

Title (en)

Method for applying a coating to a valve seat of a workpiece

Title (de)

Verfahren zum Aufbringen einer Beschichtung auf eine Sitzfläche eines Werkstücks

Title (fr)

Procédé d'application d'un revêtement sur une surface d'assise d'une pièce usinée

Publication

EP 2228462 A1 20100915 (DE)

Application

EP 10152429 A 20100202

Priority

- EP 09154587 A 20090309
- EP 10152429 A 20100202

Abstract (en)

The method for applying a coating to a seat surface (2) of a workpiece (3), where the seat surface is provided inside a hole (4) in the workpiece at a predetermined distance from an inlet opening (5) of the hole and a smallest diameter of the hole in an area between the inlet opening and the seat surface is maximum 10% of the distance, comprises applying a coating material on the seat surface and forming the coating on the seat surface using an energy beam in a further process step, in which the energy beam is directed to the seat surface through the hole. The method for applying a coating to a seat surface (2) of a workpiece (3), where the seat surface is provided inside a hole (4) in the workpiece at a predetermined distance from an inlet opening (5) of the hole and a smallest diameter of the hole in an area between the inlet opening and the seat surface is maximum 10% of the distance, comprises applying a coating material on the seat surface and forming the coating on the seat surface using an energy beam in a further process step, in which the energy beam is directed to the seat surface through the hole, where the energy beam is a laser beam or an electron beam. The coating material is applied on a part of the seat surface in the form of a coating powder (100, 101), coating wire and/or prefabricated coating body by the energy beam before an energy input. After the formation of the coating on the seat surface, a functioning hole is introduced through the coating.

Abstract (de)

Die Erfindung betrifft ein Verfahren zum Aufbringen einer Beschichtung (1) auf eine Sitzfläche (2) eines Werkstücks (3), wobei die Sitzfläche (2) innerhalb einer Bohrung (4) im Werkstück (3) in einem vorgegebenen Abstand (L) von einer Eingangsöffnung (5) der Bohrung (4) vorgesehen wird. Erfindungsgemäss wird in einem vorgängigen Verfahrensschritt ein Beschichtungsmaterial (100, 101, 102) auf die Sitzfläche (2) aufgebracht und in einem weiteren Verfahrensschritt die Beschichtung (1) auf der Sitzfläche (2) mittels eines Energiestrahls (6) ausgebildet, indem der Energiestrahle (6) durch die Bohrung (4) hindurch auf die Sitzfläche (2) gerichtet wird. Darüber hinaus betrifft die Erfindung ein Werkstück (3) mit einer erfindungsgemäss beschichteten Sitzfläche (2).

IPC 8 full level

C23C 4/06 (2006.01); **C23C 4/12** (2006.01); **C23C 24/10** (2006.01); **C23C 26/00** (2006.01); **F02M 61/16** (2006.01); **F02M 61/18** (2006.01)

CPC (source: EP KR)

C23C 4/06 (2013.01 - EP KR); **C23C 4/12** (2013.01 - EP KR); **C23C 24/103** (2013.01 - EP KR); **C23C 26/00** (2013.01 - EP KR); **F02M 61/166** (2013.01 - EP KR); **F02M 61/1886** (2013.01 - EP KR); **F02M 2200/9038** (2013.01 - EP KR)

Citation (applicant)

- EP 1353061 A2 20031015 - WAERTSILAE NSD SCHWEIZ AG [CH]
- EP 2000550 A1 20081210 - WAERTSILAE NSD SCHWEIZ AG [CH]

Citation (search report)

- [XP] EP 2039802 A1 20090325 - BOSCH CORP [JP]
- [XY] WO 2007148716 A1 20071227 - BOSCH CORP [JP], et al
- [X] DE 10038954 A1 20020228 - SIEMENS AG [DE]
- [YA] EP 0529208 A1 19930303 - FUKUDA METAL FOIL POWDER [JP]
- [X] DE 10163933 A1 20030710 - FEDERAL MOGUL FRIEDBERG GMBH [DE]
- [YA] SCHLAGER D ET AL: "Protection against high temperature corrosion with laser welded claddings - applied and tested on exhaust valve discs of large diesel engines burning heavy fuel oil", MATERIALS AND CORROSION - WERKSTOFFE UND KORROSION, WILEY VCH., WEINHEIM, DE, vol. 53, no. 2, 1 January 2002 (2002-01-01), pages 103 - 110, XP002361318, ISSN: 0947-5117

Cited by

EP2604376B1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)

EP 2228462 A1 20100915; **EP 2228462 B1 20140924**; CN 101829650 A 20100915; CN 101829650 B 20151125; DK 2228462 T3 20141208; JP 2010209464 A 20100924; JP 5481222 B2 20140423; KR 20100101516 A 20100917

DOCDB simple family (application)

EP 10152429 A 20100202; CN 201010139518 A 20100308; DK 10152429 T 20100202; JP 2010031269 A 20100216; KR 20100003912 A 20100115