

Revamping of treatment furnace with Tenova FlexyTech® TLX burners

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ABSTRACT

As a result of the US market requirements for a new Ultra Low NO_x burner, Tenova started in 2002 a research program (named FlexyTech® research program[1]) aimed to definitely lower NO_x emission of the previous generation burners through an innovation patch which covered the following steps:

- investigation of innovative combustion techniques for reheating process;
- development of new components and control strategies for reheating furnaces on R&D scale
- technology transfer: from R&D scale to industrial application.

In the frame of FlexyTech® research program Tenova and CSM set up a joint design process based on synergy between mathematical modeling and industrial scale test that allows to abandon the traditional “trial and error” approach, drastically lowering the number of field tests and the time to market for the new products, with a consequent abatement of development of costs.

Based on the promising results of R&D work performed, also in the frame of ECSC project 7210-PR/020 NOX-RF [2,3], and successful applications for primary NO_x abatement in the big (>100t/h) steel reheating furnace equipped with central recuperators, a new family FlexyTech® burners has been enlarged with small size burners (TLX). First application of this burners has been done in the revamping of the furnace for austenitizing treatment of seamless tube at TenarisDalmine meltshop (HT furnace). The main goals of the revamping was decrease of NO_x emissions at furnace stack of one order of magnitude and increase the productivity up to 20%.

Keywords

Treatment furnaces, NO_x reduction, furnace modelling, flameless burners

REFERENCES

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3. E.Malfa and others, IFRF 15th Member Conference, June 2007, Pisa, Italy