Title (en)

TOOL STEEL, IN PARTICULAR HOT-WORK STEEL, AND STEEL OBJECT

Title (de)

WERKZEUGSTAHL, INSBESONDERE WARMARBEITSSTAHL, UND STAHLGEGENSTAND

Title (fr)

ACIER À OUTIL, EN PARTICULIER POUR TRAVAIL À CHAUD ET OBJET EN ACIER

Publication

EP 3228724 B1 20220810 (DE)

Application

EP 17151574 A 20070608

Priority

- EP 06118672 A 20060809
- EP 07764595 A 20070608
- EP 2007005091 W 20070608

Abstract (en)

[origin: EP1887096A1] Procedure for adjusting the thermal conductivity of a steel, preferably a hot-work steel comprises metallurgically producing an internal structure of the steel, whose: carbide components exhibit a defined electron and phonon density, and/or crystal structure exhibits a mean free-path length for the phonon and electron flux that is defined by selectively produced lattice defects. Independent claims are included for: (1) a tool steel, preferably hot-work steel comprising carbon (0.26-0.55 wt.%), chromium (less than 2 wt.%), molybdenum (0-10 wt.%) and tungsten (0-15 wt.%), where the total content of tungsten and molybdenum is 1.8-15 wt.%, carbide-forming elements (0-3 wt.%) comprising titanium, zirconium, hafnium, niobium and/or tantalum, vanadium (0-4 wt.%), cobalt (0-6 wt.%), silicon (0-1.6 wt.%), manganese (0-2 wt.%), nickel (0-2.99 wt.%) and sulfur (0-1 wt.%), and the remaining of iron and unavoidable impurities; and (2) a steel object partially comprising a tool steel, preferably a hot-work steel.

IPC 8 full level

C22C 38/22 (2006.01)

CPC (source: EP KR US)

C21D 8/005 (2013.01 - KR); **C22C 33/006** (2013.01 - KR); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - KR); **C22C 38/22** (2013.01 - EP US); **C22C 38/24** (2013.01 - EP US); **C22C 38/30** (2013.01 - EP US); **C22C 38/34** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US); **C22C 38/44** (2013.01 - EP US); **C22C 38/46** (2013.01 - EP US); **C22C 38/52** (2013.01 - EP US); **C22C 38/58** (2013.01 - EP US)

Citation (opposition)

Opponent : Rovalma, S.A.

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Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

Designated extension state (EPC)

HR

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EP 1887096 A1 20080213; AU 2007283164 A1 20080214; AU 2007283164 B2 20120216; BR PI0716490 A2 20150310; CA 2659849 A1 20080214; CA 2659849 C 20171121; CA 2981388 A1 20080214; CA 2981388 C 20200211; CN 101512034 A 20090819; CN 102888563 A 20130123; CN 102888563 B 20160330; EP 2052095 A1 20090429; EP 3228724 A1 20171011; EP 3228724 B1 20220810; ES 2929658 T3 20221130; JP 2010500471 A 20100107; JP 2014111835 A 20140619; JP 2015221941 A 20151210; JP 2016128609 A 20160714;

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DOCDB simple family (application)

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