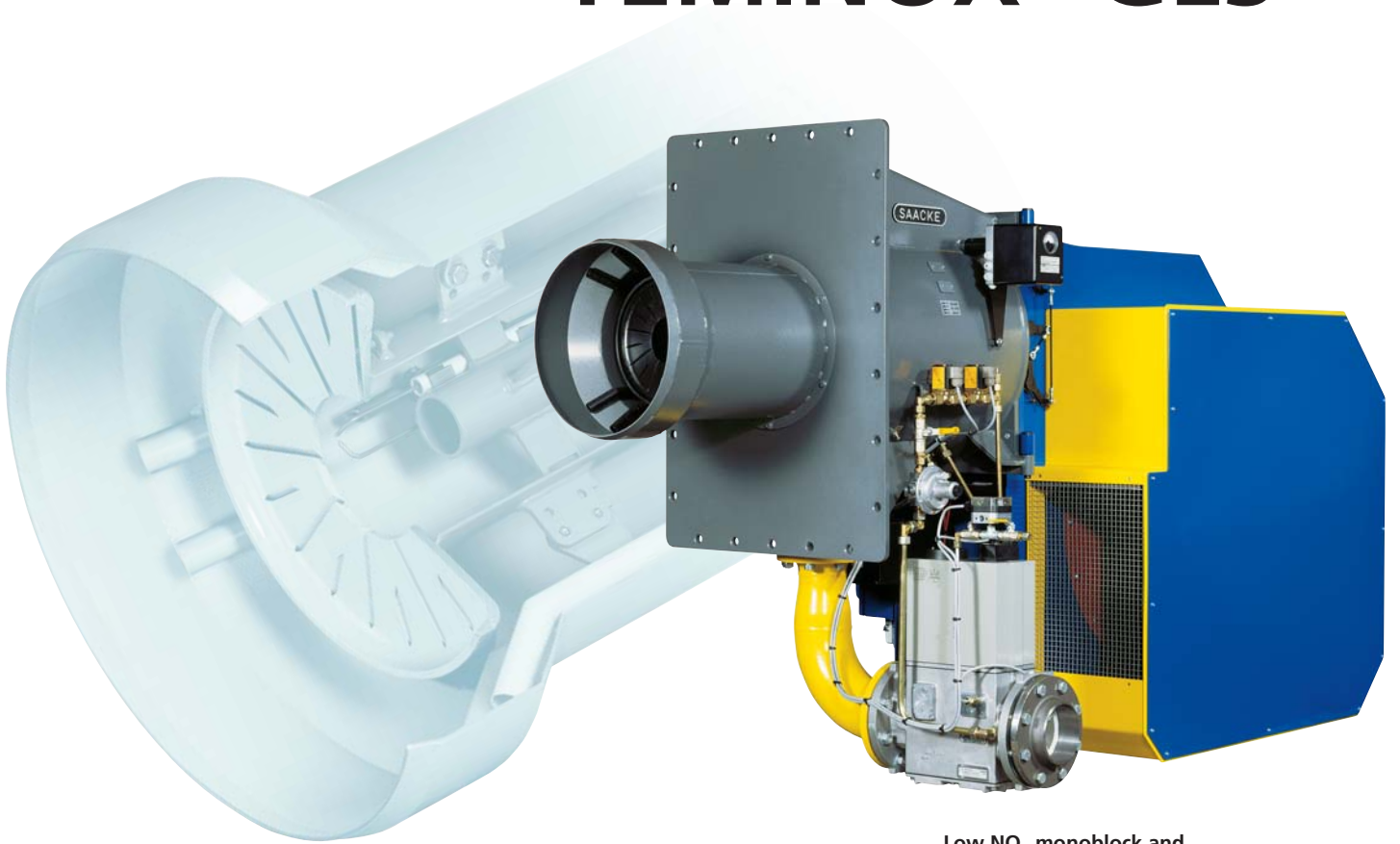


TEMINOX® GLS



Low NO_x monoblock and
duoblock burners for natural
gas, liquid gas and fuel oil EL.
Capacity range from 4 to 20.5 MW

The SAACKE TEMINOX® GLS

The low NO_x burner for natural gas, liquid gas and fuel oil EL. Capacity range 4 to 20.5 MW

Combustion system

The extremely low NO_x emission rate in operation with natural gas is achieved by fuel staging, i.e. separating the fuel supply into primary and secondary gas.

