

Title (en)
SURFACE GRAIN REFINING HOT-SHEARING METHOD AND PRODUCT OF SURFACE GRAIN REFINING HOT-SHEARING

Title (de)
HEISSSCHERUNGSVERFAHREN MIT OBERFLÄCHENKORNVERFEINERUNG UND HEISSSCHERUNGSPRODUKT MIT OBERFLÄCHENKORNVERFEINERUNG

Title (fr)
PROCÉDÉ DE DÉCOUPAGE À CHAUD D'AFFINAGE DE GRAIN DE SURFACE ET PRODUIT DE DÉCOUPAGE À CHAUD D'AFFINAGE DE GRAIN DE SURFACE

Publication
EP 2995395 A1 20160316 (EN)

Application
EP 14795101 A 20140509

Priority

- JP 2013099243 A 20130509
- JP 2014062534 W 20140509

Abstract (en)
Provided is a surface layer grain refining hot-shearing method including: heating and keeping a steel sheet in a temperature range of from Ac3 to 1400°C to austenitize the steel sheet; subsequently shearing the steel sheet in a state in which the steel sheet is placed on a die; and quenching by rapidly cooling the sheared steel sheet, wherein a start temperature of the shearing is set to be a temperature (°C) obtained by adding a temperature of from 30°C to 140°C to a previously measured Ar3 of the steel sheet.

IPC 8 full level
B21D 28/24 (2006.01); **B21D 28/00** (2006.01); **C21D 1/18** (2006.01); **C21D 9/00** (2006.01); **C22C 38/00** (2006.01); **C22C 38/18** (2006.01)

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EP 2995395 A1 20160316; **EP 2995395 A4 20161228**; **EP 2995395 B1 20181031**; BR 112015027819 A2 20170829; CA 2910862 A1 20141113; CA 2910862 C 20180626; CN 105163880 A 20151216; CN 105163880 B 20171013; ES 2709206 T3 20190415; IN 201918040553 A 20191108; JP 6103047 B2 20170329; JP WO2014181882 A1 20170223; KR 101833191 B1 20180227; KR 20150144801 A 20151228; KR 20170143003 A 20171228; MX 2015015170 A 20160610; MX 367252 B 20190812; RU 2015149732 A 20170616; RU 2633200 C2 20171011; TH 159544 A 20170123; TR 201900620 T4 20190221; TW 201506167 A 20150216; TW I568857 B 20170201; US 2016067760 A1 20160310; WO 2014181882 A1 20141113

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