

Title (en)

Tubular heating element with NTC/PTC protection

Title (de)

Rohrheizkörper mit NTC/PTC-Absicherung

Title (fr)

Élément chauffant tubulaire possédant une protection NTC/PTC

Publication

**EP 1081986 B1 20040901 (DE)**

Application

**EP 00118875 A 20000831**

Priority

DE 19941901 A 19990902

Abstract (en)

[origin: EP1081986A2] Heating body has casing tube (12), heating element (14) embedded in insulating material (16), connecting elements (18), and protection element (28) mounted in end of casing tube and in thermal contact with heating element. Protective element resistance varies with heating element temperature. Element is PTC or NTC element forming component of measurement circuit independent of heating circuit for detection of resistance change.

IPC 1-7

**H05B 3/48**; **H05B 1/02**; **H05B 3/82**

IPC 8 full level

**H05B 1/02** (2006.01); **H05B 3/48** (2006.01); **H05B 3/82** (2006.01)

CPC (source: EP)

**H05B 1/0283** (2013.01); **H05B 3/48** (2013.01); **H05B 3/82** (2013.01); **H05B 2203/019** (2013.01); **H05B 2203/02** (2013.01); **H05B 2203/021** (2013.01)

Cited by

CN105352186A; EP1655546A1; WO2006108622A1; WO2007034343A1; US8094998B2

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

**EP 1081986 A2 20010307**; **EP 1081986 A3 20020529**; **EP 1081986 B1 20040901**; AT E275319 T1 20040915; DE 19941901 A1 20010329; DE 50007598 D1 20041007; ES 2226677 T3 20050401

DOCDB simple family (application)

**EP 00118875 A 20000831**; AT 00118875 T 20000831; DE 19941901 A 19990902; DE 50007598 T 20000831; ES 00118875 T 20000831