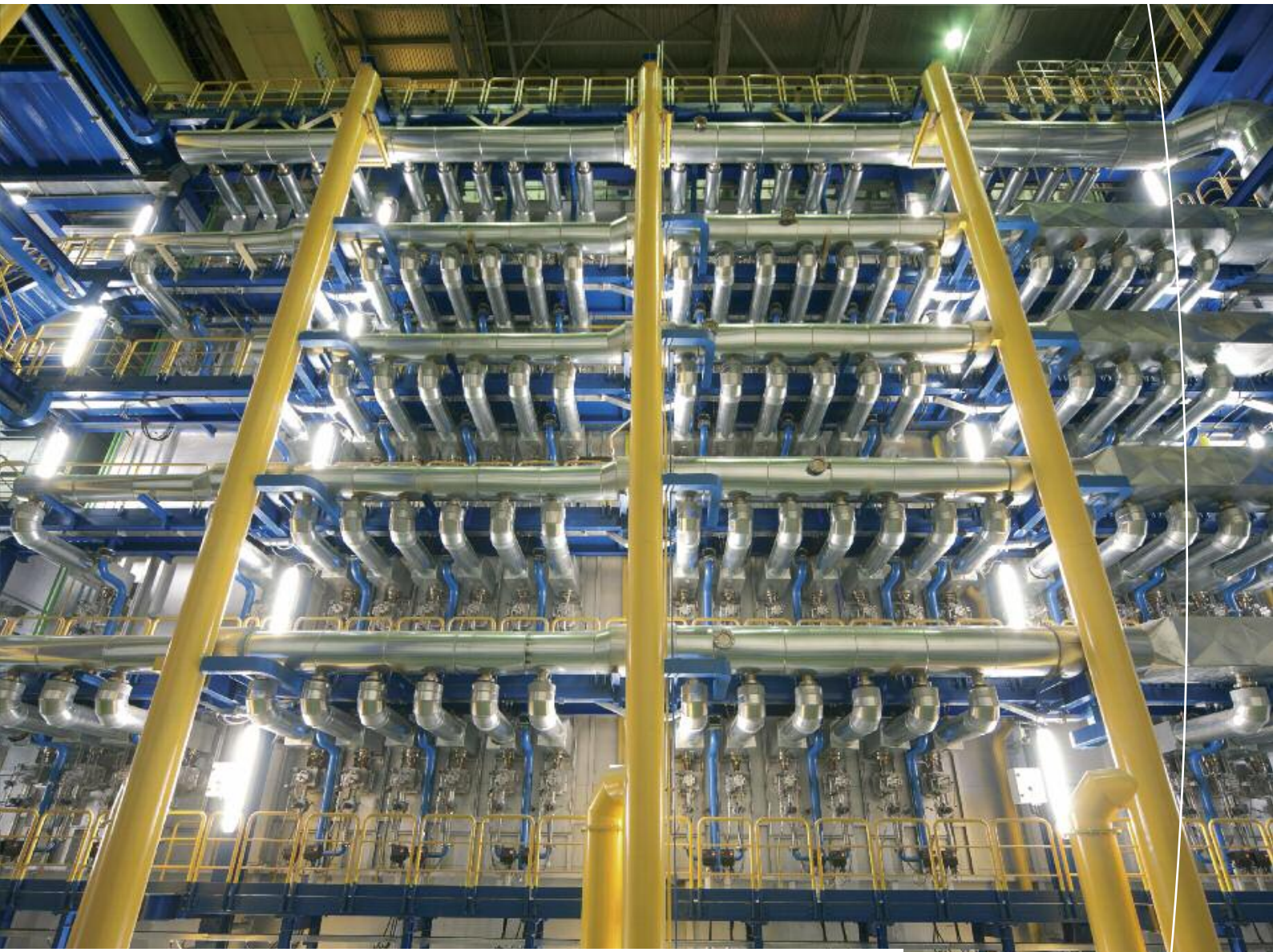
SMS group

Coated furnace rollers
for continuous annealing and hot-dip galvanizing lines



Groundbreaking
product improvement and service life extension

To cut costs and simultaneously boost your plant availability, you know it pays to increasingly focus on the service life of your core components. A proven yet state-of-the-art way of extending service lives are technological coatings. That's why, at an early stage, SMS group and our partners began intensive research on coating components.

