

Title (en)

Method of producing a hollow turbine blade

Title (de)

Verfahren zur Herstellung einer hohlen Turbinenschaufel

Title (fr)

Procédé de fabrication d'une aube creuse de turbomachine

Publication

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Application

EP 95402012 A 19950906

Priority

FR 9410690 A 19940907

Abstract (en)

The method esp. for a ducted fan turbine rotor, involves simulating the assembly of the blade's components by computer aided design, forging and machining the primary components, depositing diffusion barriers in a predetermined sequence, assembling the primary components by diffusion welding under isostatic pressure, and inflating the blade with gas pressure to achieve super-plastic moulding, followed by final machining. The forging process is carried out in a hot matrix at a temperature of 0.7 to 0.8 of the melting point of the material involved, with the pressing tools heated to 80 per cent of the workpiece temperature. The blade is made from a titanium alloy, e.g. TA6V, with a workpiece matrix temperature of between 880 and 950 deg.C and a tool temperature of 600 - 850 deg.C, designed to produce a microstructure with a grain size of under 10 mcm.

Abstract (fr)

Un procédé de fabrication d'une aube creuse de turbomachine comporte les étapes suivantes : (a) à partir de la définition d'une aube à obtenir, étude en utilisant des moyens de Conception et Fabrication Assistés par Ordinateur/CFAO et réalisation d'une simulation numérique de la mise à plat des pièces constitutives de l'aube ; (b) forgeage sur presse des pièces primaires par matriçage ; (c) usinage des pièces primaires ; (d) dépôt de barrières de diffusion suivant un motif prédéfini ; (e) assemblage des pièces primaires suivi du soudage-diffusion en pression isostatique ; (f) gonflage sous pression de gaz et formage superplastique ; (g) usinage final.

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IPC 8 full level

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Citation (applicant)

EP 0500458 A1 19920826 - SNECMA [FR]

Citation (search report)

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