

Title (en)
AGE-HARDENING STEEL

Title (de)
AUSHÄRTBARER STAHL

Title (fr)
ACIER OBTENU PAR DURCISSEMENT PAR VIEILLISSEMENT

Publication
EP 2985361 A1 20160217 (EN)

Application
EP 14850316 A 20141001

Priority
• JP 2013207125 A 20131002
• JP 2014076260 W 20141001

Abstract (en)
An age-hardenable steel having a chemical composition consisting of: C: 0.05 to 0.20%, Si: 0.01 to 0.50%, Mn: 1.5 to 2.5%, S: 0.005 to 0.08%, Cr: 0.03 to 0.50%, Al: 0.005 to 0.05%, V: 0.25 to 0.50%, Mo: 0 to 1.0%, Cu: 0 to 0.3%, Ni: 0 to 0.3%, Ca: 0 to 0.005%, and Bi: 0 to 0.4%, with the balance being Fe and impurities, wherein within the impurities, P \leq 0.03%, Ti < 0.005%, and N < 0.0080%, and further [C + 0.3Mn + 0.25Cr + 0.6Mo \leq 0.68], [C + 0.1Si + 0.2Mn + 0.15Cr + 0.35V + 0.2Mo \leq 0.85], and [-4.5C + Mn + Cr - 3.5V - 0.8Mo \leq 0.00]. Wherein, the hardness before aging treatment is not more than 290 HV, with a quantity of hardening by aging treatment being not less than 25 HV, and fatigue strength is not less than 350 MPa as well as absorbed energy at 20°C after aging treatment is not less than 16 J when evaluated by a Charpy impact test performed by using a standard specimen with a U-notch having a notch depth of 2 mm and a notch bottom radius of 1 mm, and therefore the age-hardenable steel is quite suitable for a starting material for mechanical parts.

IPC 8 full level
C22C 38/00 (2006.01); **C21D 1/06** (2006.01); **C21D 1/18** (2006.01); **C21D 8/06** (2006.01); **C21D 9/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/06** (2006.01); **C22C 38/20** (2006.01); **C22C 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/28** (2006.01); **C22C 38/38** (2006.01); **C22C 38/42** (2006.01); **C22C 38/44** (2006.01); **C22C 38/46** (2006.01); **C22C 38/50** (2006.01); **C22C 38/58** (2006.01); **C22C 38/60** (2006.01)

CPC (source: EP US)
C21D 1/06 (2013.01 - EP US); **C21D 1/18** (2013.01 - EP US); **C21D 9/0075** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/20** (2013.01 - EP US); **C22C 38/22** (2013.01 - EP US); **C22C 38/24** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US); **C22C 38/42** (2013.01 - EP US); **C22C 38/44** (2013.01 - EP US); **C22C 38/46** (2013.01 - EP US); **C22C 38/50** (2013.01 - EP US); **C22C 38/58** (2013.01 - EP US); **C22C 38/60** (2013.01 - EP US); **C21D 8/06** (2013.01 - EP US); **C21D 2211/002** (2013.01 - EP US)

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

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EP 2985361 A1 20160217; **EP 2985361 A4 20161130**; **EP 2985361 B1 20180314**; CN 105164297 A 20151216; CN 105164297 B 20170524; HU E037998 T2 20180928; JP 5880795 B2 20160309; JP WO2015050151 A1 20170309; KR 101709883 B1 20170223; KR 20150110804 A 20151002; US 2016201175 A1 20160714; WO 2015050151 A1 20150409

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