

Title (en)

Method and apparatus for thermally coating the cylinder surfaces of combustion engines

Title (de)

Verfahren sowie Vorrichtung zum thermischen Beschichten von Zylinderwandungen von Verbrennungsmotoren

Title (fr)

Procédé et dispositif d'application thermique de revêtement des surfaces des cylindres de moteurs à combustion

Publication

**EP 1136583 B2 20081217 (DE)**

Application

**EP 01810005 A 20010104**

Priority

CH 5252000 A 20000320

Abstract (en)

[origin: EP1136583A1] Cylinder barrels thermal coating method involves moving plasma spraying gun (1, 2) having plasma spraying head(s) (3, 4) into interior of cylinder bore of cylinder barrel (8) to be coated. A flow of air with flow velocity of 7-12 m/s, is then created via cylinder bore (7) of barrel, and coating material is sprayed onto cylinder barrel. The flow of air is maintained during entire coating operation. An Independent claim is also included for an apparatus for thermally coating the cylinder barrels of a cylinder block of a combustion engine.

IPC 8 full level

**F02F 1/00** (2006.01); **C23C 4/12** (2016.01); **C23C 4/16** (2016.01)

CPC (source: EP KR US)

**C23C 4/12** (2013.01 - EP US); **C23C 4/16** (2013.01 - EP US); **F02F 1/00** (2013.01 - KR)

Citation (opposition)

Opponent :

- US 5573814 A 19961112 - DONOVAN DAVID A [US]
- Auszug aus dem "Lehrbuch für den Maschinenbau", Dubbel, 14.Auflage (1981), Seite 164-165.
- Artikel:"Method and Apparatus for the Application of Thermal Spray Coatings onto Aluminium Engine Cylinder Bores" von L.Byrnes et al., aus Proceedings of the 7th National Thermal Spray Conference 20-24 June 1994, Boston, Massachusetts, Seite 39-42.
- Versuchsprotokoll der Einsprechenden vom 27.10.99, "Einfluß der Absaugung unter Berücksichtigung der Wechselwirkungen des Brennerkühlstrahls, der Pulverkornfraktion und der Pulverförderate" von Dr.Izquierdo, FT4/T1.; als Zeuge für das Versuchsprotokoll wird benannt:Dr. Patrick Izquierdo, SedanStr. 27, 89077 Ulm,

Cited by

EP1886737A1; EP1884293A1; US7874262B2; US8500907B2

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

**EP 1136583 A1 20010926; EP 1136583 B1 20040506; EP 1136583 B2 20081217**; AT E266104 T1 20040515; CA 2334419 A1 20010920; CA 2334419 C 20041221; DE 50102175 D1 20040609; ES 2220697 T3 20041216; ES 2220697 T5 20090512; JP 2001316794 A 20011116; JP 2006265736 A 20061005; JP 3877278 B2 20070207; KR 100738790 B1 20070712; KR 20010089268 A 20010929; TR 200401050 T4 20040721; US 2001022995 A1 20010920; US 6503577 B2 20030107

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**EP 01810005 A 20010104**; AT 01810005 T 20010104; CA 2334419 A 20010206; DE 50102175 T 20010104; ES 01810005 T 20010104; JP 2001080123 A 20010321; JP 2006137526 A 20060517; KR 20010014213 A 20010320; TR 200401050 T 20010104; US 75807601 A 20010109