



Press Information

Release immediate

Chinese company extends lance tube life from one month to a year with Sandvik stainless steel

Yong Steel Group Co. Ltd, a leading iron and steel producer in China, was able to extend the service life of its pulverized coal injection (PCI) lance tubes – one of the most important blast furnace components – from as little as one month to a year. This was achieved by replacing standard grade tubing with Sandvik 253 MA.

Sandvik 253 MA* is an austenitic chromium-nickel steel that is designed for excellent high temperature oxidation resistance and carburization corrosion resistance and good high temperature strength. These properties have proven key to reducing the cost of PCI through improved energy efficiency and production consistency.

“We understand that our customers require lance tubing that is capable of higher performance and longer service life, in order to fully realize the remarkable economic benefits made possible by PCI applications,” said David Zhou, Technical Marketing Specialist, Sandvik.

“Worn out or bent lance tubes may cause the shutdown of the blast furnace and result in huge economic losses. This can be avoided with Sandvik 253 MA which has higher creep rupture strength, abrasion resistance and better corrosion resistance at higher temperatures. The grade has improved high temperature strength and structural stability to give added safety benefits.”

Whereas standard grades last from between one to two months, or for as little as two-to-three weeks with standard AISI 304L, Sandvik 253 MA can increase PCI lance tube life by more than three times. It has been widely used abroad to replace familiar PCI lance tubes manufactured from conventional materials such as 310S, TP 321H and 316L. The increased cost can be quickly offset by the extended lifecycles and reduced maintenance costs.

The Sandvik material exhibits high oxide scale density and strong adhesion due in part to its extra 0.05% cerium (Ce) content. In combination with added 1.5% silicon (Si), this gives the grade excellent high temperature oxidation resistance and high temperature carburization resistance properties. Added 0.17% nitrogen (N) improves the material's high temperature creep rupture strength over standard grades like AISI 310.

David Zhou added, "Sandvik 253 MA is proving crucial to enhancing advantages such as better balanced coking coal resources and improved environmental protection, while improving safety in instances where it is dangerous for workers to replace the lance tube."

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* 253 MA is a trademark owned by Outokumpu Oy.

Image caption: Sandvik 253 MA can increase PCI lance tube life by more than three times

Sandvik Materials Technology

Sandvik Materials Technology is a world-leading developer and manufacturer of products in advanced stainless steels and special alloys for the most demanding environments, as well as products and systems for industrial heating.

On behalf of:

Sandvik Materials Technology
Manor Way, Halesowen
West Midlands B62 8QZ
UK
Tel: +44 (0)121 504 5111
Fax: +44 (0)121 504 5151
Email: sales.smtuk@sandvik.com
Internet: www.smt.sandvik.com