

Title (en)

METHOD AND APPARATUS FOR FORMING A TURBULIZER

Title (de)

VERFAHREN UND VORRICHTUNG ZUR HERSTELLUNG EINES WIRBELERZEUGERS

Title (fr)

PROCEDE ET APPAREIL DE FORMATION D'UN TURBOLISEUR

Publication

EP 1635968 A2 20060322 (EN)

Application

EP 04737808 A 20040611

Priority

- CA 2004000867 W 20040611
- CA 2431732 A 20030611

Abstract (en)

[origin: WO2004108320A2] A turbulizer is formed that has corrugations that each have side walls with openings and offset portions in them. A strip is rolled longitudinally to form a corrugated strip that has longitudinally extending corrugations. Openings and the above-mentioned offset portions are formed in the corrugated strip. An apparatus for forming a turbulizer has one or more pairs of roll dies that have cooperating corrugated profiles that advance strip stock that is engaged between them. These roll dies provide the strip with longitudinally extending corrugations. First and second forming dies receive the corrugated strip and move relative to one another to form pairs of spaced cuts that each define a wall portion between them. This wall portion is displaced transversely of an adjacent portion of the corrugated strip. A fin or turbulizer for a heat exchanger has a strip that has longitudinally extending side edges and longitudinally extending corrugations. There are openings through the corrugations in a region that is intermediate the side edges. An imperforate side edge portion extends between the side edge and the intermediate region. The corrugations extend in a general plane. The imperforate side edge portion inclines with respect to that general plane outwardly away from the intermediate region. The side edge portion may incline with respect to the general plane outwardly away from the intermediate portion and may have a distal portion extending inwardly generally toward the intermediate portion.

IPC 1-7

B21D 31/04; **F28F 3/02**

IPC 8 full level

B21D 13/04 (2006.01); **B21D 31/04** (2006.01); **F28F 3/02** (2006.01)

CPC (source: EP KR US)

B21D 13/045 (2013.01 - EP US); **B21D 31/04** (2013.01 - EP KR US); **F28F 3/02** (2013.01 - KR); **F28F 3/027** (2013.01 - EP US)

Citation (search report)

See references of WO 2004108320A2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

WO 2004108320 A2 20041216; **WO 2004108320 A3 20050519**; AU 2004244684 A1 20041216; CA 2431732 A1 20041211; CN 1805805 A 20060719; EP 1635968 A2 20060322; JP 2006527087 A 20061130; KR 20060018257 A 20060228; US 2005016240 A1 20050127

DOCDB simple family (application)

CA 2004000867 W 20040611; AU 2004244684 A 20040611; CA 2431732 A 20030611; CN 200480016188 A 20040611; EP 04737808 A 20040611; JP 2006515590 A 20040611; KR 20057023705 A 20051209; US 86569104 A 20040610