

Title (en)

METHOD FOR PRODUCTION OF A COMPOUND GAS TURBINE BLADE CONSISTING OF A FOOT, BLADE AND HEAD PIECE, WHEREBY THE BLADE IS MADE FROM A DISPERSION HARDENED NICKEL BASED SUPER-ALLOY; AND COMPOUND BLADE PRODUCED USING THIS METHOD

Publication

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Application

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Priority

CH 105587 A 19870319

Abstract (en)

[origin: US4869645A] A composite gas turbine blade consists of an airfoil (1) in an oxide-dispersion-hardened nickel-based superalloy, in the condition of longitudinally directed coarse columnar crystals, and a shroud plate (6) or a shroud and a root (7), the latter items in a non-dispersion-hardened nickel-based superalloy (cast alloy). The gas turbine blade is manufactured by casting in and casting round, using the non-dispersion-hardened superalloy mentioned, the tip end (2) and root end (3)-provided with depressions (4) and/or protrusions (5)-of the airfoil (1), after preheating the latter to a temperature of between 50 DEG and 300 DEG C. below the solidus temperature of the lowest melting phase of the airfoil material. The casting temperature for this should be a maximum of 100 DEG C. above the liquidus temperature of the highest melting phase of this non-dispersion-hardened alloy. Any melting onto the airfoil (1) and any metallurgical connection is to be avoided. It is advantageous to provide a thermally insulating, mechanically damping intermediate layer (16) of an oxide of at least one of the elements Cr, Al, Si, Ti and Zr with a thickness of 5 to 200 mu m between the airfoil (1), on the one hand, and the shroud plate (6) and the root (7), on the other.

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IPC 8 full level

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