

Title (en)

METHOD OF MANUFACTURING A HIGH-STRENGTH 6XXX-SERIES FORGING MATERIAL

Title (de)

VERFAHREN ZUR HERSTELLUNG VON EINER HOCHFESTEN 6XXX SERIE SCHMIEDELEGIERUNG

Title (fr)

PROCÉDÉ DE FABRICATION D'UN ALLIAGE DE 6XXX SERIES DE HAUTE RÉSISTANCE POUR FORGER.

Publication

**EP 3299482 B1 20190529 (EN)**

Application

**EP 16189960 A 20160921**

Priority

EP 16189960 A 20160921

Abstract (en)

[origin: EP3299482A1] An aluminium alloy forged product obtained by following steps: a) casting of a rolling ingot from a 6xxx aluminium alloy comprising: Si: 0.65-1.4%; Mg: 0.6-1.2%; Cu: # 1.5%; Mn: 0.4-1.0%; Fe: # 0.5%; Cr: up to 0.25%; Zr: up to 0.2%; Zn: # 0.25%; Ti: # 0.2%, the balance aluminium; b) homogenising the cast ingot at a temperature T<sub>H</sub> which is 5°C to 80°C lower than solidus temperature T<sub>S</sub>, typically T<sub>H</sub> in the range of 460-570°C, for a duration between 2 and 24 hours; c) quenching said ingot down to room temperature by using water quench system; d) heating the homogenised ingot to a temperature T<sub>h</sub> between (T<sub>S</sub>-5°C) and (T<sub>S</sub>-125°C); e) hot-rolling the re-heated ingot to a hot-mill exit gauge in the range of 2 to 40 mm, and wherein the hot-mill exit temperature is in the range of 200-360°C; f) heating cut-to-length rolled feedstock to forging temperature; g) forging; h) separate solutionising at a temperature between 460-560°C for durations between 20 sec. and 5 hours; i) quenching the forged and solutionised material down to room temperature; j) optionally room temperature ageing for a duration up to 30 days, and preferably between 6 hours and 30 days; k) artificially ageing to T6 temper at temperatures ranging from 150-210°C.

IPC 8 full level

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CPC (source: EP)

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Cited by

CN111041293A; CN111074121A; CN108588599A; CN112962006A; CN115595518A; CN113621855A; CN113881876A; AT522376A1; CN114107753A; AT522376B1; US10472708B2; CN114369748A; CN110938765A; CN114369776A; CN116403755A; CN112048648A; CN113166858A; CN114086036A; CN115807183A; CN109175174A; CN109666824A; CN112739839A; CN114457265A; CN115151665A; US11788178B2

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