

Title (en)  
MARTENSITIC STAINLESS STEEL MACHINEABILITY OPTIMIZATION

Title (de)  
OPTIMIERTE BEARBEITBARKEIT VON MARTENSITISCHEM EDELSTAHL

Title (fr)  
OPTIMISATION DE L'USINABILITE D'ACIERS MARTENSITIQUES INOXYDABLES

Publication  
**EP 2616561 B1 20160302 (FR)**

Application  
**EP 11773051 A 20110908**

Priority  
• FR 1057326 A 20100914  
• FR 2011052056 W 20110908

Abstract (en)  
[origin: WO2012035240A1] The present invention relates to a process for manufacturing a martensitic stainless steel, comprising the following steps: (1) the steel is heated to a temperature above the austenization temperature TAUS of the steel; next, the steel is quenched until the temperature of the hottest part of the steel is less than or equal to a maximum temperature Tmax and greater than or equal to a minimum temperature Tmin, the cooling rate being sufficiently rapid for the austenite not to be transformed into a ferrite-pearlite structure; (2) the steel undergoes a first tempering treatment and is then cooled until the temperature of the hottest part of the steel is less than or equal to the maximum temperature Tmax and greater than or equal to the minimum temperature Tmin; and (3) the steel undergoes a second tempering treatment after which it is cooled down to room temperature TA. The maximum temperature Tmax is below the temperature MF' of the end of the martensitic transformation of the interdendritic spaces in the steel upon cooling and, in each of steps (1) and (2), the following substep is carried out: (?) as soon as the temperature of the hottest part of the steel reaches the maximum temperature Tmax, the steel is immediately reheated.

IPC 8 full level  
**C22C 38/00** (2006.01); **C21D 1/18** (2006.01); **C21D 1/22** (2006.01); **C21D 6/00** (2006.01); **C22C 38/04** (2006.01); **C22C 38/44** (2006.01); **C22C 38/46** (2006.01)

CPC (source: EP US)  
**C21D 1/18** (2013.01 - EP US); **C21D 1/22** (2013.01 - EP US); **C21D 6/004** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/44** (2013.01 - EP US); **C22C 38/46** (2013.01 - EP US); **C21D 2211/008** (2013.01 - EP US)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**FR 2964668 A1 20120316**; **FR 2964668 B1 20121012**; BR 112013006063 A2 20160607; BR 112013006063 B1 20190219; CA 2810781 A1 20120322; CA 2810781 C 20181106; CN 103097555 A 20130508; CN 103097555 B 20150218; EP 2616561 A1 20130724; EP 2616561 B1 20160302; RU 2013116810 A 20141020; RU 2598427 C2 20160927; US 2013180628 A1 20130718; US 9464336 B2 20161011; WO 2012035240 A1 20120322

DOCDB simple family (application)  
**FR 1057326 A 20100914**; BR 112013006063 A 20110908; CA 2810781 A 20110908; CN 201180044118 A 20110908; EP 11773051 A 20110908; FR 2011052056 W 20110908; RU 2013116810 A 20110908; US 201113822500 A 20110908