

Title (en)
HEATING ELEMENT FOR FLUIDS

Publication
EP 0282085 B1 19910109 (DE)

Application
EP 88103909 A 19880311

Priority
• DE 3708056 A 19870312
• DE 8703749 U 19870312

Abstract (en)
[origin: EP0282085A1] The heating element for heating fluids contains as a heat exchanger a metal member composed or a number of individual members (1, 2). The individual members have many penetration openings (3) which on the inlet side are conically widened. Between the individual members, PTC elements 11 are arranged, which carry out the heating. These PTC elements (11) are encapsulated in a plastic layer (14), from which the webs (4, 6) are formed, which carry out the mechanical fixing of the individual members (1, 2). On installation of the heating element into a pipe, the annular covering (7) acts as thermal and electrical insulation, as the individual members (1, 2) also function as current supply for the PTC elements (11). <IMAGE>

IPC 1-7
F24H 1/12; F24H 3/04; H05B 3/14

IPC 8 full level
F24H 1/12 (2006.01); **F24H 3/04** (2006.01); **H05B 3/14** (2006.01)

CPC (source: EP KR US)
F24H 3/0405 (2013.01 - EP US); **F24H 9/1872** (2013.01 - EP US); **H05B 3/10** (2013.01 - KR); **H05B 3/141** (2013.01 - EP US);
Y10T 428/24149 (2015.01 - EP US)

Cited by
EP0666972A4; US5271087A; EP0899985A1; US6093909A; US10371037B2

Designated contracting state (EPC)
AT BE CH DE ES FR GB IT LI NL SE

DOCDB simple family (publication)
EP 0282085 A1 19880914; EP 0282085 B1 19910109; AT E59897 T1 19910115; BR 8801118 A 19881018; DE 3861475 D1 19910214;
ES 2019420 B3 19910616; KR 880012116 A 19881103; US 4899032 A 19900206

DOCDB simple family (application)
EP 88103909 A 19880311; AT 88103909 T 19880311; BR 8801118 A 19880311; DE 3861475 T 19880311; ES 88103909 T 19880311;
KR 880002592 A 19880312; US 16601188 A 19880309