

Title (en)

Stainless steel, method for manufacturing of stress cracking free workpieces and product made thereof

Title (de)

Nichtrostender Stahl, Verfahren zum Herstellen von spannungsrisssfreien Formteilen und Formteil

Title (fr)

Acier inoxydable, procédé de fabrication de pièces sans fissuration de tension et pièce obtenue

Publication

EP 1352982 B1 20051005 (DE)

Application

EP 03008317 A 20030410

Priority

DE 10215598 A 20020410

Abstract (en)

[origin: EP1352982A2] Stainless steel having a structure with at least 15 vol.% ferrite and a balance of austenite contains alloying additions of chromium and manganese, and optionally nickel, silicon, molybdenum, aluminum and copper. Stainless steel having a structure with at least 15 vol.% ferrite and a balance of austenite comprises (in wt.%): 0.02-0.08 carbon (C), 0.1-0.5 nitrogen (N), 16.0-20.0 chromium (Cr), 6.0-12.0 manganese (Mn), at most 9.05 nickel (Ni), at most 3.0 silicon (Si), at most 3.0 molybdenum (Mo), at most 2.0 aluminum (Al), at most 3.0 copper (Cu) and a balance of iron (Fe) and impurities (where $1.3 < t < 1.8$ and $t = (\%Cr + 2\%Mo + 1.5\%Si + 3\%Al - 5)/(0.3\%Mn + \%Ni + 0.5\%Cu + 15(\%C + \%N) + 2)$). Md30 temperature of the austenitic phase is not more than -55degrees C (where Md30 (degrees C) = $413 - 462(\%C + \%N) - 9.2\%Si - 8.1\%Mn - 13.7\%Cr - 9.5(\%Ni + \%Cu) - 18.5\%Mo$). An Independent claim is also included for a process for the production of crack-free molded parts made from the above stainless steel. Preferred Features: The stainless steel structure comprises not more than 40 vol.% ferrite.

IPC 1-7

C22C 38/38; **C21D 8/00**

IPC 8 full level

C21D 8/02 (2006.01); **C22C 38/00** (2006.01); **C22C 38/22** (2006.01); **C22C 38/34** (2006.01); **C22C 38/38** (2006.01); **C22C 38/44** (2006.01); **C22C 38/58** (2006.01)

CPC (source: EP)

C21D 8/0205 (2013.01); **C22C 38/001** (2013.01); **C22C 38/22** (2013.01); **C22C 38/34** (2013.01); **C22C 38/38** (2013.01); **C22C 38/44** (2013.01); **C22C 38/58** (2013.01); **C21D 8/0221** (2013.01); **C21D 8/0226** (2013.01); **C21D 8/0236** (2013.01); **C21D 8/0263** (2013.01); **C21D 2211/001** (2013.01); **C21D 2211/005** (2013.01)

Cited by

DE102015005742A1; EP2163659A1; JP2012502186A; US2007163679A1; US8562758B2; KR101460279B1; CN105229177A; EP2566994A4; WO2012143610A1; WO2014135441A1; WO2010029012A1; WO2008099336A1; WO2006125412A1; US8608873B2; WO2011138503A1; US10161024B2; WO2011135170A1; US11286546B2; KR101375600B1

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 PT SE SI SK TR

DOCDB simple family (publication)

EP 1352982 A2 20031015; **EP 1352982 A3 20040107**; **EP 1352982 B1 20051005**; AT E305986 T1 20051015; DE 10215598 A1 20031030; DE 50301283 D1 20060216; ES 2250773 T3 20060416

DOCDB simple family (application)

EP 03008317 A 20030410; AT 03008317 T 20030410; DE 10215598 A 20020410; DE 50301283 T 20030410; ES 03008317 T 20030410