This initiates a combination of three reduction mechanisms:

- combustion of the primary gas with a high premix rate at a low temperature, which also ensures maximum flame stability
- reduction of the partial oxygen pressure for the secondary combustion process by means of the combustion gases from the primary zone
- reduction of temperature peaks by staging the secondary combustion process deep inside the furnace with a high heat discharge

When firing oil, the burner relies on a technology based essentially on the high-pressure atomization principle combined with a mixing-head geometry that varies according to the output. The result: low NO_x, efficient combustion performance over the entire control range.

Approval and fields of application

The TEMINOX® GLS monoblock and duoblock burners are CE type-certified and DVGW-approved. The product identification no. is CE-0085BL0313.

The SAACKE gas racks and the SAACKE burner control system have also been approved for operation as an entity in combination with the TEMINOX® GLS.

Since its market introduction in 1998, the TEMINOX® GLS has been operating in every industrial and heat management sector worldwide with excellent performance results.

It is designed for application with three-pass, water-tube, reverse-flame and thermal-oil boilers. Low NO_x limits can be met without difficulty even with preheated air.

Waste gas emissions

The TEMINOX® GLS keeps the NO_x emissions safely below the limits currently in effect. This is documented by measurements taken at more than 600 plants implemented to date.



The photograph shows a plant with a TEMINOX® GLS 95-22 monoblock burner on a 13.2 t/h three-pass boiler.

Monoblock burner

The monoblock version of the TEMINOX® GLS – i.e. with the fan integrated in the burner – offers numerous advantages:

- the mixing system and fan casing modules can be selected precisely to suit the configuration of the plant
- it can be used even when very high backpressure is created by an economizer, the layout of the flue gas duct, an unusual boiler design etc.
- the mirror-image design of the fan casing with left/right swing-out is ideal for use with double-flame-tube boilers
- no elaborate planning work is needed for fan installation or air duct configuration
- time-saving installation thanks to the compact design
- quick cost-effective commissioning
- sound absorption is available for reduction by 10 to 35 dB(A)

Capacity range

The capacity spectrum of the TEMINOX® GLS stretches from 4 to 20.5 MW. Depending on the size of the model and the equipment options selected, the turn-down ratio for gas is approx. 1:7 and for fuel oil EL approx. 1:3.

Fuel	Capacity [MW]	0.54	1.35	0.8	1.85	1.0	2.5	1.2	3.2	1.5	3.5	2.0	3.8	4.2
		5.4	5.4	7.5	7.5	9.5	9.5	12.0	12.0	15.2	14.0*	18.5	14.0*	20.5*
	Monoblock burner size	55	75	95	125	155	185	—						
	Duoblock burner size	60	80	100	130	160	190	220						
Light oil/gas	GLS	[Red bar spanning all capacity ranges]												
Gas	GS	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]
Light oil	LS	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]	[Red bar]

* Light oil >14 MW upon request



The photograph shows a plant with eight TEMINOX® GS 190 duoblock burners on four 50 t/h double-flame-tube boilers in a paper mill. Two of the burners are equipped with an additional mixing system for biogas and operate both with natural gas only and with natural gas and biogas in dual-fuel operation.

