

Title (en)

STEEL SHEET FOR HOT PRESS FORMING, HOT PRESS FORMING MEMBER, AND MANUFACTURING METHOD THEREOF

Title (de)

STAHLBLECH FÜR HEISSPRESSFORMEN, HEISSPRESSFORMELEMENT UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

TÔLE D'ACIER POUR UN FORMAGE PAR PRESSAGE À CHAUD, ÉLÉMENT DE FORMAGE PAR PRESSAGE À CHAUD ET PROCÉDÉ DE FABRICATION ASSOCIÉ

Publication

EP 2778247 A1 20140917 (EN)

Application

EP 12847953 A 20121105

Priority

- KR 20110115331 A 20111107
- KR 2012009244 W 20121105

Abstract (en)

Provided are a steel sheet for warm press forming that can have high strength, good elongation, and thus improved crashworthiness after being warm pressed, and a warm-pressed member formed of the steel sheet, and manufacturing methods thereof. The steel sheet for warm press forming includes, by weight%, C: 0.01% to 0.5%, Si: 3.0% or less (excluding 0%), Mn: 3% to 15%, P: 0.0001% to 0.1%, S: 0.0001% to 0.03%, A1: 3.0% or less (excluding 0%), Ni: 0.03% or less (excluding 0%), and the balance of Fe and inevitable impurities.

IPC 8 full level

C22C 38/04 (2006.01); **B21B 1/04** (2006.01); **B21B 15/00** (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 38/06** (2006.01); **C22C 38/08** (2006.01); **C22C 38/12** (2006.01); **C22C 38/14** (2006.01);
C22C 38/16 (2006.01); **C22C 38/18** (2006.01); **C22C 38/38** (2006.01); **C22C 38/58** (2006.01); **C22C 38/60** (2006.01); **C23C 2/02** (2006.01);
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CPC (source: EP KR US)

B21B 1/04 (2013.01 - US); **B21B 15/00** (2013.01 - US); **C21D 6/005** (2013.01 - EP US); **C21D 8/02** (2013.01 - KR US);
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C22C 38/001 (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US); **C22C 38/008** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US);
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C22C 38/14 (2013.01 - EP US); **C22C 38/16** (2013.01 - EP US); **C22C 38/18** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US);
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C21D 2211/005 (2013.01 - EP US); **C21D 2211/008** (2013.01 - EP US)

Cited by

WO2019020169A1; US10173290B2; EP3395979A4; CN110944765A; RU2691436C1; EP3536818A4; RU2709560C2; EP3181715A4;
EP3395978A4; RU2696789C1; EP356118A4; US9802387B2; US10465267B2; US10465269B2; EP3372703A4; EP3473742A4;
WO2016044765A1; WO2017013193A1; WO2017157770A1; US11519044B2; US10266911B2; EP3438316A4; EP3564401A1; US11293075B2;
DE102018102974A1; WO2019154753A1; WO2019155014A1; US10329647B2; DE102020204356A1; US11680305B2; US10105796B2;
US10392677B2; US10954588B2; US11253957B2; US10774405B2; US10851444B2; US11279996B2; US9738959B2; US10752968B2;
US11203795B2; US11248275B2; US10858718B2; US11214846B2; US11420419B2; US11939646B2; US10100388B2; US11085102B2;
US11111912B2; US11130205B2; WO2021084302A1; WO2021084376A1; WO2018050634A1; WO2021084377A1; WO2021084303A1;
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