

Title (en)  
Iron-chromium-manganese-nickel alloy

Title (de)  
Eisen-Chrom-Mangan-Nickel-Legierung

Title (fr)  
Alliage fer-chrome-manganèse-nickel

Publication  
**EP 2662461 A1 20131113 (DE)**

Application  
**EP 12167011 A 20120507**

Priority  
EP 12167011 A 20120507

Abstract (en)  
Nickel-chromium-manganese alloy comprises 0.005-0.07 wt.% of carbon, 20.5-23 wt.% of chromium, 0.05-1.5 wt.% of silicon, 1.5-6 wt.% of manganese, 1.7-3 wt.% of nickel, 0.15-0.30 wt.% of nitrogen, 0.1-0.8 wt.% of molybdenum, 0.05-4.5 wt.% of copper, up to 0.3 wt.% of cobalt, up to 0.04 wt.% of phosphorus, up to 0.04 wt.% of sulfur, up to 0.2 wt.% of niobium, up to 0.2 wt.% of vanadium, up to 0.2 wt.% of zirconium, up to 0.2 wt.% of tungsten, up to 0.2 wt.% of tantalum, up to 0.1 wt.% of lead, up to 0.1 wt.% of bismuth, up to 0.1 wt.% of tin, and up to 0.1 wt.% of zinc. Nickel-chromium-manganese alloy comprises 0.005-0.07 wt.% of carbon, 20.5-23 wt.% of chromium, 0.05-1.5 wt.% of silicon, 1.5-6 wt.% of manganese, 1.7-3 wt.% of nickel, 0.15-0.30 wt.% of nitrogen, 0.1-0.8 wt.% of molybdenum, 0.05-4.5 wt.% of copper, up to 0.3 wt.% of cobalt, up to 0.04 wt.% of phosphorus, up to 0.04 wt.% of sulfur, up to 0.2 wt.% of niobium, up to 0.2 wt.% of vanadium, up to 0.2 wt.% of zirconium, up to 0.2 wt.% of tungsten, up to 0.2 wt.% of tantalum, up to 0.1 wt.% of lead, up to 0.1 wt.% of bismuth, up to 0.1 wt.% of tin, up to 0.1 wt.% of zinc, up to 0.1 wt.% of selenium, up to 0.1 wt.% of arsenic, up to 0.1 wt.% of titanium, up to 0.05 wt.% of % aluminum, up to 0.05 wt.% of calcium, up to 0.05 wt.% of magnesium, up to 0.05 wt.% of barium, up to 0.05 wt.% of lanthanum, up to 0.05 wt.% of cerium, up to 0.05 wt.% of yttrium, up to 0.05 wt.% of rhenium, up to 0.05 wt.% of oxygen, up to 0.05 wt.% of boron and balance iron including impurities caused by smelting. Independent claims are included for: (1) a component made from the alloy, having at least one mechanical properties at room temperature, where the mechanical properties have  $\geq 420$  N/mm  $2 >$  of proof stress (0.2%), a tensile strength of  $\geq 620$  N/mm  $2 >$ , an elongation of greater 20%, and a notched impact strength of  $\geq 60$ J; (2) method-I for preparing the alloy, comprising melting the alloy constituents in an induction furnace and then deoxidizing by pan aggregates; and (3) method-II for producing the component, comprising performing the method for producing a cast alloy, and casting the component.

Abstract (de)  
Nickel-Chrom-Mangan-Legierung mit 0,005 bis 0,07 Gew% Kohlenstoff, 20,5 bis 23,0 Gew% Chrom, 0,05 bis 1,5 Gew% Silizium, 1,5 bis 6,0 Gew% Mangan, 1,7 bis 3,0 Gew% Nickel, 0,15 bis 0,30 Gew% Stickstoff, 0,1 bis 0,8 Gew% Molybdän, 0,05 bis 4,5 Gew% Kupfer, bis 0,3 Gew% Kobalt, bis 0,04 Gew% Phosphor, bis 0,04 Gew% Schwefel, bis 0,2 Gew% Niob, bis 0,2 Gew% Vanadium, bis 0,2 Gew% Zirkonium, bis 0,2 Gew% Wolfram, bis 0,2 Gew% Tantal, bis 0,1 Gew% Blei, bis 0,1 Gew% Bismut, bis 0,1 Gew% Zinn, bis 0,1 Gew% Zink, bis 0,1 Gew% Selen, bis 0,1 Gew% Arsen, bis 0,1 Gew% Titan, bis 0,05 Gew% Aluminium, bis 0,05 Gew% Calcium, bis 0,05 Gew% Magnesium, bis 0,05 Gew% Barium, bis 0,05 Gew% Lanthan, bis 0,05 Gew% Cer, bis 0,05 Gew% Yttrium, bis 0,05 Gew% Rhenium, bis 0,05 Gew% Sauerstoff, bis 0,05 Gew% Bor, Rest Eisen einschließlich erschmelzungsbedingter Verunreinigungen.

IPC 8 full level  
**C21D 6/00** (2006.01); **C21D 8/00** (2006.01); **C22C 1/02** (2006.01); **C22C 38/42** (2006.01); **C22C 38/44** (2006.01); **C22C 38/58** (2006.01)

CPC (source: EP)  
**C21C 7/068** (2013.01); **C21D 1/28** (2013.01); **C21D 6/004** (2013.01); **C21D 6/005** (2013.01); **C22C 1/02** (2013.01); **C22C 33/04** (2013.01); **C22C 38/001** (2013.01); **C22C 38/02** (2013.01); **C22C 38/06** (2013.01); **C22C 38/42** (2013.01); **C22C 38/44** (2013.01); **C22C 38/58** (2013.01); **C21D 2211/001** (2013.01); **C21D 2211/005** (2013.01)

Citation (applicant)  
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• US 6096441 A 20000801 - HAUSER JEAN-MICHEL [FR], et al  
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• [AD] EP 1327008 B1 20060215 - OUTOKUMPU STAINLESS AB [SE]  
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