

Title (en)

TOOL STEEL FOR HOT WORKING, TOOL FOR HOT WORKING AND PLUG FOR PRODUCING SEAMLESS PIPE

Title (de)

WERKZEUGSTAHL ZUM WARMUMFORMEN, WERKZEUG ZUM WARMUMFORMEN UND DORN ZUR HERSTELLUNG VON NAHTLOSEN ROHREN

Title (fr)

ACIER A OUTILS POUR FORMAGE A CHAUD, OUTIL POUR FORMAGE A CHAUD ET MANDRIN DESTINE A LA PRODUCTION DE TUYAUX SANS SOUDURE

Publication

**EP 1632583 B1 20100929 (EN)**

Application

**EP 04732422 A 20040512**

Priority

- JP 2004006373 W 20040512
- JP 2003134012 A 20030513

Abstract (en)

[origin: EP1632583A1] A hot tool steel, having a favorable adhesion and the lubricity of an oxide scale formed on its surface and having high strength. The hot tool steel consists of C: 0.05 to 0.5%, Si: 0.1 to 1%, Mn: 1.6 to 3.5%, Ni: 0.05 to 0.5%, Mo: 2 to 5%, W: 2 to 5%, Cu: 0.05 to 0.5%, and the balance Fe and impurities. The hot tool steel preferably contains further one or more of Cr, Co, REM, Ti, Nb, V, Zr and B. The tool made of the hot tool steel is covered on its surface with the oxide scale of 50 to 1500 µm thickness. The typical example of the tool is a piercing plug for manufacturing seamless pipes.

IPC 8 full level

**C22C 38/00** (2006.01); **B21B 25/00** (2006.01)

CPC (source: EP)

**B21B 25/00** (2013.01); **C22C 38/005** (2013.01); **C22C 38/02** (2013.01); **C22C 38/04** (2013.01); **C22C 38/42** (2013.01); **C22C 38/44** (2013.01); **C22C 38/52** (2013.01)

Cited by

EP2902522A4; CN106191694A; DE102015122975B3; EP2008731A4; EP2839891A4; WO2017114523A1

Designated contracting state (EPC)

DE FR IT

DOCDB simple family (publication)

**EP 1632583 A1 20060308**; **EP 1632583 A4 20060628**; **EP 1632583 B1 20100929**; CN 100494448 C 20090603; CN 1788101 A 20060614; DE 602004029357 D1 20101111; JP 4264755 B2 20090520; JP WO2004101837 A1 20060713; WO 2004101837 A1 20041125

DOCDB simple family (application)

**EP 04732422 A 20040512**; CN 200480013137 A 20040512; DE 602004029357 T 20040512; JP 2004006373 W 20040512; JP 2005506176 A 20040512