Duoblock burner

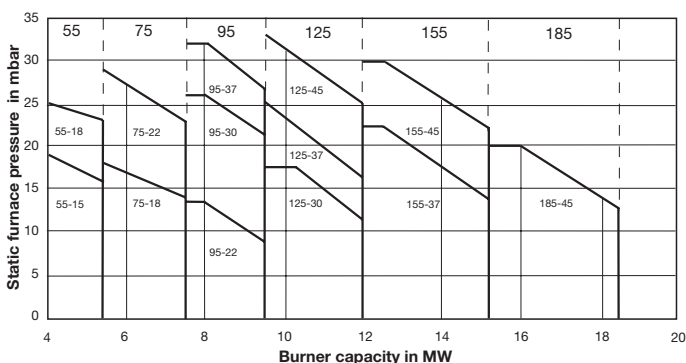
The duoblock version of the TEMINOX® GLS – i.e. with the burner and the fan located apart from one another – has the following advantages:

- it can operate with extremely high plant draft losses and with preheated air
- its space-saving casing is ideal for confined areas
- multiple-burner plants can be operated with one central fan
- the angle of the air inlet can be chosen in increments of 22.5 degrees
- it can fire non-standard fuels and fuel combinations
- commissioning is quick and inexpensive

Burner selection / Modular options

The many options available make the monoblock version of the TEMINOX® GLS the best solution to many different problems confronted by the plant with regard to output and furnace pressure. Depending on the output required and the backpressure, the burner head and the fan can be combined to create up to three different models.

The load diagram shows the maximum burner output depending on the static furnace pressure.



Equipment

The burners in the TEMINOX® series are available as GLS combination-type burners, GS gas burners and LS light oil burners. They can be supplied as monoblock or duoblock models, offering a selection of advantages:

- a modular-design low NO_x mixing system
- on the monoblock model, a high-efficiency fan and sound absorption inside the casing; burner swing-out right and left; speed-controlled fan motors equipped with a thermistor protection unit.
- a sound absorption cabin for high standards of noise reduction
- free choice of the air inlet angle on the duoblock model at 22.5 degree increments
- high-efficiency fans for the duoblock burners
- a return line pressure jet atomizer with hydraulic tip shut-off needle for fuel oil EL
- gas dampers and oil flow controllers with linearized action
- a pre-configured and tested gas rack
- monitoring equipment for 72-hour unattended operation in compliance with TRD
- a gas-electric igniter; for oil operation direct electric ignition without ignition gas
- a burner management system with electronic compound control, either mounted on the burner and ready for operation or for installation in the control cabinet

Facts that speak for themselves

- a range of capacities from 4 to 20.5 MW with a large turn-down ratio
- ultra-low NO_x technology well in advance of future emissions restrictions
- all-inclusive solutions from a single source that keep the project work at a minimum
- modular mixing system, fan and sound absorption equipment that can be adapted to the requirements of any plant
- time-saving installation and commissioning
- an optional biogas mixing system for the TEMINOX® duoblock burner

High-tech engineering for the industrial heat market



Pollution reduction – a topic that is becoming more and more important day by day for operators of industrial plants in any area.

Is there an efficient and economical way to put our responsibility for the environment into action?

SAACKE has had the correct reply to this question for years: yes, with our low NO_x burner systems.

The TEMINOX® GLS burner, another of the many products manufactured at SAACKE according to ISO 9001 quality standards, is further proof of how we can do it.

SAACKE designs environment-friendly low NO_x firing systems for all kinds of liquid and gaseous fuels, and for the widest number of industrial applications – from the simple production of steam to the systematic elimination of gaseous and liquid waste and pollutants.



SAACKE Engineering:
Effective environment protection
on economic terms.

Combustion and Energy Systems



SAACKE GmbH · SAACKE Service GmbH
Südweststrasse 13 · 28237 Bremen · Germany · www.saacke.com

SAACKE GmbH · Tel.: +49-421-6495 0 · Fax: +49-421-6495 224 · E-Mail: info@saacke.de
SAACKE Service GmbH · Tel.: +49-421-6495 0 · Fax: +49-421-6495 244 · E-Mail: service@saacke.de