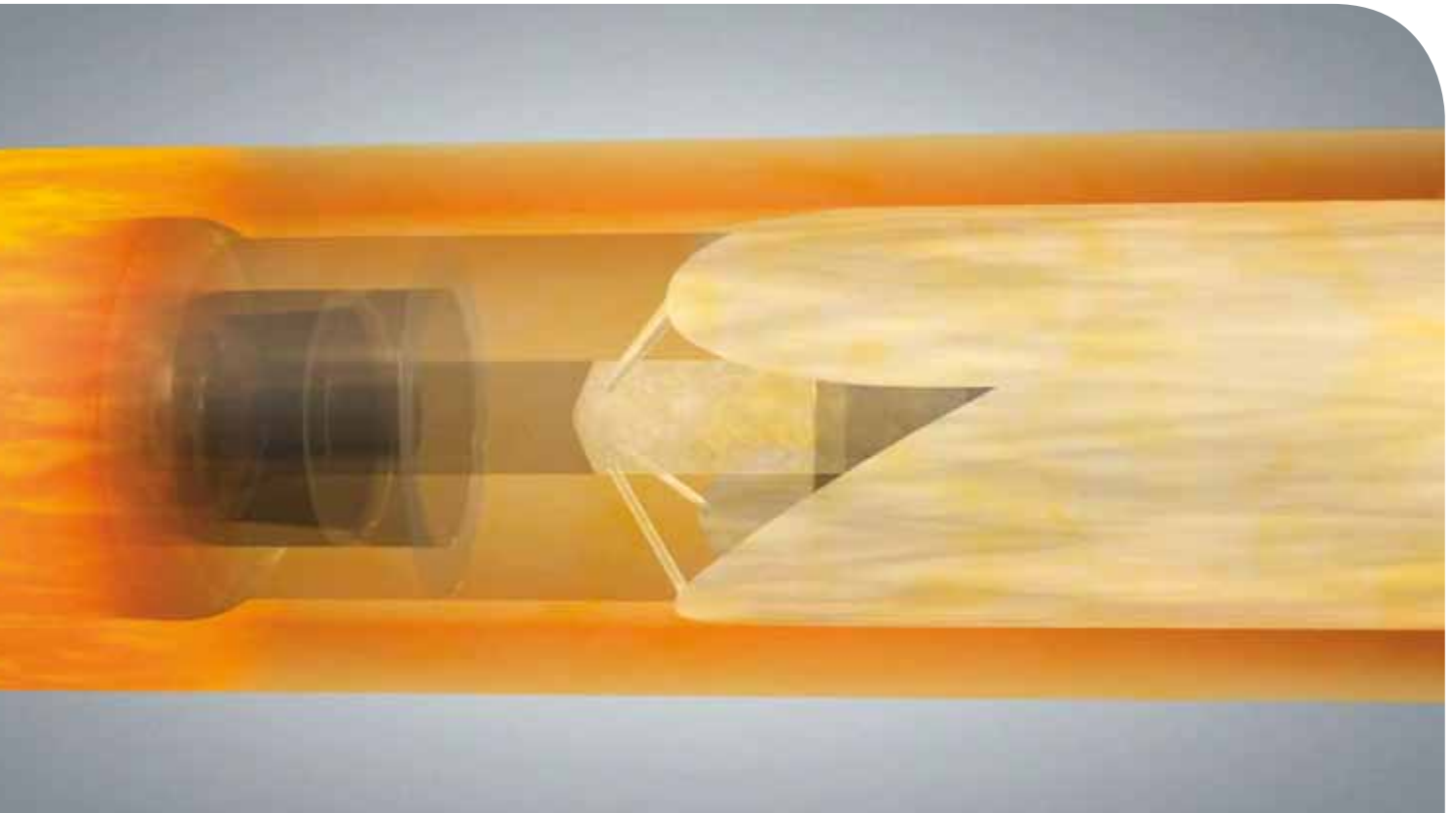


INCOAT®

Innovative scale protection in seamless tubes



INCOAT® technology enhances the cost-efficiency of seamless tube production. Using a newly developed powder transfer technology, the inside surface of the pierced billet is coated from the very start, thereby largely preventing the build-up of scale.

KEY BENEFITS

- Clean coating in the plant, free of borates; no extraction required
- Reduction in scale jacket to $\frac{1}{10}$ of the thickness
- No additional deoxidation or temperature loss
- Variable film thickness across the length
- Reduction in internal defects
- Easy to operate, reliable system

INCOAT® TECHNOLOGY

Perfectly coated seamless tubes



Seamless steel tubes are an integral part of modern life. They are available in various grades – for everything from low to especially high stresses. They can be used for an almost unlimited range of applications – whether structural tubes and pipes in the construction industry, as oil country tubular goods or in a host of areas within the field of mechanical engineering, as well as precision tubes in the automotive industry.

