

Title (en)

Method for manufacturing a workpiece, in particular a forming tool or a forming tool component

Title (de)

Verfahren zur Herstellung eines Werkstücks, insbesondere eines Formgebungswerkzeugs oder eines Formgebungswerkzeugteils.

Title (fr)

Procédé de fabrication d'une pièce à usiner, en particulier un outil de bloc de jeu de construction ou une pièce d'outil de bloc de jeu de construction

Publication

EP 2123377 A1 20091125 (DE)

Application

EP 08382020 A 20080523

Priority

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Abstract (en)

The method comprises providing a heat resistance form (2) with a first form part (2a) and a second form part (2b) in a evacuable chamber (1), filling a metal containing material in the heat resistance form, generating a vacuum in the evacuable chamber and holding the vacuum over a period, generating a inert- or reduction gas atmosphere in the evacuable chamber after expiration of the period, heating the metal containing material, and condensing the heated metal containing material in the heat resistance form through hot pressing under vacuum conditions. The method comprises providing a heat resistance form (2) with a first form part (2a) and a second form part (2b) in a evacuable chamber (1), filling a metal containing material in the heat resistance form, generating a vacuum in the evacuable chamber and holding the vacuum over a period, generating a inert- or reduction gas atmosphere in the evacuable chamber after expiration of the period, heating the metal containing material, and condensing the heated metal containing material in the heat resistance form through hot pressing under vacuum conditions in the inert- or reduction gas atmosphere. A number of rinsing of the evacuable chamber is performed with a reduction gas and/or an inert gas, before the vacuum in the evacuable chamber is generated. A high vacuum is generated in the evacuable chamber. The hot press of the heated metal containing material is performed under high vacuum conditions. The metal containing material in the form of a layer of a metal containing powder or a metal containing powder mixture is filled into the heat resistance form. Two layers or area are produced with different chemical composition while filling the metal containing powder or a metal containing powder mixture. The metal containing material is melted partially and condensed partially in a fluid condition. A cold pressure welding is carried out before heating-up the metal containing material. The process heat is selectively discharged after condensing the metal containing material. An independent claim is included for a device for manufacturing a shaping tool or a shaping tool part.

Abstract (de)

Die vorliegende Erfindung bezieht sich auf ein Verfahren zur Herstellung eines Werkstücks, insbesondere eines Formgebungswerkzeugs oder eines Formgebungswerkzeugteils, umfassend die Schritte: - Bereitstellen einer hitzebeständigen Form (2) mit einem ersten Formteil (2a) und mindestens einem zweiten Formteil (2b) in einer evakuierbaren Kammer (1), - Einfüllen eines metallhaltigen Werkstoffs in die hitzebeständige Form (2), - Erzeugen eines Vakuums in der evakuierbaren Kammer (1), - Erwärmen des metallhaltigen Werkstoffs, - Verdichten des erwärmten metallhaltigen Werkstoffs in der hitzebeständigen Form (2) durch Heipressen unter Vakuumbedingungen. Darber hinaus betrifft die vorliegende Erfindung eine Vorrichtung zur Herstellung eines Werkstücks, insbesondere eines Formgebungswerkzeugs oder eines Formgebungswerkzeugteils.

IPC 8 full level

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Citation (applicant)

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- WO 0220863 A1 20020314 - TNO [NL], et al
- DE 19508959 C2 19990812 - FRAUNHOFER GES FORSCHUNG [DE]
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- EP 1281461 A1 20030205 - SCHWAEBISCHE HUETTENWERKE GMBH [DE]
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- DE 69908273 T2 20040408 - ISUZU MOTORS LTD [JP]
- WO 2006056621 A2 20060601 - ROVALMA SA [ES], et al

Citation (search report)

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- [DYA] EP 1892049 A1 20080227 - ROVALMA SA [ES]
- [DA] EP 0993886 B1 20030528 - ISUZU MOTORS LTD [JP]
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Citation (examination)

DE 3311865 C1 19841108 - SEILSTORFER GMBH & CO METALLUR

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AL BA MK RS

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