

Title (en)  
Cold-worked Steel Object

Title (de)  
Kaltarbeitsstahl-Gegenstand

Title (fr)  
Objet en acier travaillé à froid

Publication  
**EP 1471160 B1 20060927 (DE)**

Application  
**EP 04450082 A 20040401**

Priority  
AT 6272003 A 20030424

Abstract (en)  
[origin: EP1471160A1] Steel composition comprises (in wt.%): C 0.6-1.0, Si 0.3-0.85, Mn 0.2-1.5, P up to 0.03, S up to 0.5, Cr 4.0-6.2, Mo 1.9-3.8, Ni below 0.9, V 1.0-2.9, W 1.8-3.4, Cu below 0.7, Co 3.8-5.8, Al below 0.045, N below 0.2, O below 0.012, remainder Fe with inevitable impurities. The material is made using a powder-metallurgical process, with thermal hardening to 64 Rockwell hardness scale C and an impact toughness of 49 J at room temperature.

IPC 8 full level  
**C22C 38/00** (2006.01); **C22C 38/60** (2006.01); **C22C 1/04** (2006.01); **C22C 38/10** (2006.01); **C22C 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/30** (2006.01); **C22C 38/44** (2006.01); **C22C 38/46** (2006.01); **C22C 38/52** (2006.01)

CPC (source: EP US)  
**C22C 33/0257** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (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)

Cited by  
EP2233596A1; WO2022157227A1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)  
**EP 1471160 A1 20041027; EP 1471160 B1 20060927**; AR 044020 A1 20050824; AT 412000 B 20040826; AT A6272003 A 20040115; AT E340878 T1 20061015; BR PI0401477 A 20050118; BR PI0401477 B1 20130528; CA 2465146 A1 20041024; CA 2465146 C 20080408; DE 502004001560 D1 20061109; DK 1471160 T3 20070129; ES 2274414 T3 20070516; HR P20060447 T3 20070331; PL 1471160 T3 20070228; PT 1471160 E 20070131; RU 2004112557 A 20051027; RU 2270879 C2 20060227; SI 1471160 T1 20070228; UA 81396 C2 20080110; US 2005002819 A1 20050106; US 7682417 B2 20100323

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