

Title (en)

Heat exchanger comprising a circuit of supercritical carbon dioxide

Title (de)

Wärmetauscher mit Kreislauf für überkritisches Kohlendioxid

Title (fr)

Echangeur de chaleur comprenant un circuit de dioxyde de carbone supercritique

Publication

EP 1762809 A1 20070314 (FR)

Application

EP 06300834 A 20060728

Priority

FR 0552702 A 20050907

Abstract (en)

The heat exchanger includes a supercritical carbon-dioxide circuit that comprises multiple tubes (1). Surface irregularities e.g. grooves are formed at the inner surface (2) of one section of each tube. The surface irregularities are located within a characteristic zone (6) that extends as far as a point (9) located at a distance (L 2) from the inlet (7) of the tube of maximum 400 times the diameter (D) of the tube.

IPC 8 full level

F28F 13/18 (2006.01)

CPC (source: EP US)

F28F 1/40 (2013.01 - EP US); **F28F 13/14** (2013.01 - EP US); **F28F 13/185** (2013.01 - EP US); **F25B 2309/061** (2013.01 - EP US); **F28D 2021/0073** (2013.01 - EP US); **Y10S 165/906** (2013.01 - EP US)

Citation (applicant)

- BRUCH, S. COLASSON; A. BONTEMPS; J. F. FOURMIGUÉ: "Approach to supercritical carbon flow in a vertical tube - Comparison of upward and downward flows", 6ÈME CONFÉRENCE INTERNATIONALE GUSTAV LORENTZEN SUR LES FLUIDES NATURELS, 2004
- BRUCH, A. BONTEMPS; J. F. FOURMIGUÉ; S. COLASSON: "Simulation numérique du comportement thermohydraulique d'un écoulement de CO2 supercritique dans un tube vertical", CONGRÈS ANNUEL DE LA SFT, 2005
- BRUCH, A. BONTEMPS; S. COLASSON; J. F. FOURMIGUÉ: "Numerical investigation of laminar convective heat transfer of carbon dioxide flowing in vertical mini tubes in cooling conditions", INTERNATIONAL CONFERENCE ON HEAT TRANSFER IN COMPONENTS AND SYSTEMS FOR SUSTAINABLE ENERGY TECHNOLOGIES, 2005

Citation (search report)

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- [A] PATENT ABSTRACTS OF JAPAN vol. 2000, no. 25 12 April 2001 (2001-04-12)
- [A] ZILLY J ET AL: "CONDENSATION OF CO2 AT LOW TEMPERATURES IN MICRO-FINNED HORIZONTAL TUBES", INTERNATIONAL CONGRESS OF REFRIGERATION. PROCEEDINGS - CONGRES INTERNATIONAL DU FROID. COMPTES RENDUS, 17 August 2003 (2003-08-17), pages 1 - 8, XP000962261

Citation (examination)

US 3885622 A 19750527 - MCLAIN CHARLES D

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Designated contracting state (EPC)

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Designated extension state (EPC)

AL BA HR MK YU

DOCDB simple family (publication)

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DOCDB simple family (application)

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