

Title (en)

Jig for expanding opening of heat exchanger tube

Title (de)

Öffnungsausdehnvorrichtung fur Wärmetauschrohr

Title (fr)

Mandrin pour expande l'ouverture d' un tube d'échangeur de chaleur

Publication

EP 1561524 A1 20050810 (EN)

Application

EP 05250552 A 20050201

Priority

JP 2004027136 A 20040203

Abstract (en)

A jig for expanding an opening of a heat exchanger tube, the jig includes an expanding blade (220) and a main body (210). The expanding blade (220) protrudes from the main body (210) toward an opening side (111a) of the tube (111). The expanding blade (220) is disposed on a predetermined position corresponding to a narrow side (111b) of the tube (111). The expanding blade is capable of moving inside of the tube (111) so that the narrow side (111b) of the tube (111) is expanded. The expanding blade (220) includes a surface (220a) having a taper shape, which inclines on the narrow side (111b) toward a top end (220b) of the expanding blade (220) in a case where the blade (220) is inserted into the tube (111). The tube (111) has a rectangular flat cross section so that the narrow side (111b) is determined by the rectangular flat cross section of the opening (111a). The tube (111) disposed inside of a tube hole (121a) includes an inner fin (114) therein. <IMAGE>

IPC 1-7

B21D 53/08

IPC 8 full level

B21D 39/20 (2006.01); **B21D 53/06** (2006.01); **B21D 53/08** (2006.01); **F28F 1/02** (2006.01); **F28F 1/42** (2006.01); **F28F 9/02** (2006.01);
F28F 9/16 (2006.01); **F28F 9/18** (2006.01)

CPC (source: EP)

B21D 39/20 (2013.01); **B21D 53/085** (2013.01); **F28F 9/182** (2013.01)

Citation (search report)

- [A] GB 2358242 A 20010718 - CALSONIC KANSEI CORP [JP]
- [A] EP 0709641 A2 19960501 - MAGNETI MARELLI CLIMAT SRL [IT]
- [A] WO 9950004 A1 19991007 - IND SCAMBIATORI CALORE S P A [IT], et al
- [A] US 5640879 A 19970624 - DAMSOHN HERBERT [DE], et al
- [A] US 6044554 A 20000404 - POTIER MICHEL [FR]
- [A] US 5101561 A 19920407 - FUHRMANN ERNST [DE], et al

Cited by

DE102015215045A1; DE102015215041A1; DE102016003272A1; DE102016003272B4; WO2015000802A1

Designated contracting state (EPC)

GB IT PT

DOCDB simple family (publication)

EP 1561524 A1 20050810; BR PI0500252 A 20050927; JP 2005221103 A 20050818; JP 4239840 B2 20090318

DOCDB simple family (application)

EP 05250552 A 20050201; BR PI0500252 A 20050131; JP 2004027136 A 20040203