

Title (en)
Method for manufacturing a motor vehicle component and motor vehicle component

Title (de)
Verfahren zur Herstellung eines Kraftfahrzeugbauteils sowie Kraftfahrzeugbauteil

Title (fr)
Procédé de fabrication d'un composant de véhicule automobile et composant de véhicule automobile

Publication
EP 2749659 A1 20140702 (DE)

Application
EP 13194999 A 20131129

Priority
DE 102012111959 A 20121207

Abstract (en)
Producing a metallic motor vehicle component, comprises providing a steel sheet metal plate with a manganese content of 10-30% and a stacking fault energy of 5-50 mJ/m², preferably 10-40 mJ/m², at least partially tempering the steel sheet metal plate to a cold molding temperature of + - 30[deg] C and -250[deg] C, molding the steel sheet metal plate to a sheet component at cold molding temperature for inducing at least partial martensite formation by cold molding method, and removing the steel sheet metal plate. The material of the steel sheet metal plate tends to crystal twinning at room temperature. An independent claim is also included for the motor vehicle component, produced by the above mentioned method, where the motor vehicle component is formed from twinning-induced plasticity steel alloy, where at least partial regions of the component exhibits martensitic structure.

Abstract (de)
Die vorliegende Erfindung betrifft ein Verfahren zur Herstellung eines Kraftfahrzeugbauteils sowie ein erfindungsgemäß hergestelltes Kraftfahrzeugbauteil. Insbesondere wird zur Herstellung des Kraftfahrzeugbauteils eine Stahlblechplatte mit einer Stapelfehlerenergie zwischen 10 und 40 mJ/m² und einen Mangananteil zwischen 10 und 30% bereitgestellt, deren Wirkstoff bei Raumtemperatur zu Zwillingsbildung führt und zumindest partiell ein überwiegend austenitisches Gefüge aufweist. Diese Stahlblechplatte wird zumindest partiell auf eine Temperatur zwischen +30 °C und -250 °C temperiert und sodann kalt umgeformt. Durch das erfindungsgemäße Verfahren werden insbesondere die Streckgrenze und die Zugfestigkeit deutlich gesteigert bei gleichzeitig hoher Duktilität.

IPC 8 full level
C21D 7/02 (2006.01)

CPC (source: EP US)
C21D 6/005 (2013.01 - EP US); **C21D 6/04** (2013.01 - EP US); **C21D 7/02** (2013.01 - EP US); **C21D 8/0247** (2013.01 - US); **C22C 38/02** (2013.01 - US); **C22C 38/04** (2013.01 - US); **C22C 38/06** (2013.01 - US); **C22C 38/12** (2013.01 - US); **C22C 38/14** (2013.01 - US); **C21D 1/673** (2013.01 - EP US); **C21D 2211/001** (2013.01 - EP US); **C21D 2211/008** (2013.01 - EP US)

Citation (applicant)
• DE 102010020373 A1 20111117 - VOESTALPINE STAHL GMBH [AT]
• WO 2008078962 A1 20080703 - POSCO [KR], et al

Citation (search report)
• [XP] WO 2013124283 A1 20130829 - UNIV FREIBERG TECH BERGAKAD [DE]
• [XPA] WO 2013064698 A2 20130510 - UNIV FREIBERG TECH BERGAKAD [DE]
• [A] EP 0889144 A1 19990107 - MAX PLANCK INST EISENFORSCHUNG [DE]
• [A] WO 2009090228 A1 20090723 - UNIV FREIBERG TECH BERGAKAD [DE], et al
• [XA] GRÄSSEL O ET AL: "Phase transformations and mechanical properties of Fe-Mn-Si-Al TRIP steels", JOURNAL DE PHYSIQUE IV, EDITIONS DE PHYSIQUE. LES ULIS CEDEX, FR, vol. 7, no. C05, 1 November 1997 (1997-11-01), pages 383 - 388, XP002081702, ISSN: 1155-4339
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Designated extension state (EPC)
BA ME

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DOCDB simple family (application)
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