

Title (en)

6XXX-SERIES ALUMINIUM ALLOY FORGING STOCK MATERIAL AND METHOD OF MANUFACTURING THEREOF

Title (de)

6XXX-SERIEN-ALUMINIUMLEGIERUNGSSCHMIEDEROHMATERIAL UND VERFAHREN ZUR HERSTELLUNG DAVON

Title (fr)

MATÉRIAU DE STOCKAGE FORGÉ EN ALLIAGE D'ALUMINIUM DE LA SÉRIE 6XXX ET SON PROCÉDÉ DE FABRICATION

Publication

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Application

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Abstract (en)

[origin: WO2017207603A1] The invention relates to hot-rolled semi-finished 6xxx-series aluminium alloy forging stock material having a thickness in the range of 2 mm to 30 mm, and having a composition comprising of, in wt.%, Si 0.65-1.4%, Mg 0.60-0.95%, Mn 0.40-0.80%, Cu 0.04-0.28%, Fe up to 0.5%, Cr up to 0.18%, Zr up to 0.20%, Ti up to 0.15%, Zn up to 0.25%, impurities each <0.05%, total <0.2%, balance aluminium, and wherein it has a substantially unrecrystallized microstructure. The invention relates also to a method of manufacturing such 6xxx-series hot-rolled aluminium alloy forging stock material. Furthermore, the invention relates to a method of forging a shaped product from the 6xxx-series aluminium alloy forging stock material.

IPC 8 full level

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Opponent : C-TEC CONSTELLIUM TECHNOLOGY CENTER

- JP 2006274415 A 20061012 - KOBE STEEL LTD
- EP 2811042 A1 20141210 - KOBE STEEL LTD [JP]
- JP 2003277868 A 20031002 - KOBE STEEL LTD
- JP 2004043907 A 20040212 - KOBE STEEL LTD
- US 2005095167 A1 20050505 - BARTH ANDREAS [DE], et al
- P. SHERSTNEV, I. FLITTA, C. SOMMITSCH, M. HACKSTEINER, T. EBNER: "The effect of the initial rolling temperature on the microstructure evolution during and after hot rolling of AA6082", INT J MATER FORM, 2008, pages 395 - 398, XP055764075
- GAUTHIER PASCAL: "Corrosion behaviour study of the forged AA6082 aluminum alloy from different feedstock", MÉMOIRE DE MAÎTRISE, 2010, pages iii-xvii, 1 - 124, XP055764084
- Y. BIROL ET AL.: "Effect of extrusion press exit temperature and chromium on grain structure of EN AW 6082 alloy forgings", MATERIALS SCIENCE AND TECHNOLOGY, vol. 31, no. 2, 2015, pages 207 - 211, XP055764096
- ANONYMOUS: "BRITISH STANDARD: AEROSPACE SERIES SPECIFICATION FOR Forging Stock and Forgings of Aluminium-Magnesium- Silicon-Manganese Alloy", BRITISH STANDARDS INSTITUTION, September 1971 (1971-09-01), pages 1 - 3, XP055764103
- ANONYMOUS: "Aluminium et alliages d'aluminium - Produits corroyés destinés à la forge", NORME EUROPÉENNE/ NORME FRANÇAISE NF A50-922, NF EN 603-03, August 2000 (2000-08-01), XP055764110
- J.R. DAVIS DAVIS & ASSOCIATES: "ASM Specialty Handbook® Aluminum and Aluminum Alloys", 1993, ASM INTERNATIONAL, article "Forging", pages: 253 - 255, 2pp, XP055764130

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