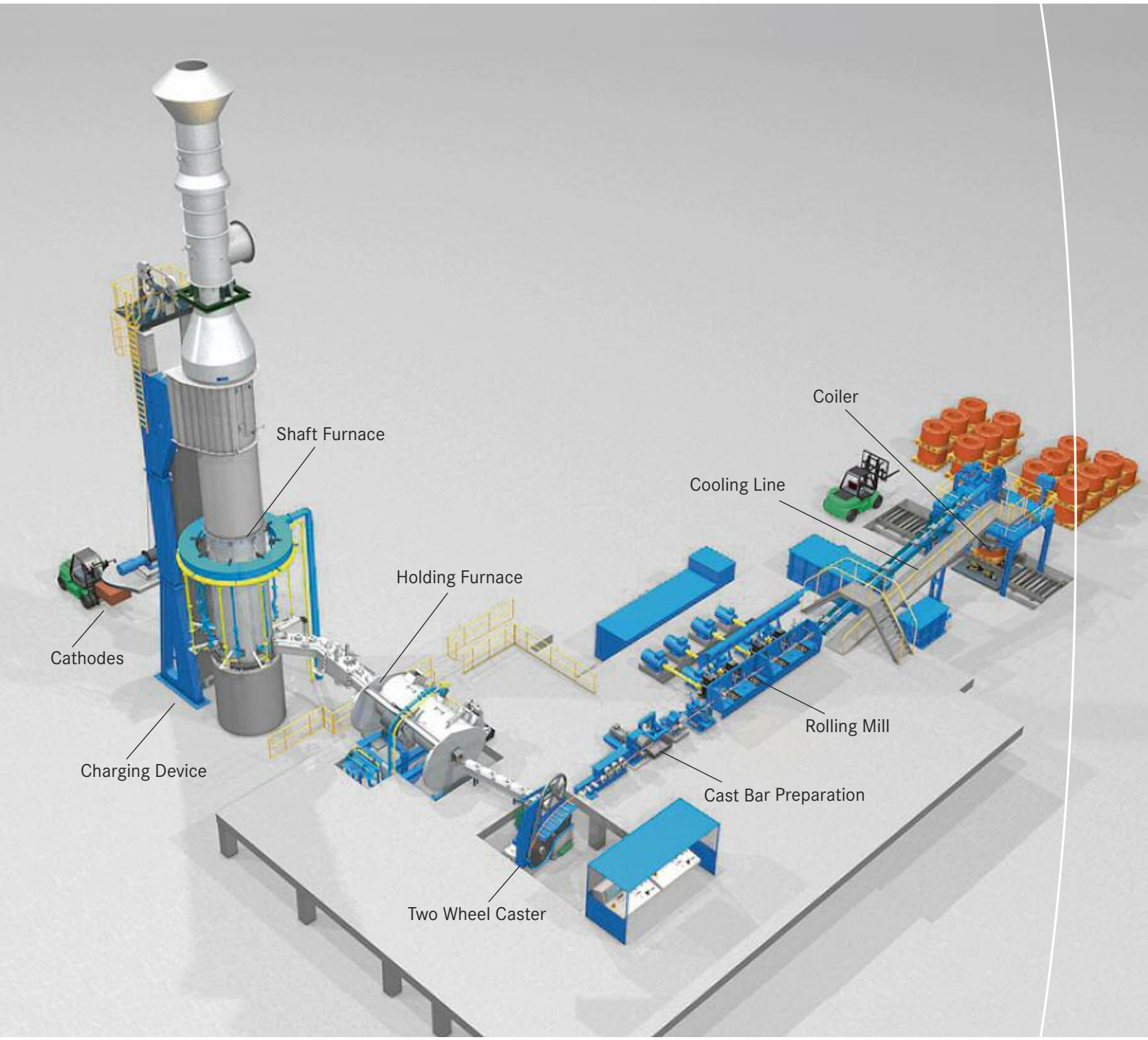
SMS group

compacROD® copper wire rod plant

Compact plant with significant advantages



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Compact plant with significant advantages

The modular compacROD® plant from SMS group is the cost-effective solution for the production of high-quality copper wire rod in volumes of around 30,000 to 50,000 tons per year. This new type of plant is where SMS group has combined its extensive experience and expertise in copper wire rod manufacturing with the latest melting and rolling technology. Consistently high product quality and low process costs mean plant owners are assured of long-term success.

