

Title (en)
TOOL STEEL FOR COLD-WORKING AND HIGH-SPEED APPLICATIONS

Title (de)
WERKZEUGSTAHL FÜR KALTARBEITS- UND SCHNELLARBEITSANWENDUNGEN

Title (fr)
ACIER À OUTILS POUR APPLICATIONS DE TRAVAIL À FROID ET À GRANDE VITESSE

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Application
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Abstract (en)
[origin: WO2021032893A1] The invention relates to a method for producing a tool steel for cold-working and hot-working applications, in which a steel material consisting of the following alloy elements: (all figures in wt%): carbon = 1.50 to 2.50; silicon = 0.25 to 1.0; Mn = 0.10 to 1.0; Cr = 4.0 to 7; W = 12 to 16; Mo = 1.0 to 5.0; V = 3.0 to 7.0; Co = 6.0 to 8.0; remainder iron and unavoidable impurities resulting from melting, is melted and processed into a powder by atomising, and the powder is then subjected to hot isostatic pressing or three-dimensional compression, and the hot isostatic powder is then mechanically processed if necessary. A heat treatment follows, the heat treatment being carried out such that the material is first heated to a hardening temperature of 1170 °C - 1190 °C in the core, then held at this hardening temperature for 60 to 300 seconds, preferably 100 to 200 seconds, and then cooled at a cooling speed of $\lambda \leq 3$ to a temperature ≤ 50 °C, preferably ≤ 30 °C, for the purposes of hardening, and then drawn, the drawing treatment comprising at least two cycles in which the material is heated to a temperature of 400 °C to 600 °C and held at this temperature of 400 °C to 600 °C for at least two hours, and then cooled at a cooling speed of < 1 K/s to a temperature ≤ 50 °C, preferably ≤ 30 °C. The invention also relates to a steel material produced by this method and to the use thereof.

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