

Title (en)  
ALUMINUM ALLOY PLATE EXCELLENT IN PRESS FORMABILITY AND CONTINUOUS RESISTANCE SPOT WELDABILITY AND METHOD FOR PRODUCTION THEREOF

Title (de)  
ALUMINIUMLEGIERUNGSPLATTE MIT HERVORRAGENDER PRESSFORMBARKEIT UND PUNKTSCHWEISSBARKEIT MIT KONTINUIERLICHEM WIDERSTAND UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)  
PLAQUE D'ALLIAGE D'ALUMINIUM PRESENTANT UNE EXCELLENTE FORMABILITE DE PRESSAGE ET UNE EXCELLENTE SOUDABILITE PAR POINTS PRESENTANT UNE RESISTANCE CONTINUE, AINSI QUE METHODE POUR SA PRODUCTION

Publication  
**EP 1614760 A4 20061018 (EN)**

Application  
**EP 04727133 A 20040413**

Priority  
• JP 2004005258 W 20040413  
• JP 2003110732 A 20030415  
• JP 2004048360 A 20040224

Abstract (en)  
[origin: EP1614760A1] The invention offers an aluminum alloy plate with excellent press-formability and continuous resistance spot weldability, and a method of manufacturing such a plate. The aluminum alloy plate comprises, in % by mass, 0.3-1.0% of Mg, 0.3-1.2% of Si, 0.10-1.0% of Fe and 0.05-0.5% of Mn; where Fe + Mn #¥ 0.2%; the remainder consisting of Al and unavoidable impurities; wherein an average value of recrystallized grain size is 25 µm or less; and at least 5000 particles/mm<sup>2</sup> of intermetallic compounds with a circle-equivalent diameter of 1-6 µm exist. It can further contain 0.5-1.0% of Cu, 0.1-0.4% of Zr, 0.05% or less of Ti or 0.05% or less of Ti together with 0.01% or less of B. The invention also offers a method of manufacturing an aluminum alloy plate comprising steps of pouring a melt consisting of the above composition into an opposing rotating belt caster that is forcibly cooled; casting the melt at a cooling rate of 40-90 °C/sec to form a 5-10 mm thick slab; drawing said slab from the side opposite the side where the melt was poured; rolling directly or after winding into a coil; and subjecting to a solution heat treatment.

IPC 8 full level  
**C22C 21/02** (2006.01); **B22D 11/00** (2006.01); **B22D 11/06** (2006.01); **B22D 11/124** (2006.01); **B23K 11/18** (2006.01); **C22C 21/06** (2006.01); **C22C 21/08** (2006.01); **C22F 1/00** (2006.01); **C22F 1/043** (2006.01); **C22F 1/05** (2006.01); **B23K 103/10** (2006.01)

CPC (source: EP KR US)  
**B22D 11/003** (2013.01 - EP US); **B22D 11/06** (2013.01 - KR); **B22D 11/0605** (2013.01 - EP US); **B22D 11/124** (2013.01 - EP US); **C22C 21/02** (2013.01 - EP KR US); **C22C 21/06** (2013.01 - KR); **C22C 21/08** (2013.01 - EP US); **C22F 1/043** (2013.01 - EP US); **C22F 1/05** (2013.01 - EP KR US)

Citation (search report)  
• [Y] EP 0638435 A1 19950215 - FUJI PHOTO FILM CO LTD [JP]  
• [A] US 6344096 B1 20020205 - BAUMANN STEPHEN F [US], et al  
• [X] PATENT ABSTRACTS OF JAPAN vol. 2000, no. 08 6 October 2000 (2000-10-06)  
• [AY] PATENT ABSTRACTS OF JAPAN vol. 1998, no. 11 30 September 1998 (1998-09-30)  
• [A] HATCH J E: "ALUMINUM", ALUMINUM. PROPERTIES AND PHYSICAL METALLURGY, OHIO, AMERICAN SOCIETY FOR METALS, US, 1984, pages 348 - 350, XP002397632  
• See references of WO 2004092432A1

Cited by  
EP1715067A4; EP2072628A1; EP3981893A1; WO2022074153A1; EP2553131B1

Designated contracting state (EPC)  
DE FR GB

DOCDB simple family (publication)  
**EP 1614760 A1 20060111**; **EP 1614760 A4 20061018**; CA 2521006 A1 20041028; JP 2004332106 A 20041125; JP 4379149 B2 20091209; KR 100710795 B1 20070425; KR 20050118299 A 20051216; TW 200504226 A 20050201; TW I299755 B 20080811; US 2007062618 A1 20070322; WO 2004092432 A1 20041028

DOCDB simple family (application)  
**EP 04727133 A 20040413**; CA 2521006 A 20040413; JP 2004005258 W 20040413; JP 2004048360 A 20040224; KR 20057018560 A 20050930; TW 93109748 A 20040408; US 55331604 A 20040413