

Contribution ID: 9

Type: Poster Presentation

## Different Options of Stove Modernization using Innovative Top Combustion Stove of Kalugin Design

Tuesday 7 October 2025 19:34 (1 minute)

The global iron and steel industry is being impacted by a decline in steel demand and volatile situation in the global market of raw materials. Manufacturers are challenged to reduce the production cost of iron and steel by modernizing the existing production facilities in conditions of continuously growing requirements for provision of environmental measures. Iron and steel industry is considered as "dirty" production and many processes, including blast-furnace production, are sources of a big amount of combustion products and CO/NOx emissions. Many designs of hot stoves used for blast furnaces are not able to provide complete gas combustion during operation. On the contrary, top combustion stoves which have gained widespread use recently have proved its capability to remain environmentally "clean" during long-term operation. KALUGIN Company has developed and successfully implements top combustion hot blast stoves of its own design representing advanced and economically efficient technology meeting today's high environmental requirements. Nowadays, modernization of existing stoves is being performed with different modernization options from replacement of existing burner design to full replacement of the stove. This paper gives a comprehensive assessment of various modernization options on the basis of such parameters as productivity, capital expenditures, project implementation period, reduction in CO and NOx emissions, which enables to choose the best option for modernization of existing facilities to improve productive efficiency and significantly reduce harmful emissions having adverse environmental impacts.

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Session Classification: Poster Session

Track Classification: Ironmaking - Blast furnace ironmaking