

Title (en)

METHOD FOR PRODUCING SHEET SEMIFINISHED PRODUCT FROM A TITANIUM ALLOY

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES HALBFERTIGEN BLECHPRODUKTS AUS EINER TITANVERBINDUNG

Title (fr)

PROCÉDÉ DE FABRICATION D'UN BLANC EN FEUILLE À PARTIR D'UN ALLIAGE DE TITANE

Publication

EP 2048260 A4 20090415 (EN)

Application

EP 07747854 A 20070314

Priority

- RU 2007000123 W 20070314
- RU 2006125691 A 20060706

Abstract (en)

[origin: EP2048260A1] The invention relates to plastic working of metals, more specifically to rolling sheets, and is concerned with a method of manufacturing a semi-finished sheet product from a titanium alloy having a submicrocrystalline structure suitable for low-temperature superplastic deformation. The invention can be most efficiently used to manufacture semi-finished thin sheets, including foil, from a low-plastic two-phase titanium alloy. The object of the invention is to improve quality of semi-finished sheet products made from a titanium alloy adapted for further low-temperature superplastic deformation. A method of manufacturing a semi-finished sheet product from a titanium alloy adapted for low-temperature superplastic deformation, including rolling a billet with a prepared structure at a temperature below the polymorphous transformation temperature in isothermal or quasi-isothermal conditions provided by heating the rolls, the method characterized in that said rolling is carried out in conditions of low-temperature superplastic deformation, the deformation being performed, predominantly in a first pass, to a strain amount of $\mu\% \mu_{\min}$, where μ_{\min} is the minimum amount at which a structural state required to provide cooperative grain boundary sliding in the deformation process is formed in the alloy in selected rolling temperature/rate conditions; after each subsequent rolling pass the billet is cooled immediately on exiting the deformation region to maintain the structural state obtained in the deformation; a time period of heating the billet in a furnace for a subsequent rolling pass is restricted to prevent disturbance of the alloy structural state obtained in the previous rolling pass.

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

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- [A] SU 1613505 A1 19901215 - UNIV DNEPROPETROWSK [SU]
- [A] SU 1623826 A1 19910130 - INDZTITUT RROVLEM DZVERKNRLADZ [SU]
- [A] JP S63230858 A 19880927 - SUMITOMO METAL IND
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- [A] VALIAKHMETOV O R ET AL: "MECHANICAL PROPERTIES OF THE TITANIUM ALLOY VT8 WITH SUBMICROCRYSTALLINE STRUCTURE", THE PHYSICS OF METALS AND METALLOGRAPHY / FIZIKA METALLOV IMETALLOVEDENIE, INTERPERIODICA PUBLISHING, XX, vol. 70, no. 4, 1 January 1990 (1990-01-01), pages 198 - 200, XP002052799, ISSN: 0031-918X
- See references of WO 2008004906A1

Designated contracting state (EPC)

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