

Title (en)

Method for surface erosion of superalloys employing a liquid jet

Title (de)

Verfahren zur Oberflächenabtragung von Superlegierungen mit einem flüssigen Strahl

Title (fr)

Procédé d'érosion de surface de superalliages par un jet liquide

Publication

EP 0750054 A1 19961227 (EN)

Application

EP 96109797 A 19960618

Priority

US 49234495 A 19950619

Abstract (en)

A liquid jet is employed to roughen the surface of a substrate so as to enable a subsequent thermal spray coating material to adhere tightly to the surface. The substrate is preferably a superalloy that is either nickel, titanium or cobalt based. The method initially provides a high pressure liquid jet and moves the liquid jet across the substrate surface at a rate so as to deliver liquid to the surface in a range of amounts of at least approximately 0.7 kg/cm² to approximately 5.5 kg/cm². The high pressure liquid jet is preferably provided from a reservoir that is maintained at a pressure in the range of approximately 28 ksi to 52 ksi. A preferred embodiment employs an initial blast of a grit to the surface of the substrate to remove a smooth finish from the substrate, prior to the application of the liquid jet. The initial grit blast enables substantially lessened pressures and amounts of applied liquid mass to accomplish desired ranges of surface roughening. <IMAGE>

IPC 1-7

C23C 4/02; **B24C 1/00**

IPC 8 full level

B24C 1/06 (2006.01); **B05D 3/12** (2006.01); **B05D 5/02** (2006.01); **B24C 1/00** (2006.01); **B26F 3/00** (2006.01); **C23C 4/02** (2006.01)

CPC (source: EP)

B24C 1/00 (2013.01); **C23C 4/02** (2013.01)

Citation (search report)

- [Y] EP 0618040 A1 19941005 - FUJI VALVE [JP]
- [YA] EP 0568315 A1 19931103 - PROGRESSIVE BLASTING SYSTEMS I [US]
- [A] FR 2413225 A1 19790727 - METALLISATION STE NOUVELLE [FR]
- [A] US 5128172 A 19920707 - WHITTICK THOMAS E [CA]
- [A] DE 4032862 A1 19920416 - BERGMANN BORSIG GMBH [DE]
- [A] EP 0245602 A2 19871119 - TEVES GMBH ALFRED [DE]
- [A] EP 0509536 A2 19921021 - EDWARDS KNEISE & CO HOCHVAKUUM [DE]
- [A] PATENT ABSTRACTS OF JAPAN vol. 9, no. 172 (M - 397) 17 July 1985 (1985-07-17)
- [A] PATENT ABSTRACTS OF JAPAN vol. 7, no. 77 (C - 159) 30 March 1983 (1983-03-30)
- [A] PATENT ABSTRACTS OF JAPAN vol. 18, no. 380 (M - 1639) 18 July 1994 (1994-07-18)

Cited by

EP1308227A1; EP1507018A1; EP1304395A1; US6739377B2; WO2007087989A1; US8209831B2; DE102006004769B4

Designated contracting state (EPC)

DE FR GB IT

DOCDB simple family (publication)

EP 0750054 A1 19961227; CA 2179335 A1 19961220; CA 2179335 C 19990907; JP H0911200 A 19970114; MX 9602384 A 19981031

DOCDB simple family (application)

EP 96109797 A 19960618; CA 2179335 A 19960618; JP 17729796 A 19960618; MX 9602384 A 19960618