

Title (en)
METHOD FOR MANUFACTURING A MECHANICAL CLINCH JOINING COMPONENT

Title (de)
VERFAHREN ZUR HERSTELLUNG EINES KOMPONENTES MIT MECHANISCHER CLINCHVERBINDUNG

Title (fr)
PROCÉDÉ POUR FABRIQUER UN COMPOSANT D'ASSEMBLAGE PAR RIVETAGE MÉCANIQUE

Publication
EP 3437753 B1 20201209 (EN)

Application
EP 17774133 A 20170308

Priority
• JP 2016072486 A 20160331
• JP 2017009224 W 20170308

Abstract (en)
[origin: EP3437753A1] In one aspect of the present invention, a mechanical clinched joint component is a mechanical clinched joint component formed of two or more steel sheets, where the component includes at least one joint portion having a peel strength of 0.200 kN/mm or greater, and the component has a hardness of 360 Hv or greater. A method for manufacturing the component sequentially includes heating the two or more steel sheets to an Ac3 temperature or above, and performing mechanical clinch joining so that a carbon equivalent Ceq of the steel sheets, and a bottom-dead-center holding time t and a joining start temperature T during mechanical clinch joining satisfy relationships of equation (1) below and of equation (2) below: $Ceq \times (0.00209 \times t + 0.000731 \times T - 0.0365) \neq 0.200 \dots (1)$, and $Ceq \neq -0.00071 \times T + 0.993 \dots (2)$.

IPC 8 full level
B21D 39/03 (2006.01); **B21D 22/20** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/28** (2006.01); **C22C 38/32** (2006.01); **C22C 38/38** (2006.01)

CPC (source: EP KR RU US)
B21D 22/20 (2013.01 - KR US); **B21D 22/208** (2013.01 - EP US); **B21D 39/03** (2013.01 - RU); **B21D 39/031** (2013.01 - EP KR US); **C22C 38/001** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP KR US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/12** (2013.01 - KR US); **C22C 38/14** (2013.01 - KR US); **C22C 38/28** (2013.01 - EP US); **C22C 38/32** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US); **C22C 38/60** (2013.01 - US)

Cited by
EP4082687A4

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 3437753 A1 20190206; **EP 3437753 A4 20191009**; **EP 3437753 B1 20201209**; BR 112018070180 A2 20190129; BR 112018070180 B1 20221129; CA 3018539 A1 20171005; CA 3018539 C 20201229; CN 108883458 A 20181123; CN 108883458 B 20200731; ES 2846348 T3 20210728; JP 2017177206 A 20171005; JP 6692200 B2 20200513; KR 102133176 B1 20200713; KR 20180132758 A 20181212; MX 2018011735 A 20181219; RU 2699427 C1 20190905; US 2019105700 A1 20190411; WO 2017169588 A1 20171005

DOCDB simple family (application)
EP 17774133 A 20170308; BR 112018070180 A 20170308; CA 3018539 A 20170308; CN 201780020625 A 20170308; ES 17774133 T 20170308; JP 2016072486 A 20160331; JP 2017009224 W 20170308; KR 20187031392 A 20170308; MX 2018011735 A 20170308; RU 2018138172 A 20170308; US 201716089494 A 20170308