Impressive all along the line: compacROD®

- Cost-effective production with low process costs
- Modular configuration for customized solutions
- High-efficiency shaft furnace with cathode preheating system
- Advanced burner technology with Lambda control system on the shaft furnace
- Continuous production of the cast ingot using the wheel and belt method
- High-end rolling mill with separate individual drives
- Continuous use of frequency-controlled drives for enhanced efficiency
- Cooling system for high quality standards
- Coiler for high quality standards

Integrated process ensures high efficiency and quality

The compacROD® plant turns copper cathodes into copper wire rod with precise diameters of between 8 and 16 mm. The previously charged starting material is melted down to liquid copper in the gas-fired, energy-efficient shaft furnace. It is then conducted through launders into the twin wheel casting machine. This is where the cast ingot is produced, while the ingot preparation zone ensures it is perfectly prepared for rolling.

In the rolling mill the cast ingot is hot-formed in several, precisely defined stages until the desired wire rod diameter has been attained. The wire rod, which is still hot, is deoxidized and cooled in a cooling line. Immediately after this, a wax coating is applied to the surface of the wire rod to preserve it. The coiler winds the wire rod into coils with a unit weight of between 3 and 5 tons.

Key performance data at a glance

- Production capacity: 5 - 7 t/h
- Copper wire rod diameter: 8 - 16 mm
- Coil weight: 3 - 5 t

Eco-friendly shaft furnace with optimal heat utilization

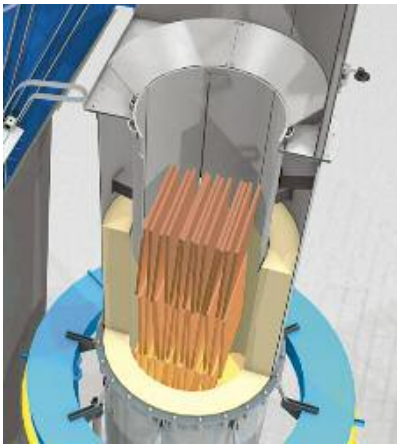
SMS group's shaft furnace is particularly efficient thanks to its special design. As a result, the energy requirements and process costs of melting the charge material are substantially minimized.

The vertical furnace vessel is filled with cathodes for the melting process. A special charging system enables the cathodes to be loosely distributed. Gas burners are fitted in rows in the lower part of the furnace, and these are used to melt the copper. The hot offgases which rise up during this process are almost fully utilized in the upper furnace zone to heat up the charged material.

This high degree of thermal energy utilization ensures outstanding cost-efficiency levels compared to other melting processes. Another feature is automatic burner control, which allows each burner to be regulated separately via the electronic Lambda control system. The "nozzle mix principle" applied here guarantees a high level of safety and creates uniform combustion conditions with a low, stable oxygen content in the molten copper.

The compacROD® plant can also be equipped with an induction furnace for melting, so that electrical energy is used if there is no natural gas or LP gas available on site.

Shaft furnace with charging system.



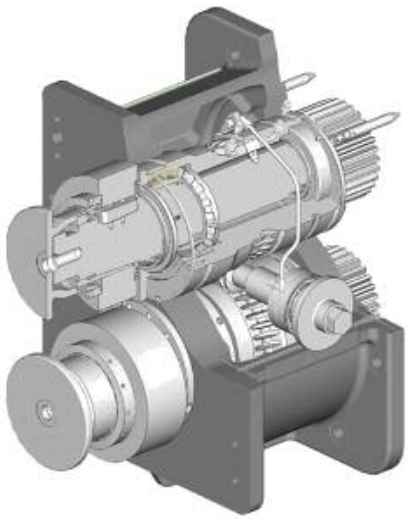
Upper shaft furnace.

Lower shaft furnace.

Powerful, precise rolling mill with individual drives

The modular rolling line consists of several mill stands, all of which have the same design. The benefits: The spare parts inventory is minimized, and availability is maximized. For high-quality rolling results and cost-effective energy efficiency, each mill stand is driven by a frequency-controlled motor.

All mill stands feature two roll rings. The centralized synchronous adjustment of both rolls ensures the roll rings last for a very long time. A central spindle in each stand provides for fast and precise adjustments of the roll gap.



This concept is not only impressive in terms of service and maintenance, it also noticeably reduces the time and costs involved: the roll rings can be changed quickly and easily. Costly, time-consuming workshop activities, like with three-roll stands, are done away with entirely. Only the roll rings, which are wear parts, are reworked.

Competitive quality products for the copper wire rod market

The compacROD® is capable of producing hot-rolled ETP (Electrolytic Tough Pitch) copper wire rod with a fine grained structure. Copper wire rod of this quality is very well suited for further processing in the drawing line. The compacROD® plant can also be equipped with a refining furnace to process contaminated scrap. This enables the production of FRHC (Fire Refined High Conductivity) copper wire rod.

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