

## Title (en)

Powder metallurgy hot-work tool steel, and process for its manufacture

## Title (de)

PM-Warmarbeitsstahl und Verfahren zu dessen Herstellung

## Title (fr)

Acier à outils pour travail à chaud, obtenu par métallurgie des poudres et procédé pour sa fabrication

## Publication

**EP 0814172 A1 19971229 (DE)**

## Application

**EP 96109706 A 19960617**

## Priority

EP 96109706 A 19960617

## Abstract (en)

A powder metallurgically produced hot work steel has the composition (by wt.) 0.25-0.45% C, 2.40-4.25% Cr, 2.50-4.40% Mo, 0.20-0.95% V, 2.10-3.90% Co, 0.10-0.80% Si, 0.15-0.65% Mn, balance Fe and impurities. Preferably, the steel has a purity K1 of less than 10 µm. Also claimed is powder metallurgical production of the above hot work steel by (a) atomising a steel melt of the above composition in a high purity nitrogen atmosphere; (b) filling the resulting powder into capsules designed such that the final product achieves its intended shape with maximum material yield; (c) shaking the filled capsules to achieve maximum filling density; (d) evacuating and then gas-tightly sealing the capsules; and (e) hot isostatically pressing the capsules at 1000-1230 degrees C and 0.8-3.5 (preferably 1) kbar pressure for ≥ 3 hrs.

## Abstract (de)

Ein pulvermetallurgisch hergestellter Warmarbeitsstahl besteht aus (in Gew.-%): 0,25 - 0,45 Kohlenstoff, 2,40 - 4,25 Chrom, 2,50 - 4,40 Molybdän, 0,20 - 0,95 Vanadium, 0,10 - 0,80 Kobalt, 0,10 - 0,80 Silicium, 0,15 - 0,65 Mangan, Rest Eisen und gegebenenfalls herstellungsbedingte Verunreinigungen. Die aus der obengenannten Zusammensetzung bestehende Pulvercharge wird gleichzeitig hohen Verdichtungsdrücken und hohen Verdichtungstemperaturen in einer Heißisostatpresse ausgesetzt. <IMAGE>

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## IPC 8 full level

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## Citation (search report)

- [X] EP 0467857 A1 19920122 - SVILUPPO MATERIALI SPA [IT]
- [X] GB 1590953 A 19810610 - POWDREX LTD
- [X] EP 0327064 A2 19890809 - ANVAL NYBY POWDER AB [SE]
- [Y] C.W.WEGST: "STAHLSCHLÜSSEL", 1989, VERLAG STAHLSCHLÜSSEL WEGST GMBH, MARBACH,DE, XP002019003

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