Title (en)

Method and installation for heat treatment for case-hardening, carbonitriding or heating before the quenching of metallic work pieces.

Title (de)

Verfahren und Anlage für Wärmebehandlungen wie Einsatzhärten, Karbonitrieren oder Erwärmung vor dem Härten von metallischen Werkstoffen.

Title (fr)

Procédé et installation de traitement thermique de cémentation, carbonitruration ou chauffage avant trempe de pièces métalliques.

Publication

EP 0375491 B1 19940413 (FR)

Application

EP 89403347 A 19891204

Priority

FR 8816792 A 19881220

Abstract (en)

[origin: US5045126A] The invention is exclusively concerned with heat treatments before hardening, of metallic pieces, by cementation, carbonitridation and heating. The process concerns the feeding of a non muffle heat treatment furnace with various components including nitrogen which is produced by an adsorption or selective permeation generator and which has a residual oxygen content of the order of 2%. According to the invention, after the furnace has ceased to be in operation for a substantial period of time, it is reconditioned by injecting purer nitrogen which has a residual oxygen content lower than 0.3% and which is produced by said generator, adjusted at a lower extraction rate.

IPC 1-7

C21D 1/74; C21D 1/76; C23C 8/30

IPC 8 full level

C23C 8/32 (2006.01); C21D 1/74 (2006.01); C21D 1/76 (2006.01); C23C 8/30 (2006.01)

CPC (source: EP US)

C21D 1/74 (2013.01 - EP US); C21D 1/76 (2013.01 - EP US); C23C 8/30 (2013.01 - EP US)

Citation (examination)

"Stealing nitrogen from the air", W. C. Quantz, Advanced Materials and Processes, vol. 134, no. 3, septembre 1988, p. 100-107.

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Designated contracting state (EPC)

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