Title (en)

Case nitriding for producing a high-strength austenitic skin in stainless steels

Title (de)

Randaufsticken zur Erzeugung einer hochfesten austenitischen Randschicht in nichtrostenden Stählen

Title (fr)

Nitruration superficielle pour la production d'une couche austénitique à résistance élevée dans les aciers inoxydables

Publication

EP 0652300 B1 20071128 (DE)

Application

EP 94114659 A 19940917

Priority

DE 4333917 A 19931005

Abstract (en)

[origin: DE4333917A1] Stainless steel surfaces are heat treated at 1000-1200 deg.C in a nitrogen-containing gas atmosphere to increase the nitrogen content of the surface upto a max. of 0.3 wt.% followed by cooling at such a rate that nitride precipitation is avoided. The gas atmosphere during the treatment process has a pressure which is different from normal pressure. The surface can be further heat treated at max. 650 deg.C to harden the surface. USE/ADVANTAGE - Treating stainless steels (martensitic, austenitic ferritic or mixtures of these) which are used as components in flow machines e.g. pumps and valves. The improved surface strength and toughness leads to an increase wear resistance, esp. resistance to impact of liquid particles. The corrosion resistance is also improved.

IPC 8 full level

C23C 8/26 (2006.01); **C21D 1/06** (2006.01); **C21D 6/00** (2006.01)

CPC (source: EP US)

C21D 6/002 (2013.01 - EP US); **C23C 8/26** (2013.01 - EP US)

Citation (examination)

DE 3708956 C1 19880317 - HANDTMANN ALBERT ELTEKA GMBH

Cited by

EP2351860A1; EP0890656A1; CN111663097A; DE102009005578A1; DE102011077368A1; WO2010040333A1; WO2017194359A1; WO9905340A1; DE102012216117A1; WO2014040995A1; US8597437B2; WO2015173380A1; US10100867B2; DE102008050458A1; DE202008015481U1; EP3614028A1; US8349094B2; EP1956099A1

Designated contracting state (EPC)

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DE 4333917 A1 19940324; **DE 4333917 C2 19940623**; CN 1058758 C 20001122; CN 1107187 A 19950823; CZ 240094 A3 19950816; EP 0652300 A1 19950510; EP 0652300 B1 20071128; ES 2296286 T3 20080416; JP H07188733 A 19950725; PL 178509 B1 20000531; PL 305287 A1 19950418; RU 2127330 C1 19990310; RU 94035767 A 19970420; US 5503687 A 19960402

DOCDB simple family (application)

DE 4333917 A 19931005; CN 94118641 A 19941004; CZ 240094 A 19940930; EP 94114659 A 19940917; ES 94114659 T 19940917; JP 27545594 A 19941004; PL 30528794 A 19941003; RU 94035767 A 19941003; US 31946094 A 19941005