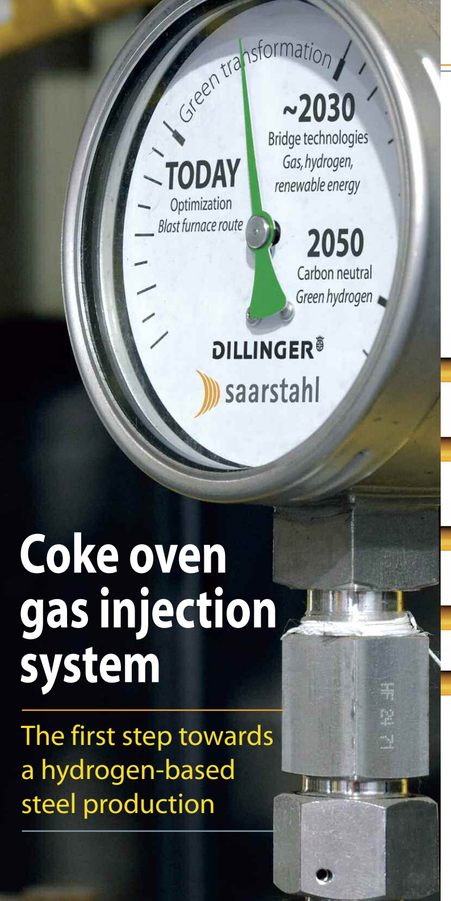


Coke oven gas injection system

The first step towards a hydrogen-based steel production

Facts about coke oven gas injection

With the **€14 million investment**, Dillinger and Saarstahl are further reducing their carbon emissions while also creating the conditions for practical use of green hydrogen in the future.

Hydrogen-rich **coke oven gas is a product of the integrated iron-and-steel plant**

Hydrogen replaces carbon as reducing agent: Coke oven gas contains at least 55% pure hydrogen

Technically-possible injection amount of hydrogen: more than 72,000 Nm^3/h

120,000–150,000 t of carbon savings per year

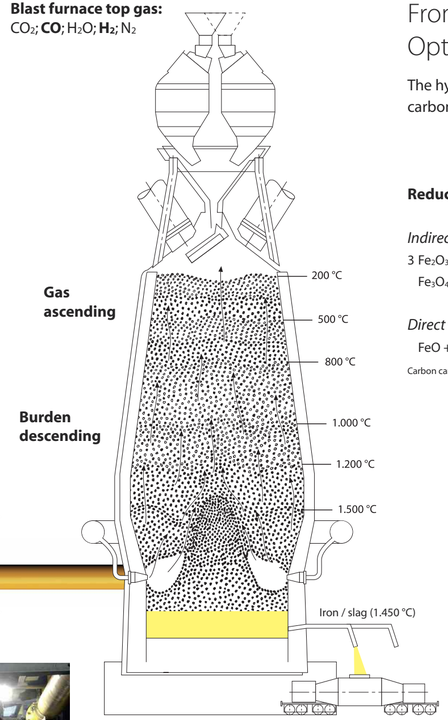
We are the first in Germany to use large amounts of hydrogen in the blast furnace in normal operation by means of coke oven gas.
We are ready for the green transformation.

Green steel

Dillinger and Saarstahl are ready for the transformation process and the production of green steel. The installation of the coke oven gas injection system at the blast furnaces of ROGESA – a joint subsidiary of Dillinger and Saarstahl – is a future-oriented investment.
The new facilities in Dillingen are the first in Germany which use hydrogen as a reducing agent in the blast furnace in normal operation. This is accomplished by injecting hydrogen-rich coke oven gas (55% H_2), which is a product of the integrated iron-and-steel plant. Thus we create the conditions for practical use of green hydrogen in our blast furnaces in the future.
In this way the plant contributes to a sustainable conservation of resources and a significant reduction of carbon emissions.

Hot blast
Oxygen
Pulverized coal

Coke oven gas (hydrogen)



From CO_2 to H_2O: Optimization of the blast furnace

The hydrogen contained in coke oven gas replaces carbon as reducing agent and energy source.

	Reduction using C	**Reduction using H_2**
Indirect reduction	$3\ Fe_2O_3 + CO \rightarrow 2\ Fe_3O_4 + CO_2$ $Fe_3O_4 + CO \rightarrow 3\ FeO + CO_2$	$3\ Fe_2O_3 + H_2 \rightarrow 2\ Fe_3O_4 + H_2O$ $Fe_3O_4 + H_2 \rightarrow 3\ FeO + H_2O$
Direct reduction	$FeO + CO \rightarrow Fe + CO_2$	$FeO + H_2 \rightarrow Fe + H_2O$

Carbon carriers: coke and pulverized coal

"We at Dillinger and Saarstahl can further reduce our carbon emissions on the basis of the coke gas injection technology while gaining important experience in using hydrogen in steel production. These facilities will enable us in the next step to use green hydrogen in both blast furnaces."
Martin Baues, Chief Technology Officer Dillinger and Saarstahl

Our goal: 2050: carbon-neutral steel production

Dillinger and Saarstahl have committed to the goals of the Paris Agreement. Our comprehensive sustainability approach reflects the acknowledgement of our responsibility to current and future generations of employees and stakeholders as well as our will to manufacture steel products in a sustainable way.
We want to embark on this path of a carbon neutral production together with our customers.
Both our companies are ready to implement the European Union's climate targets set for 2030 (emissions reductions of at least 55%) and to produce carbon-neutral steel by 2050.

If you have any questions, please do not hesitate to contact your technical contact person.

Contact

Dillinger • Werkstraße 1 • 66763 Dillingen
Phone: +49 6831 470 • Mail: info@dillinger.biz

Saarstahl • Bismarckstraße 57-59 • 66333 Völklingen
Phone: +49 6898 100 • Mail: saarstahl@saarstahl.com