Title (en)

METHOD FOR PROCESSING ADVANCED HIGH STRENGTH STEEL

Title (de)

VERFAHREN ZUR VERARBEITUNG VON FORTSCHRITTLICHEM HOCHFESTEM STAHL

Title (fr)

PROCÉDÉ POUR LE TRAITEMENT D'UN ACIER À HAUTE RÉSISTANCE AVANCÉ

Publication

EP 4153791 A4 20240410 (EN)

Application

EP 21809887 A 20210518

Priority

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- US 2021032936 W 20210518

Abstract (en)

[origin: WO2021236619A1] A method of manufacturing an energy absorbing component for a vehicle is provided. The method includes heating a bainitic GENS steel material which has a microstructure including ferrite and bainite to a temperature above the Ac3 temperature to convert a portion of the ferrite and bainite to austenite. The method further includes forming while cooling the heated steel blank into a component in a temperature controlled steel die. During the cooling step, the steel material is cooled to a temperature below the Ms temperature to form retained austenite. A portion of the austenite transforms to martensite and bainite during the forming and cooling step. The method can further include heating the component to a temperature above the Ms temperature after the forming and cooling step to increase energy absorption characteristics. During a crash event, the strain imposed on the component converts retained austenite present in the component to martensite.

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

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- [A] H. KARBASIAN ET AL: "A review on hot stamping", JOURNAL OF MATERIALS PROCESSING TECHNOLOGY, vol. 210, no. 15, 1 November 2010 (2010-11-01), pages 2103 - 2118, XP055141086, ISSN: 0924-0136, DOI: 10.1016/j.jmatprotec.2010.07.019
- See also references of WO 2021236619A1

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