

Title (en)
High-nitrogen austenitic stainless steel

Title (de)
Austenitischer rostfreier Stahl mit hohem Stickstoffgehalt

Title (fr)
Acier austénitique inoxydable à haute teneur en azote

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Application
EP 05107313 A 20050809

Priority
JP 2004235880 A 20040813

Abstract (en)

This invention provides a high-nitrogen austenitic stainless steel superior to the conventional one both in the corrosion resistance and strength, despite a low Ni content, characterized in having a Fe content of 50 % by mass or more; containing Cr: 15.0% by mass to 35.0% by mass, Mo: 0.05% by mass to 8.0% by mass %, Mn: 0.2% by mass to 10.0% by mass, Cu: 0.01% by mass to 4.0% by mass and N: 0.8% by mass to 1.5% by mass, both ends inclusive, having a C content of 0.20% by mass or less, a Si content of 2.0% by mass or less, a P content of 0.03% by mass or less, a S content of 0.05% by mass or less, a Ni content of 0.5% by mass or less, an Al content of 0.03% by mass or less, and an O content of 0.020% by mass or less; wherein the contents of Cr, Mo, N and Mn are adjusted so that a compositional parameter - expressed by the equation: $\frac{W_{Cr} + 3.3W_{Mo} + 16W_N}{W_{Mn}}$ where W_{Cr} is Cr content (% by mass), W_{Mo} is Mo content (% by mass) W_N is N content (% by mass) and W_{Mn} is Mn content (% by mass) has a value of 5 or above. and optionally further containing either one of, or both of: W: 0.01% by mass to 1.0% by mass; and Co: 0.01% by mass to 5.0% by mass, both ends inclusive ; and optionally further containing at least one of: Ti: 0.01% by mass to 0.5% by mass; Nb: 0.01% by mass to 0.5% by mass; V: 0.01% by mass to 1.0% by mass; and Ta: 0.01% by mass to 0.5% by mass, both ends inclusive ; and optionally further containing at least one of: B: 0.001 % by mass to 0.01 % by mass; Zr: 0.01 % by mass to 0.50% by mass; Ca: 0.001% by mass to 0.01% by mass; and Mg: 0.001% by mass to 0.01% by mass, both ends inclusive ; and optionally further containing either one of, or both of: Te: 0.005% by mass to 0.05% by mass; and Se: 0.01% by mass to 0.20% by mass, both ends inclusive.

IPC 8 full level

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Citation (search report)

- [X] EP 1229142 A1 20020807 - DAIDO STEEL CO LTD [JP]
- [X] DE 19607828 A1 19961017 - VSG EN & SCHMIEDETECHNIK GMBH [DE]
- [X] CH 688862 A5 19980430 - BASF AG [DE]
- [X] CH 688914 A5 19980529 - BASF AG [DE]
- [X] US 5714115 A 19980203 - SPEIDEL MARKUS O [CH], et al
- [X] US 6682581 B1 20040127 - SPEIDEL MARKUS [CH]
- [A] EP 0422360 A1 19910417 - VER SCHMIEDEWERKE GMBH [DE]
- [A] US 3936297 A 19760203 - HARLTINE III ALBERT G
- [A] GB 2055122 A 19810225 - INST PO METALLOZNANIE I TEKNO
- [A] US 3904401 A 19750909 - MERTZ DAVID L, et al
- [A] EP 0577898 A1 19940112 - AUBERT & DUVAL SA [FR]
- [A] US 4116683 A 19780926 - NIKOLOV IVAN DIMOV, et al

Cited by

EP1783240A1; RU2608251C1; CN113249655A; CN103667861A; CN107354399A; EP2728028A1; CN104769145A; EP3249059A1; CN109722612A; DE102011082905A1; CN108026624A; EP1837414A1; CH715726A1; EP2644734A4; CN110042326A; CN111575596A; US11136638B2; US7658883B2; WO2014067795A1; WO2021026778A1; WO2017058456A1; WO2018032406A1; WO2024056822A1

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