

Title (en)  
Method for producing a steel component

Title (de)  
Verfahren zum Herstellen eines Stahlbauteils

Title (fr)  
Procédé destiné à la fabrication d'un composant en acier

Publication  
**EP 2840159 B1 20170510 (DE)**

Application  
**EP 13181374 A 20130822**

Priority  
EP 13181374 A 20130822

Abstract (en)  
[origin: WO2015024903A1] The invention relates to a method for the simple production of a steel component of complex configuration having a tensile strength  $r_m > 1200$  mpa and a breaking elongation  $A_{50} > 6\%$ . To this end, according to the invention, a flat steel product is provided, which, apart from iron and unavoidable impurities, contains (in weight percent): C: 0.10 - 0.60 %, Si: 0.4 - 2.5 %, Al: up to 3.0 %, Mn: 0.4 - 3.0 %, Ni: up to 1 %, Cu: up to 2.0 %, Mo: up to 0.4 %, Cr: up to 2 %, Co: up to 1.5 %, Ti: up to 0.2 %, Nb: up to 0.2 %, V: up to 0.5 %, wherein the microstructure of the flat steel product is composed of at least 10 vol-% of residual austenite, which comprises globular residual austenite islands having a grain size of at least 1  $\mu\text{m}$ . The flat steel product is heated to a forming temperature of 150 - 400 °C, and at the forming temperature having a degree of deformation, which is at most equal to the uniform elongation  $a_g$ , is shaped into the component. Finally, the flat steel product such produced is cooled down. A component formed in this way at increased temperatures has a considerably increased strength as compared to a component formed of the same flat steel product but at room temperature.

IPC 8 full level  
**C21D 7/10** (2006.01); **C21D 8/02** (2006.01); **C21D 9/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/08** (2006.01); **C22C 38/16** (2006.01); **C22C 38/18** (2006.01)

CPC (source: EP KR US)  
**C21D 6/004** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C21D 8/02** (2013.01 - KR); **C21D 8/0205** (2013.01 - EP US); **C21D 8/0221** (2013.01 - EP US); **C21D 8/0226** (2013.01 - EP US); **C21D 8/0236** (2013.01 - EP US); **C21D 9/46** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP KR US); **C22C 38/04** (2013.01 - EP KR US); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/08** (2013.01 - EP US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP US); **C22C 38/16** (2013.01 - EP US); **C22C 38/18** (2013.01 - EP US); **C22C 38/34** (2013.01 - EP US); **C22C 38/40** (2013.01 - KR); **C22C 38/42** (2013.01 - EP KR US); **C22C 38/44** (2013.01 - KR); **C22C 38/46** (2013.01 - KR); **C22C 38/48** (2013.01 - KR); **C22C 38/50** (2013.01 - KR); **C22C 38/52** (2013.01 - KR); **C22C 38/58** (2013.01 - EP US); **C23C 30/005** (2013.01 - US); **C21D 7/10** (2013.01 - EP US); **C21D 9/0068** (2013.01 - EP US); **C21D 2211/001** (2013.01 - EP US)

Cited by  
CN113217603A

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)  
**EP 2840159 A1 20150225**; **EP 2840159 B1 20170510**; **EP 2840159 B8 20170719**; CN 105518175 A 20160420; CN 105518175 B 20170711; ES 2636780 T3 20171009; JP 2016530403 A 20160929; JP 2019151932 A 20190912; JP 6606075 B2 20191113; KR 20160047495 A 20160502; US 10301700 B2 20190528; US 2016201157 A1 20160714; WO 2015024903 A1 20150226

DOCDB simple family (application)  
**EP 13181374 A 20130822**; CN 201480046408 A 20140818; EP 2014067571 W 20140818; ES 13181374 T 20130822; JP 2016535447 A 20140818; JP 2019072123 A 20190404; KR 20167006903 A 20140818; US 201414913592 A 20140818