

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 A4 20161123 (EN)**

Application  
**EP 12749111 A 20120220**

Priority  
• JP 2011034188 A 20110221  
• JP 2012053929 W 20120220

Abstract (en)  
[origin: EP2679697A1] 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 of Nb.

IPC 8 full level  
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Citation (search report)  
• [X] JP 2006152356 A 20060615 - HITACHI METALS LTD  
• [A] US 2010074792 A1 20100325 - MURAKAMI SHOGO [JP], et al  
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• [A] US 2006157163 A1 20060720 - SHIMIZU TAKAYUKI [JP], et al  
• See references of WO 2012115025A1

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