

Title (en)
Heat exchanger

Title (de)
Wärmeübertrager

Title (fr)
Caloporteur

Publication
EP 2276321 B1 20170405 (DE)

Application
EP 09290572 A 20090717

Priority
EP 09290572 A 20090717

Abstract (en)
[origin: EP2276321A1] The exchanger (6) has two conductors (3) electrically conductively connected with a positive temperature coefficient (PTC) element for conducting electric current through the PTC element and for heating the PTC element. A heat transfer element (2) transfers the heat from the PTC element to a fluid to be heated. A connection unit connects the PTC element, the conductors and the heat transfer element with each other, where one of the conductors is formed as the heat transfer element. The PTC element is fixed in a disk-shaped or strip-shaped or frame-like fixing part (17).

IPC 8 full level
H05B 3/50 (2006.01)

CPC (source: EP)
H05B 3/141 (2013.01); **H05B 3/50** (2013.01)

Citation (opposition)
Opponent : Eichenauer Heizelemente GmbH & Co. KG
• EP 0575649 A1 19931229 - DAVID & BAADER DBK SPEZFAB [DE]
• EP 1926347 A1 20080528 - BEHR FRANCE ROUFFACH SAS [FR]
• US 6180930 B1 20010130 - WU CHIA-HSIUNG [TW]
• EP 0616486 A1 19940921 - TEXAS INSTRUMENTS INC [US]
• WO 2005049349 A1 20050602 - WOORY IND CO LTD [KR], et al
• DE 10333451 A1 20041125 - EICHENAUER HEIZELEMENTE GMBH [DE], et al

Cited by
DE102013010465A1; DE102018127202A1; DE102018127202B4; WO2019115069A1; CN110740527A; EP2607808A1; US9297551B2

Designated contracting state (EPC)
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 SE SI SK SM TR

DOCDB simple family (publication)
EP 2276321 A1 20110119; EP 2276321 B1 20170405

DOCDB simple family (application)
EP 09290572 A 20090717