Title (en)

Lost-wax pattern casting process and mould for this process

Title (de)

Präzisionsgussverfahren und verlorenes Modell für dieses Verfahren

Title (fr)

Procede de moulage a modele perdu et moule pour ce procede

Publication

EP 2158987 A1 20100303 (FR)

Application

EP 09166187 A 20090723

Priority

FR 0855823 A 20080829

Abstract (en)

The method comprises casting a molten metal in a mold (2), where the metal sublimates or liquefies the lost-wax pattern so that the volume occupied by the pattern is gradually replaced by molten metal, and adjusting the thermal properties of an eutectic plate depending on the stage reached in the molding process for changing the cooling speed of the cast metal. The mold comprises eutectic plate, which is in heat contact with the lost pattern. A change in the intensity of heat flow traverses a face of the eutectic plate, which turns towards the lost-wax pattern. The method comprises casting a molten metal in a mold (2), where the metal sublimates or liquefies the lost-wax pattern so that the volume occupied by the pattern is gradually replaced by molten metal, and adjusting the thermal properties of an eutectic plate depending on the stage reached in the molding process for changing the cooling speed of the cast metal. The mold comprises eutectic plate, which is in heat contact with the lost pattern. A change in the intensity of heat flow traverses a face of the eutectic plate, which turns towards the lost-wax pattern and is thermally coupled with the lost-wax pattern. The adjustment of thermal properties of the eutectic plate is obtained by changing the thermal conductivity, thermal mass capacity, temperature, pressure or velocity of a coolant fluid present in a cavity of the eutectic plate. The adjusting of thermal properties of the eutectic plate is elapsed time function from the beginning of the molten metal casting in the mold, and is function of measured physical quantity representing the temperature of cast metal. The thermal properties of the eutectic plate is modified: to reduce the intensity of heat flow through one side of the plate when the molten metal is introduced in the lost pattern; and to increase the intensity of the heat flow through one side of the plate during the solidification of the metal. An independent claim is included for a mold for a lost-wax pattern molding.

Abstract (fr)

Ce procédé de moulage à modèle perdu comprend la coulée (102) dans un moule d'un métal en fusion qui sublime ou liquéfie le modèle perdu de manière à ce que le volume occupé par le modèle perdu soit progressivement remplacé par le métal en fusion, le moule comprenant au moins un bloc réfrigérant en contact thermique avec le modèle perdu, et après le début de la coulée, l'ajustement (100, 104, 110, 112) des propriétés thermiques du bloc réfrigérant en fonction du stade atteint dans le procédé de moulage pour modifier la vitesse de refroidissement du métal coulé.

IPC 8 full level

B22C 9/04 (2006.01); **B22D 15/00** (2006.01); **B22D 27/04** (2006.01)

CPC (source: EP)

B22C 9/046 (2013.01); **B22D 15/00** (2013.01); **B22D 27/04** (2013.01)

Citation (applicant)

FR 2685229 A1 19930625 - PEUGEOT [FR], et al

Citation (search report)

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- [Y] GB 663479 A 19511219 - H A HOWARD LTD, et al
- [Y] DE 102005032324 A1 20070111 - GWK GES WAERME KAELTETECHNIK M [DE]

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Designated contracting state (EPC)

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DOCDB simple family (publication)

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