Title (en)

AGE-HARDENING STEEL

Title (de)

AUSHÄRTBARER STAHL

Title (fr)

ACIER OBTENU PAR DURCISSEMENT PAR VIEILLISSEMENT

Publication

EP 2985361 B1 20180314 (EN)

Application

EP 14850316 A 20141001

Priority

- JP 2013207125 A 20131002
- JP 2014076260 W 20141001

Abstract (en)

[origin: EP2985361A1] 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 #¤ 0.03%, Ti < 0.005%, and N < 0.0080%, and further [C + 0.3Mn + 0.25Cr + 0.6Mo #¥ 0.68], [C + 0.1Si + 0.2Mn + 0.15Cr + 0.35V + 0.2Mo #¤ 0.85], and [-4.5C + Mn + Cr - 3.5V - 0.8Mo #¥ 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)

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