

Title (en)

Process and device for determining the cooling effect of a circulating gas atmosphere on workpieces

Title (de)

Verfahren und Vorrichtung zum Bestimmen der Abkühlwirkung einer strömenden Gasatmosphäre auf Werkstücke

Title (fr)

Procédé et dispositif pour déterminer l'effet de refroidissement d'un courant de gaz sur des pièces

Publication

EP 1167548 A3 20040102 (DE)

Application

EP 01110912 A 20010505

Priority

DE 10030046 A 20000619

Abstract (en)

[origin: US2002036075A1] Method and apparatus for determining the cooling action of a flowing gas atmosphere on workpieces by a measuring body with at least one temperature sensor and heated to workpiece temperature and is exposed to the gas atmosphere. The method and apparatus are particularly useful in hardening steel.

IPC 1-7

C21D 1/613; **C21D 1/55**; **G01N 33/00**; **C21D 11/00**

IPC 8 full level

C21D 1/55 (2006.01); **C21D 1/613** (2006.01); **C21D 11/00** (2006.01); **G01N 33/00** (2006.01)

CPC (source: EP US)

C21D 1/55 (2013.01 - EP US); **C21D 1/613** (2013.01 - EP US)

Citation (search report)

- [A] EP 0538575 A1 19930428 - IPSEN IND INT GMBH [DE]
- [A] DE 3222331 A1 19830331 - INT HARVESTER CO [US]
- [AD] EP 0313888 A1 19890503 - DEGUSSA [DE]
- [AD] EP 0049340 A1 19820414 - WUENNING JOACHIM
- [AD] PATENT ABSTRACTS OF JAPAN vol. 016, no. 261 (C - 0950) 12 June 1992 (1992-06-12)

Cited by

WO2023094557A1

Designated contracting state (EPC)

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