

Injection technology for liquid steel desulphurisation in open ladles



thyssenkrupp



Reliable plant technology backed by more than 50 years' experience

Flexible – effective – cost-efficient

The production of **high-quality steel grades** requires **low sulphur** concentration in the final product. An efficient and cost-effective way to reduce sulphur is the desulphurization of liquid steel after the basic oxygen furnace. A precise, flexible and economic technology is the **injection of reagents** (optionally along with slag conditioner) into the liquid metal by means of a refractory lance. thyssenkrupp Industrial Solutions provides advanced injection technologies powered by high-quality, durable and future-proof equipment with highest degree of automation.

A large portfolio of high-quality steel grades contributes to stable profits of steelmaking companies in times of overcapacity. Furthermore, ongoing heavy competition in terms of price promotes technologies which are efficient and economic in operation.

For the desulphurization of steel, the injection of pulverized burned lime (CaO), calcium carbide (CaC₂), calcium silicon (CaSi), fluorspar (CaF₂) and other reagents/conditioners provides high process flexibility for the best adaptation to chang-

ing production requirements and the best performance at low operating expense.

The high equipment quality promises safe and reliable operation for decades and at low maintenance costs. The heart of the desulphurization system and guarantor for process efficiency and economy are the pneumatic injection conveyors DP with PLC based injection control system MEPOL, as well as the accurate, batch-based calculation of process parameters by the thyssenkrupp Metallurgical Process Computer MPC.

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Fields of application

Desulphurization of liquid steel

(Desoxidation of liquid steel with Al_2O_3)

(Decarbonisation of liquid steel with $CaCO_3$)

Main features

Customized & tailored plant layout

High adaptability to production needs

Low consumption of reagents

High throughput/performance

Short processing time

Accurate, reproducible process results

Durable equipment; low maintenance

Design parameters

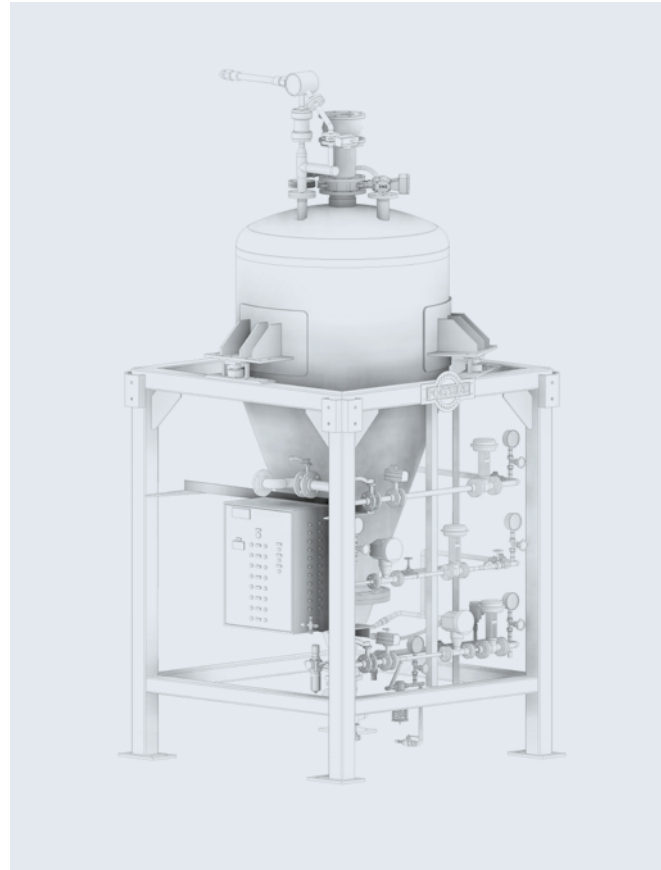
Heat sizes from 50 to 400 tons

Ultra-low final sulphur content (≤ 10 ppm)

Injection rates up to 250 kg/min

Reagents: CaO , CaC_2 , $CaSi$, CaF_2 , Al_2O_3 , $CaCO_3$

Stable reaction products – no re-sulphurization



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