

Title (en)
HIGH STRENGTH / CORROSION-RESISTANT, AUSTENITIC STAINLESS STEEL WITH CARBON - NITROGEN COMPLEX ADDITIVE, AND METHOD FOR MANUFACTURING SAME

Title (de)
HOCHFESTER KORROSIONSBESTÄNDIGER AUSTENITISCHER EDELSTAHL MIT KOHLENSTOFF-STICKSTOFF-KOMPLEXZUSATZ UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
ACIER INOXYDABLE AUSTÉNITIQUE TRÈS RÉSISTANT MÉCANIQUEMENT ET À LA CORROSION, COMPRENANT UN ADDITIF COMPLEXE DE CARBONE ET D'AZOTE, ET PROCÉDÉ DE FABRICATION CORRESPONDANT

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Abstract (en)
[origin: WO2011007921A1] The present invention relates to high strength / corrosion-resistant, austenitic stainless steel with a carbon-nitrogen complex additive, and particularly, to an austenitic stainless steel with a carbon (C) and nitrogen (N) complex additive containing: 8-12 wt % of manganese (Mn); 15-20 wt % of chromium (Cr); less than 2 wt % of nickel (Ni); less than 4 wt % of tungsten (W); less than 2 wt % of molybdenum (Mo); 0.6-1.0 wt % of the total content (C+N) of carbon (C) and nitrogen (N); with the remainder being iron (Fe) and other unavoidable impurities, and to a method for manufacturing same. By controlling the content of the interstitial elements (C+N, C/N) and the substitution elements (Mn+Cr, Mn/Cr, or 0.5W+Mo), the austenitic stainless steel manufactured according to the present invention has a tensile strength of more than 850 MPa and uniform elongation of more than around 45%, thereby exhibiting excellent corrosion resistance as well as improving processability, and the content of Ni, a toxic alloy element, is minimized to improve biocompatibility, making the austenite stainless steel applicable to conventional and offshore structures, desalination facilities, and materials for oil and gas facilities / drilling, transportation and the like, which require high strength and high corrosion resistance, and may also be used to manufacture various functional parts for medical prosthetic materials, and accessories such as jewelry, watches, and the like.

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Citation (examination)
IRVING MELVIN BERNSTEIN ET AL: "Residual and Minor Elements in Stainless Steels", HANDBOOK OF STAINLESS STEELS, XX, XX, 1 January 1977 (1977-01-01), pages 14 - 1, XP002430954

Cited by
EP3327151A1; US10048649B2; WO2018083311A1; WO2014206582A3; EP3147378A1; EP3147380A1

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