

Title (en)
HOT-WORKING TOOL STEEL HAVING EXCELLENT STIFFNESS AND HIGH-TEMPERATURE STRENGTH AND METHOD FOR PRODUCTION THEREOF

Title (de)
WARMARBEITSSTAHL MIT HERVORRAGENDER STEIFIGKEIT UND HOCHTEMPERATURFESTIGKEIT UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
ACIER À OUTILS POUR FORMAGE À CHAUD PRÉSENTANT D'EXCELLENTE QUALITÉ DE RIGIDITÉ ET DE RÉSISTANCE À DES TEMPÉRATURES ÉLEVÉES, ET SON PROCÉDÉ DE PRODUCTION

Publication
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Application
EP 07807322 A 20070914

Priority
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Abstract (en)
Disclosed is a hot-working tool steel having improved toughness and high-temperature strength. Also disclosed is a method for producing the hot-working tool steel. The hot-working tool steel comprises the following components (by mass): C: 0.34-0.40%, Si: 0.3-0.5%, Mn: 0.45-0.75%, Ni: 0-0.5% (exclusive), Cr: 4.9-5.5%, (Mo+1/2W): 2.5-2.9% (provided that Mo and W are contained singly or in combination), and V: 0.5-0.7%, with the remainder being Fe and unavoidable impurities. Preferably, the cross-sectional structure of the hot-working tool steel upon quenching contains a granular structure and an acicular structure, wherein the granular structure (A%) accounts for 45 area% or less, the acicular structure (B%) accounts for 40 area% or less, and the remaining austenite (C%) accounts for 5 to 20 volume%.; Also disclosed is a method for producing a hot-working tool steel, which comprises tempering the above-mentioned hot-working tool steel so that a value X determined by the following relational expression between a tempered hardness (HRC) and the percentages of the tissues becomes 40 or greater. $X = -0.36 \times \text{HRC} - 1.47 \times A\% - 1.67 \times B\% + 6.55 \times C\% + 72.91$

IPC 8 full level
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Cited by
EP3150735A4; EP2270245A1; CN101921958A; EP2662460A1; EP2682491A4; WO2013167628A1; WO2014131907A1

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