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High velocity oxygen fuel (HVOF) cermet coatings for metallurgical roll components — Guidance with requirements

Revêtements de cermet par pulvérisation oxycombustible à grande vitesse (HVOF) pour les composants de rouleaux métallurgiques — Recommandations et exigences

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Foreword

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This document was prepared by ISO/TC 107, *Metallic and other inorganic coatings*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Metallurgical rollers are the key components used in the steel industry. However, rollers considered to be consumables with premature failure often occurring on the roller surface. The surface quality of rollers determines the quality of products and also affects production efficiency. High velocity oxygen fuel (HVOF), as an environmentally friendly technology, has become a promising technology for improving the surface quality of rollers, thus extending the service life. Up until now, HVOF cermet coatings (e.g. tungsten carbide based, chromium carbide based) have been widely used in various rollers (e.g. hot dip galvanized line, continuous annealing furnace) in the metallurgical industry around the world. In the process of metallurgical production, the specific coating is determined by the working conditions of the rollers used.

This document aims to promote the technical progress of the industry.

High velocity oxygen fuel (HVOF) cermet coatings for metallurgical roll components — Guidance with requirements

1 Scope

This document specifies recommendations and requirements for the selection of coating materials, the pre-treatment of rollers, the preparation and post-treatment of the coatings, as well as the quality and performance evaluation of high velocity oxygen fuel (HVOF) cermet coatings used on metallurgical roll components.

This document is applicable to four metallurgical rollers: pot inner roller (sink/stabilizing roller) of continuous galvanized line (CGL), cold rolling process roller, hot-rolled straightening roller and furnace roller.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14921, *Thermal spraying — Procedures for the application of thermally sprayed coatings for engineering components*

ISO 14916, *Thermal spraying — Determination of tensile adhesive strength*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
pot inner roller (sink/stabilizing roller) of continuous galvanized line
pot inner roller (sink/stabilizing roller) of CGL
roller that ensures the stable flow of the steel strip into the zinc pot

3.2
cold rolling process roller
main working part of the sheet mill, which determines the quality of the rolled material and the production efficiency of the mill

3.3
hot-rolled straightening roller
core part of the hot rolling strip mill, which is composed of six rollers