

## Title (en)

PROCESS FOR INDUCTION HEATING USED USED IN A DEVICE INCORPORATING MAGNETICALLY COUPLED INDUCTORS

## Title (de)

INDUKTIONSHETZUENGVERFAHREN BEI EINER VORRICHTUNG VERSEHEN MIT MAGNETISCHEN GEKOPPELTER INDUKTOREN

## Title (fr)

PROCEDE DE CHAUFFAGE PAR INDUCTION MIS EN OEUVRE DANS UN DISPOSITIF COMPRENANT DES INDUCTEURS COUPLES MAGNETIQUEMENT

## Publication

**EP 2491760 B1 20150121 (FR)**

## Application

**EP 10785478 A 20101019**

## Priority

- FR 0957321 A 20091019
- FR 2010052216 W 20101019

## Abstract (en)

[origin: WO2011048316A1] The invention relates to an induction heating method implemented in a device for heating a metal part, the device including magnetically coupled inductors (Ind1, Ind2, ..., Indp), each inductor being powered by a dedicated inverter (O1, O2, ..., Op) combined with a capacitor (C1, C2, ..., Cp) such as to form an oscillating circuit (OC1, OC2, ..., OCp). The oscillating circuits have at least approximately the same resonance frequency, each inverter is controlled by a control unit (M1, M2, ..., Mp) such as to vary the amplitude and the phase of the current passing through the corresponding inductor, the device also including a means for determining said current as well as a means for determining an actual temperature profile (?1 mes, ?2 mes, ..., ?n mes) of said part. The method includes the following steps: a) comparing said actual temperature profile with a reference temperature profile (?1 ref, ?2 ref, ..., ?n ref) and calculating a profile of the reference power density (Dpref 1, Dpref 2, ..., Dpref n) which the heating device must inject into said part; b) calculating the target currents which the inverters must produce in order for the currents of the inductors to reach target values (I1 ref, I2 ref, ..., IP ref) that are suitable for injecting said reference power density profile into said part; c) determining the currents passing through the inductors in order to compare said currents with said target values and determine current deviations (dI1 corr, dI2 corr, ..., dIp corr) to be corrected, and sending correction instructions to said control units (M1, M2, ..., Mp) in accordance with said current deviations.

## IPC 8 full level

**H05B 6/02** (2006.01); **H05B 6/06** (2006.01)

## CPC (source: EP KR US)

**H05B 6/02** (2013.01 - KR); **H05B 6/06** (2013.01 - EP KR US); **H05B 6/08** (2013.01 - US); **H05B 6/104** (2013.01 - EP US); **H05B 6/40** (2013.01 - US); **H05B 6/44** (2013.01 - US)

## Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

## DOCDB simple family (publication)

**FR 2951606 A1 20110422**; **FR 2951606 B1 20120106**; AU 2010309618 A1 20120517; AU 2010309618 B2 20140320; BR 112012009125 A2 20170620; CA 2778379 A1 20110428; CA 2778379 C 20170905; CN 102668692 A 20120912; CN 102668692 B 20141029; EP 2491760 A1 20120829; EP 2491760 B1 20150121; ES 2535092 T3 20150505; IN 3410DEN2012 A 20151023; JP 2013508908 A 20130307; JP 5553904 B2 20140723; KR 101480984 B1 20150114; KR 20120083475 A 20120725; PL 2491760 T3 20150731; RU 2012120692 A 20131127; RU 2525851 C2 20140820; SI 2491760 T1 20150731; US 2012199579 A1 20120809; US 9398643 B2 20160719; WO 2011048316 A1 20110428

## DOCDB simple family (application)

**FR 0957321 A 20091019**; AU 2010309618 A 20101019; BR 112012009125 A 20101019; CA 2778379 A 20101019; CN 201080059385 A 20101019; EP 10785478 A 20101019; ES 10785478 T 20101019; FR 2010052216 W 20101019; IN 3410DEN2012 A 20120419; JP 2012534742 A 20101019; KR 20127012757 A 20101019; PL 10785478 T 20101019; RU 2012120692 A 20101019; SI 201030916 T 20101019; US 201013502551 A 20101019