

Title (en)

Method and device for heat treating

Title (de)

Vorrichtung und Verfahren zum Wärmebehandeln

Title (fr)

Dispositif et procédé de traitement thermique

Publication

EP 0872563 A1 19981021 (FR)

Application

EP 98400761 A 19980331

Priority

FR 9705230 A 19970428

Abstract (en)

A device is claimed for heat treatment incorporating a cooling system (1, 2, 3, 4, 4') comprising a distribution system (3, 4, 4') delivering at least one cooling fluid. It also incorporates a protection system (5, 5a, 5b, 12, 12') arranged in such a manner that it is able to maintain a protective gaseous atmosphere over at least a part of the distribution system (3, 4, 4'). The method for using this device for heat treatment of a material is also claimed, in which (a) at least one jet containing at least one hot gas vector is sprayed onto at least a part of the surface of the material; (b) at least a part of the material is cooled by means of at least one distribution nozzle delivering a fluid refrigerant; and (c) at least a part of the distribution nozzle is maintained under a protective gaseous atmosphere containing at least one protective gas. A protective sleeve for the device, the utilisation of the device in a heat treatment process and components fabricated by such a process are also claimed.

Abstract (fr)

Dispositif de traitement thermique comportant des moyens de refroidissement comprenant des moyens de distribution délivrant au moins un fluide de refroidissement, caractérisé en ce qu'il comprend, en outre, des moyens de protection agencés de manière à assurer le maintien d'une atmosphère gazeuse de protection sur au moins une partie desdits moyens de distribution.

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IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

- [X] GB 1452062 A 19761006 - BOC INTERNATIONAL LTD
- [AD] EP 0546359 A1 19930616 - LINDE AG [DE]
- [AD] EP 0124432 A1 19841107 - COMMISSARIAT ENERGIE ATOMIQUE [FR]
- [AD] FR 2347111 A1 19771104 - AGEFKO KOHLENSAURE IND [DE]

Cited by

EP1091181A1; EP1152198A1; FR2808585A1; EP2060652A4; WO2008074301A2; DE102008064083A1; US6412288B1; WO2008074301A3;
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