

Title (en)

High speed steel with good high temperature strength manufactured by powder metallurgy

Title (de)

PM-Schnellarbeitsstahl mit hoher Warmfestigkeit

Title (fr)

Acier rapide à haute résistance thermique produit selon des techniques de la metallurgie des poudres

Publication

EP 1249511 B1 20060906 (DE)

Application

EP 01890331 A 20011205

Priority

AT 5862001 A 20010411

Abstract (en)

[origin: EP1249511A1] Steel object produced by decomposing a liquid metal stream of an alloy with nitrogen to form a metal powder and compacting the powder with optional deformation comprises a chemical composition containing (in weight %) 1.51-2.5 carbon, up to 0.8 silicon, up to 1.5 manganese, 3.5-4.5 chromium, 13.3-15.3 tungsten, 2.0-3.0 molybdenum, 4.5-6.9 vanadium, 10.05-12.0 cobalt, up to 0.52 sulfur, up to 0.2 nitrogen, maximum 100 ppm oxygen, and a balance of iron. The amount of manganese minus sulfur is at least 0.19. The ratio of concentrations of tungsten to molybdenum is 52.-6.5. Preferred Features: The steel has the following composition (in weight %) 1.75-2.38 C, 0.35-0.75 Si, 0.28-0.54 Mn, 3.56-4.25 Cr, 13.90-14.95 W, 2.10-2.89 Mo, 4.65-5.95 V, 10.55-11.64 Co and 0.018-0.195 N.

IPC 8 full level

C22C 33/02 (2006.01); **B22F 3/15** (2006.01); **C22C 38/00** (2006.01); **C22C 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/30** (2006.01); **C22C 38/36** (2006.01); **C22C 38/60** (2006.01)

CPC (source: EP KR US)

C22C 33/02 (2013.01 - KR); **C22C 33/0285** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP US); **C22C 38/22** (2013.01 - EP US); **C22C 38/24** (2013.01 - EP US); **C22C 38/30** (2013.01 - EP US); **C22C 38/36** (2013.01 - EP US); **B22F 2005/001** (2013.01 - EP US); **B22F 2998/10** (2013.01 - EP US); **B22F 2999/00** (2013.01 - EP US)

C-Set (source: EP US)

1. **B22F 2998/10 + B22F 9/082 + B22F 3/14 + B22F 3/16**
2. **B22F 2999/00 + B22F 9/082 + B22F 2201/02**

Cited by

DE102019122638A1; US7682417B2; WO2021032893A1; EP1471160A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

EP 1249511 A1 20021016; EP 1249511 B1 20060906; AT 409389 B 20020725; AT A5862001 A 20011215; AT E338835 T1 20060915; BR 0106358 A 20030415; CA 2371320 A1 20021011; CA 2371320 C 20090714; CN 1156595 C 20040707; CN 1388263 A 20030101; DE 50110937 D1 20061019; DK 1249511 T3 20070115; ES 2269340 T3 20070401; HK 1051221 A1 20030725; KR 100474117 B1 20050308; KR 20020080262 A 20021023; RU 2221073 C1 20040110; SI 1249511 T1 20061231; TW I261071 B 20060901; UA 76942 C2 20061016; US 2003095886 A1 20030522; US 6652617 B2 20031125

DOCDB simple family (application)

EP 01890331 A 20011205; AT 01890331 T 20011205; AT 5862001 A 20010411; BR 0106358 A 20011210; CA 2371320 A 20020211; CN 02107320 A 20020313; DE 50110937 T 20011205; DK 01890331 T 20011205; ES 01890331 T 20011205; HK 03103318 A 20030513; KR 20020019660 A 20020411; RU 2002109384 A 20020410; SI 200130645 T 20011205; TW 91101730 A 20020201; UA 2002042894 A 20020410; US 9625702 A 20020313