

Title (en)

HOT-ROLLING ONLINE MOVABLE THERMAL INSULATION HEAT TREATMENT PROCESS, AND HEAT TREATMENT LINE

Title (de)

INLINE-VERFAHREN ZUR WÄRMEBEHANDLUNG MIT MOBILER WÄRMEDÄMMUNG DURCH HEISSWALZEN UND WÄRMEBEHANDLUNGSLINIE

Title (fr)

PROCÉDÉ DE TRAITEMENT THERMIQUE D'ISOLATION THERMIQUE MOBILE EN LIGNE PAR LAMINAGE À CHAUD ET LIGNE DE TRAITEMENT THERMIQUE

Publication

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Application

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Abstract (en)

[origin: EP3685931A1] A hot rolling online movable thermal insulation heat treatment process, and a heat treatment line. The heat treatment process comprises: heating, rolling, layer-cooling, and reeling a slab into a hot coil state; assembling a movable hot coil thermal insulation heat treatment apparatus (40) for the hot coil in 30 minutes after the hot coil is unloaded and bundled, performing heat treatment on the hot coil, and conveying the hot coil to a hot coil thermal insulation treatment area online; after 1 to 48 hours of heat treatment, cooling the hot coil by means of air cooling and then conveying the steel coil to storage. The coiling temperature is controlled between 250°C to 750°C. The heat treatment process is effectively combined with a hot coiling process, and a hot coil is subjected to high efficient thermal insulation heat treatment in the first place; the hot coil subjected to the thermal insulation treatment moves online with the thermal insulation apparatus. Time-based differentiated requirements on the heat treatment process are met, product performance can be effectively improved, investment costs in one time are low, demands for mass production is satisfied, and energy is saved.

IPC 8 full level

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Citation (search report)

- [XA] JP 2001071019 A 20010321 - NIPPON KOKAN KK
- [XA] CN 104087839 A 20141008 - WUHAN IRON & STEEL GROUP CORP
- [A] CN 203064459 U 20130717 - WUXI YAZHONG INTELLIGENT EQUIPMENT CO LTD
- [A] CN 206447906 U 20170829 - ANSTEEL ENGINEERING TECH CORPORATION LIMITED
- [A] US 4165868 A 19790828 - SOUTHERN RAYMOND L [US]
- [A] THOMAS G A ET AL: "Quenched and Partitioned Microstructures ProducedGleeble Simulations of Hot-Strip Mill Cooling Practices", METALLURGICAL AND MATERIALS TRANSACTIONS A, SPRINGER-VERLAG, NEW YORK, vol. 42, no. 12, 9 March 2011 (2011-03-09), pages 3652 - 3659, XP035069997, ISSN: 1543-1940, DOI: 10.1007/S11661-011-0648-5
- See references of WO 2019057116A1

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