

Title (en)
SHEET METAL COMPONENT, PRODUCED BY HOT WORKING A FLAT STEEL PRODUCT, AND METHOD FOR THE PRODUCTION THEREOF

Title (de)
BLECHBAUTEIL, HERGESTELLT DURCH WARMUMFORMEN EINES STAHLFLACHPRODUKTS UND VERFAHREN ZU DESSEN HERSTELLUNG

Title (fr)
PIÈCE EN TÔLE FABRIQUÉE PAR FORMAGE À CHAUD D'UN PRODUIT PLAT EN ACIER ET PROCÉDÉ POUR SA FABRICATION

Publication
EP 3658307 B1 20210929 (DE)

Application
EP 17754271 A 20170725

Priority
EP 2017068771 W 20170725

Abstract (en)
[origin: WO2019020169A1] The invention relates to a sheet metal component and a method for producing sheet metal components of this type, which enables an energy saving in comparison with conventionally produced sheet metal components due to lower shaping temperatures, allows for an increased residual stress at high strengths, and whereby a highest possible potential is maintained for cathodic corrosion protection. The sheet metal component according to the invention consists of (in wt.%) C: up to 0.5 %, Si: 0.05 - 1 %, Mn: 4 - 12 %, Cr: 0.1 - 4 %, Al: up to 3.5 %, N: up to 0.05 %, P: up to 0.05 %, S: up to 0.01 %, Cu, Ni: in total up to 2 %, Ti, Nb, V: in total up to 0.5 %, rare-earth elements: up to 0.1 %, and the rest being Fe and unavoidable impurities, wherein the C content %C and the Cr content %Cr fulfils the following condition: $(10 \times \%C) + \%Cr < 5.5 \%$. According to the invention, in order to produce a sheet metal component, the flat steel product is heated through to a heating temperature of at least 200 °C and at most 800 °C, and subsequently shaped to form the component by hot working the flat steel product heated to the heating temperature, wherein the structure of the hot-worked sheet metal component consists of 5 - 50 vol.% austenite and the rest being martensite, tempered martensite or ferrite, wherein the ferrite-portion can also be 0, and wherein the average grain diameter of the grains of the structure is less than 5 µm.

IPC 8 full level
B21D 22/02 (2006.01); **C21D 1/18** (2006.01); **C21D 6/00** (2006.01); **C21D 7/13** (2006.01); **C21D 8/02** (2006.01); **C21D 8/04** (2006.01); **C21D 9/46** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/06** (2006.01); **C22C 38/20** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C22C 38/28** (2006.01); **C22C 38/38** (2006.01); **C22C 38/58** (2006.01); **C23C 2/02** (2006.01); **C23C 2/06** (2006.01); **C23C 2/12** (2006.01); **C23C 2/28** (2006.01)

CPC (source: EP US)
B21D 22/02 (2013.01 - EP); **C21D 1/185** (2013.01 - EP); **C21D 6/005** (2013.01 - US); **C21D 8/0205** (2013.01 - EP); **C21D 9/46** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP US); **C22C 38/005** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/20** (2013.01 - EP); **C22C 38/24** (2013.01 - EP US); **C22C 38/26** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP); **C22C 38/42** (2013.01 - US); **C22C 38/58** (2013.01 - EP US); **C23C 2/02** (2013.01 - EP US); **C23C 2/0224** (2022.08 - EP US); **C23C 2/06** (2013.01 - EP); **C23C 2/12** (2013.01 - EP); **C23C 2/28** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP); **C21D 8/0226** (2013.01 - EP); **C21D 2211/001** (2013.01 - EP US); **C21D 2211/005** (2013.01 - EP); **C21D 2211/008** (2013.01 - EP)

Citation (opposition)
Opponent : ArcelorMittal
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• EP 2778247 A1 20140917 - POSCO [KR]
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• CN 102127675 A 20110720 - CENTRAL IRON & STEEL RES INST
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• MIRANDA ET AL.: "Monitoring of less-common residual elements in scrap feeds for EAF steelmaking", IRONMAKING AND STEELMAKING, 17 May 2019 (2019-05-17), XP055752627
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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)
WO 2019020169 A1 20190131; CN 110944765 A 20200331; CN 110944765 B 20220225; EP 3658307 A1 20200603; EP 3658307 B1 20210929; EP 3658307 B8 20211103; EP 3658307 B9 20220112; US 2021087662 A1 20210325

DOCDB simple family (application)
EP 2017068771 W 20170725; CN 201780093424 A 20170725; EP 17754271 A 20170725; US 201716634029 A 20170725