

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 A4 20150812 (EN)

Application
EP 12847953 A 20121105

Priority
• KR 20110115331 A 20111107
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Abstract (en)
[origin: EP2778247A1] 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%, Al: 3.0% or less (excluding 0%), N: 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); **C23C 2/06** (2006.01); **C23C 2/12** (2006.01)

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); **C21D 8/0226** (2013.01 - US); **C21D 8/0463** (2013.01 - EP US); **C21D 8/0473** (2013.01 - EP US); **C21D 9/46** (2013.01 - EP US); **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); **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 US); **C22C 38/16** (2013.01 - EP US); **C22C 38/18** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US); **C22C 38/58** (2013.01 - EP KR US); **C22C 38/60** (2013.01 - EP US); **C23C 2/02** (2013.01 - EP KR US); **C23C 2/0224** (2022.08 - EP KR US); **C23C 2/024** (2022.08 - EP KR US); **C23C 2/06** (2013.01 - EP US); **C23C 2/12** (2013.01 - EP US); **B21B 2015/0057** (2013.01 - US); **C21D 7/13** (2013.01 - EP US); **C21D 8/0478** (2013.01 - EP US); **C21D 2211/001** (2013.01 - EP US); **C21D 2211/002** (2013.01 - EP US); **C21D 2211/005** (2013.01 - EP US); **C21D 2211/008** (2013.01 - EP US)

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• [XA] WO 2007067014 A1 20070614 - POSCO [KR], et al
• [X] WO 2009142361 A1 20091126 - POSCO [KR], et al
• [X] EP 1731627 A1 20061213 - JFE STEEL CORP [JP]
• [X] EP 2138599 A1 20091230 - JFE STEEL CORP [JP]
• [XA] KR 20070057689 A 20070607 - POSCO [KR]
• [XA] KR 100711445 B1 20070424 - POSCO [KR]

Cited by
WO2019020169A1; US10173290B2; RU2691436C1; EP3395979A4; CN110944765A; EP3536818A4; RU2709560C2; EP3181715A4; EP3395978A4; RU2696789C1; EP3561118A4; US9802387B2; US10465267B2; US10465269B2; EP3372703A4; EP3473742A4; EP3438316A4; EP3564401A1; WO2016044765A1; WO2017013193A1; WO2017157770A1; US11293075B2; US10266911B2; US11519044B2; US10329647B2; DE102020204356A1; US11680305B2; DE102018102974A1; WO2019154753A1; WO2019155014A1; US10774405B2; US10851444B2; US11279996B2; US9738959B2; US10752968B2; US11203795B2; US11248275B2; US10105796B2; US10392677B2; US10954588B2; US11253957B2; US10858718B2; US11214846B2; US11420419B2; US11939646B2; US10100388B2; US11085102B2; US11111912B2; US11130205B2; WO2018050634A1; WO2021084377A1; WO2021084303A1; WO2021084302A1; WO2021084376A1; EP3658307B1

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