

Title (en)

STEEL SHEET FOR HOT STAMPING, METHOD FOR MANUFACTURING SAME, AND HOT STAMP MOLDED ARTICLE

Title (de)

STAHLBLECH ZUR HEISSPRÄGUNG, VERFAHREN ZUR HERSTELLUNG DAVON UND HEISSPRÄGEFORMKÖRPER

Title (fr)

TÔLE D'ACIER POUR ESTAMPAGE À CHAUD, SON PROCÉDÉ DE FABRICATION ET ARTICLE MOULÉ ESTAMPÉ À CHAUD

Publication

EP 3278895 A4 20180905 (EN)

Application

EP 16772842 A 20160329

Priority

- JP 2015072280 A 20150331
- JP 2016060145 W 20160329

Abstract (en)

[origin: EP3278895A1] A steel sheet for hot stamping includes a composition including at least, in mass%, C: 0.100% to 0.600%, Si: 0.50% to 3.00%, Mn: 1.20% to 4.00%, Ti: 0.005% to 0.100%, B: 0.0005% to 0.0100%, P: 0.100% or less, S: 0.0001% to 0.0100%, Al: 0.005% to 1.000%, and N: 0.0100% or less, with a balance of Fe and impurities, surface roughness of the steel sheet satisfies $R_z > 2.5 \mu\text{m}$, and 50 mg/m² to 1500 mg/m² of coating oil is applied to a surface.

IPC 8 full level

B21D 22/20 (2006.01); **B21B 1/02** (2006.01); **B21B 1/04** (2006.01); **B21B 1/46** (2006.01); **B21D 24/00** (2006.01); **C21D 6/00** (2006.01); **C21D 8/02** (2006.01); **C21D 9/46** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/14** (2006.01); **C22C 38/58** (2006.01); **C23F 11/00** (2006.01); **C23G 1/08** (2006.01)

CPC (source: EP KR RU US)

B21B 1/04 (2013.01 - US); **B21B 1/463** (2013.01 - US); **B21B 3/00** (2013.01 - KR); **B21B 45/0242** (2013.01 - KR); **B21D 22/022** (2013.01 - KR); **B21D 22/20** (2013.01 - EP RU US); **B21D 24/00** (2013.01 - EP RU US); **C21D 6/005** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C21D 8/0205** (2013.01 - EP US); **C21D 8/0226** (2013.01 - EP US); **C21D 8/0236** (2013.01 - EP US); **C21D 8/0278** (2013.01 - EP KR US); **C21D 9/46** (2013.01 - EP KR RU US); **C22C 38/00** (2013.01 - EP RU US); **C22C 38/001** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP KR US); **C22C 38/004** (2013.01 - KR); **C22C 38/005** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP KR US); **C22C 38/06** (2013.01 - EP US); **C22C 38/08** (2013.01 - EP US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP KR RU US); **C22C 38/16** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/32** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US); **C22C 38/58** (2013.01 - EP RU US); **C23F 11/00** (2013.01 - EP KR RU US); **C23G 1/08** (2013.01 - EP KR RU US); **B21B 2001/028** (2013.01 - US)

Citation (search report)

- [A] JP 2008240046 A 20081009 - NIPPON STEEL CORP
- [A] US 4072783 A 19780207 - YASUE MOTOI, et al
- [A] JP H0976004 A 19970325 - NISSHIN STEEL CO LTD
- [A] US 2004055673 A1 20040325 - KIMURA KEN [JP], et al
- [A] WO 2014157578 A1 20141002 - NIPPON STEEL & SUMIKIN SST [JP]
- [A] JP 2004052072 A 20040219 - SUMITOMO METAL IND, et al
- [A] ZHENXING LIU ET AL: "Cross-coupling reactions involving metal carbene: from C-C/C-C bond formation to C-H bond functionalization", THE JOURNAL OF ORGANIC CHEMISTRY, 18 October 2013 (2013-10-18), United States, pages 10024 - 10030, XP055494544, Retrieved from the Internet <URL:http://www.jfe-steel.co.jp/en/products/sheets/catalog/b1e-002.pdf> [retrieved on 20180723], DOI: 10.1021/jo401850q
- [A] SOUMYA SUBRAMONIAN ET AL: "Evaluation of Lubricants for Stamping Deep Draw Quality Sheet Metal in Industrial Environment", 1 January 2009 (2009-01-01), XP055494537, Retrieved from the Internet <URL:https://etd.ohiolink.edu/rws_etd/document/get/osu1259094400/inline> [retrieved on 20180723]
- See also references of WO 2016158961A1

Cited by

CN114012056A; EP4230766A4; EP3282029A4; US10563281B2; DE102022108111A1; WO2023194450A1; US10822680B2; US11041225B2; EP3854900B1

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 3278895 A1 20180207; **EP 3278895 A4 20180905**; **EP 3278895 B1 20200311**; BR 112017020165 A2 20180605; CA 2979978 A1 20161006; CN 107427889 A 20171201; CN 107427889 B 20191025; ES 2781465 T3 20200902; JP 6515356 B2 20190522; JP WO2016158961 A1 20180118; KR 102000863 B1 20190716; KR 20170122823 A 20171106; MX 2017012377 A 20171214; RU 2683397 C1 20190328; TW 201702403 A 20170116; TW I597370 B 20170901; US 2018044754 A1 20180215; WO 2016158961 A1 20161006

DOCDB simple family (application)

EP 16772842 A 20160329; BR 112017020165 A 20160329; CA 2979978 A 20160329; CN 201680017529 A 20160329; ES 16772842 T 20160329; JP 2016060145 W 20160329; JP 2017510030 A 20160329; KR 20177027982 A 20160329; MX 2017012377 A 20160329; RU 2017135379 A 20160329; TW 105110064 A 20160330; US 201615559731 A 20160329