

Title (en)

Electric radiator for fluids with continuous-flow heaters

Title (de)

Elektrischer Heizkörper für Fluide, insbesondere Durchflusserhitzer

Title (fr)

Radiateur électrique pour fluides notamment pour dispositifs de chauffage en continu

Publication

**EP 0591755 B1 19970723 (DE)**

Application

**EP 93115214 A 19930922**

Priority

DE 4233676 A 19921007

Abstract (en)

[origin: EP0591755A1] A continuous-flow heater (11) consists of a stainless steel tube (1Z) around which, on the outside, an insulating film (14) is laid which consists of polyimide (Kapton TM ) with an overlap (15). A heating band (17) consisting of metallic resistance material is wound thereon in a prestressed manner, so that the elasticity reserve produced ensures that the heating band rests well on the film at the operating temperature as well. Temperature switching apparatuses for overtemperature protection (dry-boiling protection) can be fitted in the overlapping region (15).  
<IMAGE>

IPC 1-7

**H05B 3/82**; F24H 1/12; H05B 3/42

IPC 8 full level

**F24H 1/12** (2006.01); **H05B 1/02** (2006.01); **H05B 3/42** (2006.01); **H05B 3/82** (2006.01); **H01H 37/04** (2006.01); **H01H 37/36** (2006.01); **H01H 37/48** (2006.01); **H01H 37/54** (2006.01); **H01H 47/26** (2006.01)

CPC (source: EP US)

**F24H 1/121** (2013.01 - EP US); **H05B 1/0283** (2013.01 - EP US); **H05B 3/42** (2013.01 - EP US); **H05B 3/82** (2013.01 - EP US); **H01H 37/04** (2013.01 - EP US); **H01H 37/36** (2013.01 - EP US); **H01H 37/48** (2013.01 - EP US); **H01H 37/54** (2013.01 - EP US); **H01H 47/26** (2013.01 - EP US)

Cited by

DE19512497C1; EP1696181A1; CN103974839A; EP3511968A1; CN110047698A; US10861662B2; DE102009042481A1; EP2779785A1; DE102013102378A1; DE102009042481B4

Designated contracting state (EPC)

AT DE ES FR GB IT SE

DOCDB simple family (publication)

**EP 0591755 A1 19940413**; **EP 0591755 B1 19970723**; AT E155952 T1 19970815; DE 4233676 A1 19940414; DE 59306960 D1 19970828; ES 2105026 T3 19971016; HR P930246 A2 19951231; TR 28725 A 19970220; US 5434388 A 19950718

DOCDB simple family (application)

**EP 93115214 A 19930922**; AT 93115214 T 19930922; DE 4233676 A 19921007; DE 59306960 T 19930922; ES 93115214 T 19930922; HR P930246 A 19930302; TR 90393 A 19931005; US 13279393 A 19931007