Title (en)

Method for high speed flame spraying

Title (de)

Verfahren zum Hochgeschwindigkeits-Flammenspritzen

Title (fr)

Procédé destiné à l'injection de flammes à vitesse élevée

Publication

EP 2145974 A1 20100120 (DE)

Application

EP 08104765 A 20080716

Priority

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Abstract (en)

The method comprises partially melting particles of a coating material and then issuing as a particle stream (6) with a high velocity onto a surface of component such as turbine blade. The particle stream is aimed in such a way as to make an angle with the component surface that is unequal to 90[deg] during the application of the coating. The particle stream is guided over the component surface in order to apply the coating on the component surface and is directed in order to close a constant angle or different angle that is unequal to 90[deg] . The method comprises partially melting particles of a coating material and then issuing as a particle stream (6) with a high velocity onto a surface of component such as turbine blade. The particle stream is aimed in such a way as to make an angle with the component surface that is unequal to 90[deg] during the application of the coating. The particle stream is guided over the component surface in order to apply the coating on the component surface and is directed in order to close a constant angle or different angle that is unequal to 90[deg] . The particle stream includes an angle of 45-70[deg] C with a component surface. The coating is subjected in webs (7) next to one another on the component surface. The particle stream is aligned in order to include different angles during coating the single web respectively from web to web of different angle that is unequal to 90[deg] C, with the component surface. The particle stream lies in the plain that is defined through the respective web and lies vertically to the component surface. The angle is adjusted in adjoining web of oppositively lying ends of the web. The particle stream is aligned in order to include different angle during the application of the web with the component surface. The particle stream is opposed between the webs lying next to one another. The width of the webs lying next to one another is differently adjusted. The guiding speed of the particle stream is differenly selected between the webs. The adhesive base coating made of chromium, aluminum and yttrium (MCrAlY) is subjected on the component surface. A lower layer (3) is subjected on the component surface by high speed flame spraying before applying the coating. Particles of the coating materials are used for the lower layer and have a small average diameter than the particle that is used for the coating. The lower layer made of MCrAlY is subjected on the component surface. The webs of the lower layer and coating are applied around 90[deg] . The lower layer in the processing of first particle stream that includes an angle of 90[deg] with the component surface and the coating in the processing of second particle stream that includes an angle of unequal to 90[deg] with the component surface are formed. Atmospheric plasma spraying heat insulation layer is subjected on the coating. An independent claim is included for a device for applying a coating onto a surface of a component such as turbine blade through high speed flame spraying.

Abstract (de)

Die Erfindung betrifft ein Verfahren zur Auftragung einer Beschichtung (1) auf eine Bauteiloberfläche durch Hochgeschwindigkeits-Flammspritzen, bei dem Partikel eines Beschichtungsmaterials zumindest teilweise aufgeschmolzen und als Partikelstrom (6) mit hoher Geschwindigkeit auf die Bauteiloberfläche abgegeben werden, wobei der Partikelstrom (6) ausgerichtet wird, um während der Auftragung der Beschichtung mit der Bauteiloberfläche Winkel (b, c) ungleich 90° einzuschließen. Weiterhin betrifft die Erfindung eine nach dem Verfahren herstellbare Beschichtung (1), eine Turbinenschaufel (2) mit dieser Beschichtung (1) und eine Vorrichtung (9) zur Auftragung dieser Beschichtung (1).

IPC 8 full level

C23C 4/12 (2006.01); **B05B 7/20** (2006.01)

CPC (source: EP)

C23C 4/129 (2016.01); B05B 7/20 (2013.01)

Citation (applicant)

DE 69828732 T2 20051222 - GEN ELECTRIC [US]

Citation (search report)

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Designated contracting state (EPC)

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