

Title (en)

Quenching process after low pressure carburising

Title (de)

Abschreckverfahren nach Niederdruck-Aufkohlung

Title (fr)

Procédé de trempe après cémentation à basse pression

Publication

EP 1101826 A1 20010523 (FR)

Application

EP 00410142 A 20001116

Priority

- FR 9914449 A 19991117
- US 71552500 A 20001117

Abstract (en)

A method for quenching steel components after being subjected to a heat treatment process, such as cementation, at low pressure (Pcem), is characterised in that it consists of submitting the components to a flow of air at an elevated pressure (Ptrem), of between 5 and 50 bars. The duration of the hardening process is below 15 minutes and preferably less than 2 minutes. The heat treatment installation using this method for treating steel components is also claimed and incorporates a plurality of treatment cells and handling equipment for transferring the components between the different treatment cells.

Abstract (fr)

L'invention concerne un procédé de trempe de pièces d'acier ayant subi un traitement thermique à faible pression (Pcem) et une installation de traitement thermique, qui consiste à soumettre les pièces à un flux d'air à pression élevée (Ptrem). <IMAGE>

IPC 1-7

C21D 1/613; **C23C 8/22**; **C21D 9/00**

IPC 8 full level

C21D 1/613 (2006.01); **C21D 9/00** (2006.01); **C23C 8/22** (2006.01); **C23C 8/80** (2006.01)

CPC (source: EP US)

C21D 1/613 (2013.01 - EP US); **C21D 9/0062** (2013.01 - EP US); **C23C 8/22** (2013.01 - EP US); **C23C 8/80** (2013.01 - EP US)

Citation (search report)

- [AD] FR 2678287 A1 19921231 - ETUDES CONST MECANIQUE [FR]
- [AD] FR 2771754 A1 19990604 - ETUDES CONST MECANIQUE [FR]
- [A] DE 4208485 C1 19930211
- [A] DE 3736501 C1 19880609 - DEGUSSA
- [Y] ALTENA H: "NIEDERDRUCK-AUFKOHUNG MIT HOCHDRUCK-GASABSCHRECKUNG VERFAHRENSTECHNIK UND ERGEBNISSE", HAERTEREI TECHNISCHE MITTEILUNGEN,DE,CARL HANSER VERLAG. MUNCHEN, vol. 53, no. 2, 1 March 1998 (1998-03-01), pages 93 - 101, XP000755093, ISSN: 0341-101X
- [Y] HOFFMANN R ET AL: "MOEGELICHKEITEN UND GRENZEN DER GASABKUEHLUNG", HAERTEREI TECHNISCHE MITTEILUNGEN,DE,CARL HANSER VERLAG. MUNCHEN, vol. 47, no. 2, 1 March 1992 (1992-03-01), pages 112 - 122, XP000267300, ISSN: 0341-101X
- [A] TINSCHER R ET AL: "FIXTURHAERTUNG VON WAEELZLAGERRINGEN UNTER VERWENDUNG VON GASFOERMIGEN ABSCHRECKMEDIEN", HAERTEREI TECHNISCHE MITTEILUNGEN,DE,CARL HANSER VERLAG. MUNCHEN, vol. 53, no. 2, 1 March 1998 (1998-03-01), pages 108 - 115, XP000755095, ISSN: 0341-101X

Cited by

FR2826374A1; FR3028530A1; FR3081884A1; US11293087B2; US11512381B2; WO03000939A1; WO2016075377A1; WO2019234352A1

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