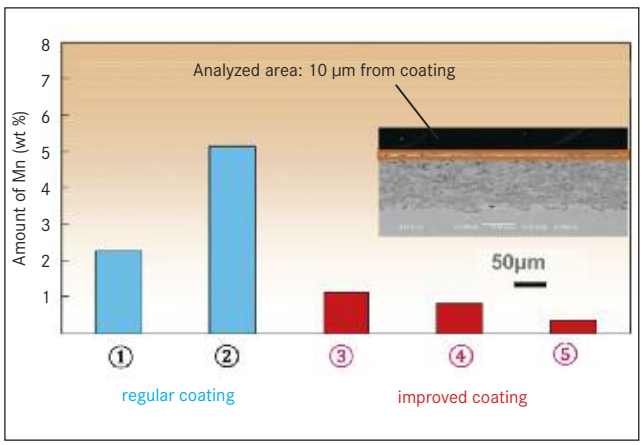
Then, after systematic analysis of the core components used in metallurgical plants and rolling mills, we identified furnace rollers as a promising area for improvement. Our aim was to increase the useful lifetime far beyond that of the original part.

You know, furnace rollers in annealing and galvanizing plants are subject to extreme thermal and mechanical stresses that cause heavy wear. It's a major issue, because these components decisively influence the surface quality of the end product.

Your customers demand ever-higher standards here. This is where we come in with the ideal solution. Upgraded with the right coating for your purposes, your furnace rollers gain a longer service life – which is many times that of the original components.

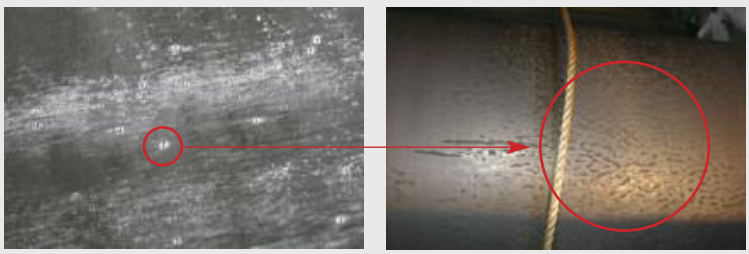
Specifically the automotive industry demands ever more high-strength, high-ductility steel grades. Included in this category are increasing volumes of AHSS steels with high manganese and silicon contents.

Based on intensive research into coating technology the SMS group offers special coatings to their customers all over the world. What's unique here is that we apply them using HVOF (high velocity oxygen fuel) or plasma processes. Out of these evolves a material composition that ensures our coatings prevent wear and pick-up of deposits.



Result of MnO reaction test examining pick-up resistance.

Pick-up effect.



Chemical reactions can occur between the furnace rollers and the strip. That leads to manganese or silicon deposits on the roller surface (pick-up effect). These deposits damage the strip surface, so the final product is no longer fit for purpose.

To achieve the perfect solution, we adjusted the composition of our coating. Specifically, we reduced the reaction element aluminum, which is necessary for ceramic formation, and replaced it with high-strength alloys. Combined with the HVOF coating process, that ensures a much denser microstructure. This prevents diffusion and a higher concentration of pick-up-inducing Al_2O_3 on the coating facing the strip.

What's more, the added alloys increase overall strength and, as a result, the coating service life.

At a glance:

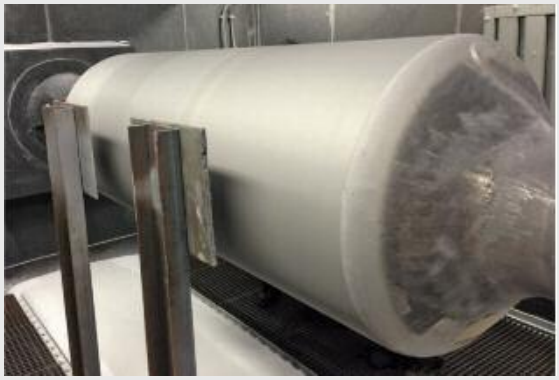
- Less aluminum oxide (Al_2O_3) in the coating
- High-strength alloying
- Longer service life
- Higher-density coating
- Lower Al_2O_3 concentration on the coating surface

Compared with conventional coatings, this solution can cut pick-up by up to fifteen times.

Now, with newly established workshops and partnerships, SMS group offers you both new, ready-coated furnace rollers and coating services for your existing components.

Peel-off effect.

Furthermore, the roller coating also suffers from a peel-off effect. This means unscheduled opening of the furnace plus extra repair costs.



Here's how you benefit:

- As much as 15-fold reduction of deposits
- Longer furnace roller service life
- Global service network and workshops
- Lower coating peel-off effect

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