Title (en)
MANUFACTURING METHOD FOR COLD-WORKING DIE

Title (de)
HERSTELLUNGSVERFAHREN FÜR EINE KALTBEARBEITUNGSMATRIZE

Title (fr)
PROCÉDÉ DE FABRICATION DE MATRICE POUR FORMAGE À FROID

Publication
EP 2679697 A1 20140101 (EN)

Application
EP 12749111 A 20120220

Priority
• JP 2011034188 A 20110221
• JP 2012053929 W 20120220

Abstract (en)
A manufacturing method for a cold-working die in which steel ingots of a cold-work tool steel are hot worked and made into a base material, the base material is quenched and tempered to a hardness of 58-62 HRC, and then machined into a die shape. The cold-work tool steel comprises, in mass %: 0.6 - 1.2% of C; 0.8 - 2.5% of Si; 0.4 - 2.0% of Mn; 0.03 - 0.1% of S; 5.0 - 9.0% of Cr; 0.5 - 2.0% of Mo and W independently or as a complex (Mo+1/2W); 0.04 - less than 0.3% of Al; and iron and unavoidable impurities as the remainder. The hardness after tempering is preferably at least 60 HRC. The cold-work tool steel may further contain: 1.0% or less of Ni; 1.0% or less of Cu; 1.0% or less of V; and 0.5% or less ofNb.

IPC 8 full level
C22C 38/00 (2006.01); **C21D 6/00** (2006.01); **C21D 10/00** (2006.01); **C22C 1/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C22C 38/34** (2006.01); **C22C 38/60** (2006.01)

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Cited by
EP4059638A1; EP3199656A4; US9890435B2; US10407747B2

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