MODERN PROCESSES FOR HIGH-QUALITY SEAMLESS TUBES

SMS group plants are used to produce seamless tubes with a vast range of diameters, wall thicknesses and steel grades. Depending on your needs, we offer various production methods – from the modern PQF® process to the traditional pilger process. At the same time SMS group is continuously working to improve its plant and machinery even further. High cost efficiency, close product tolerances and a wide range of applications give SMS group customers a considerable competitive advantage. Modern manufacturing processes are an important factor when it comes to good product quality.

PIERCED BILLET INSIDE DEOXIDATION AFTER THE PIERCING PROCESS

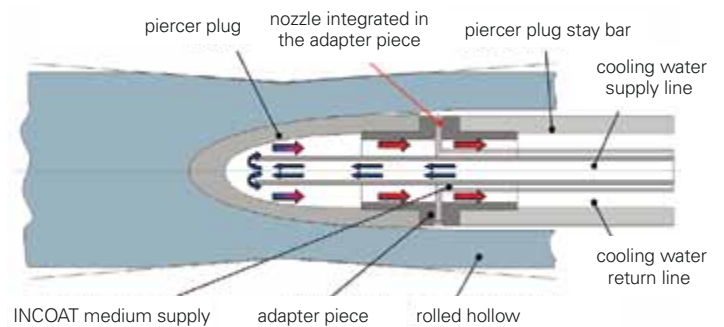
With the standard production method used today for seamless tubes, scale is formed on the inside surface of the billets as they are being pierced in the cross-roll piercing mill. This scale is then blown out of the billet following the piercing process. Deoxidation powder is subsequently used to loosen the remaining scale as much as possible and to liquefy it.

However, with this method it is difficult, even when using modern equipment, to descale the pierced billet sufficiently. On occasions this may result in internal defects of the tube. The use of deoxidation powders containing borates represents a problem for both human health and the environment.

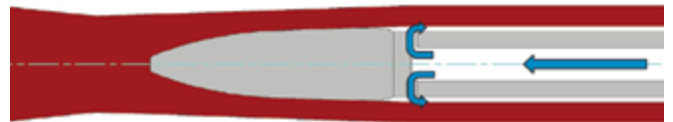
INCOAT® TECHNOLOGY DURING THE PIERCING PROCESS

With its INCOAT® technique SMS group is optimising the seamless tube production process. INCOAT® coats the pierced billet from the start. Using a new powder transfer technology the specially developed INCOAT® powder is sprayed onto the newly created inside surface of the pierced billet directly after the piercer plug. There the powder melts instantly. This prevents the tube surface from coming into contact with oxygen. The surface protection layer prevents scale from forming. The volume conveyed can be precisely adjusted. It can be set at just one gram per second exactly. This ensures stable, reproducible coating quality. The film thickness can be adjusted during rolling. Since the pierced billet is no longer kept in the deoxidation station, the billet produced with INCOAT® loses less temperature. This creates the perfect conditions and energy for the subsequent rolling process.

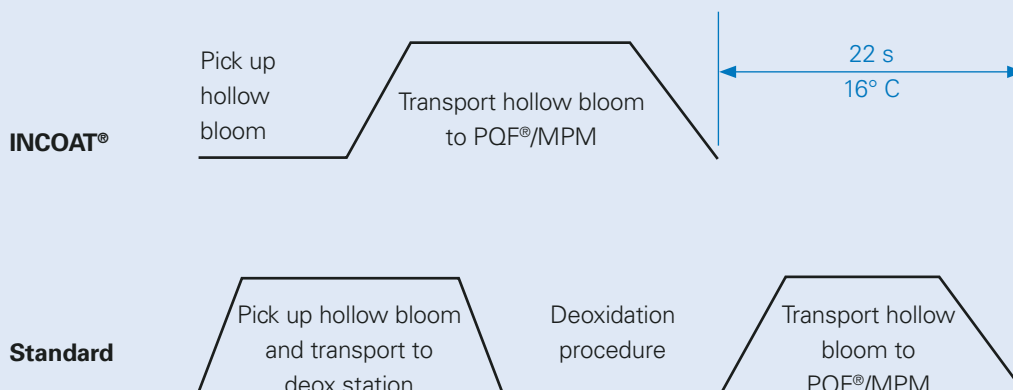
Latest technical solution: Inline coating



INCOAT® ensures coating from the beginning of the hollow bloom



TIME SAVINGS/TEMPERATURE SAVINGS



SMS GROUP GMBH

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