

Title (en)
FIN-AND-TUBE TYPE HEAT EXCHANGER, AND ITS RETURN BEND PIPE

Title (de)
GERIPPTER ROHRWÄRMETAUSCHER UND RÜCKLAUFBOGENROHR

Title (fr)
ÉCHANGEUR DE CHALEUR DE TYPE À AILETTES ET TUBES, ET SON TUBE DE RETOUR COUDÉ

Publication
EP 2042825 A4 20100616 (EN)

Application
EP 07790611 A 20070711

Priority
• JP 2007063807 W 20070711
• JP 2006193721 A 20060714

Abstract (en)
[origin: EP2042825A1] The invention provides a fin-and-tube heat exchanger using a return bend tube that allows further enhancement of the evaporative performance of the heat exchanger. The fin-and-tube heat exchanger, where a refrigerant is supplied inside tubing, has a hairpin tube portion where a plurality of hairpin tubes are arranged, a return bend tube portion where there are arranged a plurality of return bend tubes joined to respective hairpin tube ends of the hairpin tube portion, and a fin portion comprising a plurality of fins arranged at a predetermined spacing on the outer surface of the hairpin tubes. The heat exchanger comprises first grooves formed on the tube inner surface of the return bend tube. A first groove pitch (P1) of the first grooves in a cross section perpendicular to a tube axis, and a second groove pitch (P2) of spiral-shaped second grooves formed on the inner surface of the hairpin tube in a cross section perpendicular to a tube axis, satisfy a groove pitch ratio (P1/P2) of 0.65 to 2.2, while a first groove cross-sectional area (S1) per groove of the first grooves in a cross section perpendicular to the tube axis, and a second groove cross-sectional area (S2) per groove of the second grooves in a cross section perpendicular to the tube axis satisfy a groove cross-sectional area ratio (S1/S2) of 0.3 to 3.6.

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Citation (search report)
• [I] JP 2006098033 A 20060413 - KOBELCO & MAT COPPER TUBE INC
• See references of WO 2008007694A1

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US9777967B2; US11007592B2; WO2014130281A1; WO2016032759A1; WO2013139507A1; US10520255B2; US11604032B2; EP3483545A1

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