

Title (en)
STEEL MATERIAL FOR DIE AND PROCESS FOR PRODUCING SAME, PROCESS FOR PRODUCING PREHARDENED STEEL PRODUCT FOR DIE, AND PROCESS FOR PRODUCING COLD WORKING DIE

Title (de)
STAHLMATERIAL FÜR EINE MATRIZE UND VERFAHREN ZUR HERSTELLUNG DAVON, VERFAHREN ZUR HERSTELLUNG EINES VORGEHÄRTETEN STAHLPRODUKTS FÜR EINE MATRIZE UND VERFAHREN ZUR HERSTELLUNG EINER KALTFORMUNGSMATRIZE

Title (fr)
MATÉRIAU D'ACIER POUR MATRICE ET PROCÉDÉ DE PRODUCTION DE CELUI-CI, PROCÉDÉ DE PRODUCTION DE PRODUIT D'ACIER PRÉDURCI POUR MATRICE, ET PROCÉDÉ DE PRODUCTION DE MATRICE DE FORMAGE À FROID

Publication
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Application
EP 14776113 A 20140303

Priority
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• JP 2014055274 W 20140303

Abstract (en)
[origin: EP2979772A1] A steel raw material applied to manufacture of a cold working die with a hardness of 58HRC or more, is cut for use as a prehardened steel material having a size corresponding to a dimension of the cold working die. The steel raw material is a steel raw material for a die having a quenched and tempered structure and hardness of 58 HRC or more. The steel raw material for a die contains 2% by area or less of primary carbides having a circle-equivalent diameter of 5 µm or more in a cross-sectional structure of the steel raw material. Furthermore, manufacturing method of a steel raw material for a die that is preferable to obtain the steel raw material for a die, a subsequent manufacturing method of a prehardened steel material, and a manufacturing method of a cold working die are provided.

IPC 8 full level
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CPC (source: EP)
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Citation (search report)
• [X] EP 1072691 A2 20010131 - HITACHI METALS LTD [JP]
• [XD] WO 2012115025 A1 20120830 - HITACHI METALS LTD [JP], et al
• [X] JP 2001049394 A 20010220 - HITACHI METALS LTD
• [A] JP 2002241894 A 20020828 - HITACHI METALS LTD
• See references of WO 2014156487A1

Cited by
CN111229950A; US10844456B2

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