

Title (en)

Method for producing a shaped metal sheet from a rolled, non-hardenable aluminium alloy

Title (de)

Verfahren zur Herstellung eines Blechformteils aus einer walzharten, nicht aushärtbaren Aluminiumlegierung

Title (fr)

Procédé de fabrication d'une pièce de formage en tôle à partir d'un alliage en aluminium non durcissable durci par laminage

Publication

EP 2415882 B1 20160323 (DE)

Application

EP 10008040 A 20100802

Priority

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Abstract (en)

[origin: EP2415882A1] The method comprises providing a sheet of non-curable aluminum alloy according to the European Standard EN515:1993 in material condition H12, H14, H16, H18, H19, H22, H24, H26, H28, H32, H34, H36 or H38 containing aluminum as an alloying component in addition to magnesium and manganese, locally heating the sheet at a temperature of 270-350[deg] C for 1-30 seconds, cooling the sheet at the temperature of less than 200[deg] C for 60 seconds, and inserting the heated sheet into a forming tool for forming and shaping the sheet to an open sheet-metal shaped part for 60 seconds. The method comprises providing a sheet of non-curable aluminum alloy according to the European Standard EN515:1993 in material condition H12, H14, H16, H18, H19, H22, H24, H26, H28, H32, H34, H36 or H38 containing aluminum as an alloying component in addition to magnesium and manganese, locally heating the sheet at a temperature of 270-350[deg] C for 1-30 seconds, cooling the sheet at the temperature of less than 200[deg] C for 60 seconds, inserting the heated sheet into a forming tool for forming and shaping the sheet to an open sheet-metal shaped part for 60 seconds, where the sheet is formed in the tool at a temperature of less than 200-300[deg] C, cooling the sheet in an apparatus at below 260[deg] C, and forming a mold cavity having a region that is heated. The sheet is: partially heated at various regions for various times using different temperatures before forming; and heated resistive, conductive, inductive or capacitive. The parts of the sheet after forming in the apparatus is further heated at the same temperature or at higher temperature.

IPC 8 full level

C21D 8/04 (2006.01); **C21D 9/46** (2006.01); **C22C 1/06** (2006.01); **C22C 21/06** (2006.01); **C22F 1/047** (2006.01)

CPC (source: EP)

C21D 8/04 (2013.01); **C21D 9/46** (2013.01); **C22C 1/06** (2013.01); **C22C 21/06** (2013.01); **C22F 1/047** (2013.01)

Citation (examination)

- DE 102009008282 A1 20100819 - BENTELER AUTOMOBILTECHNIK GMBH [DE]
- WO 2009123538 A1 20091008 - GESTAM HARDTECH AB [SE], et al
- ROOS, EBERHARD, MAILE, KARL: "Werkstoffkunde für Ingenieure", 31 December 2002, SPRINGER-VERLAG, ISBN: 978-3-642-17463-6, article "7.2.2.3 Aluminiumlegierungen", pages: 238 - 239

Cited by

US10391535B2; DE102014108111A1; CN112368403A; CN114602994A; US9914491B2; EP2518173A1; EP2955237A1; CN105268843A; EP3342883A1; WO2020010306A1; WO2019016394A1; US9821859B2; US10501829B2; EP2963140B1

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