

Title (en)

CYCLONE HEAT RECOVERY UNIT AND HEAT PUMP SYSTEM PROVIDED WITH SAID CYCLONE HEAT RECOVERY UNIT

Title (de)

ZYKLONWÄRMERÜCKGEWINNUNGSEINHEIT UND WÄRMEPUMPENSYSTEM MIT DIESER ZYKLONWÄRMERÜCKGEWINNUNGSEINHEIT

Title (fr)

UNITÉ DE RÉCUPÉRATION DE CHALEUR CYCLONE ET SYSTÈME DE POMPE À CHALEUR ÉQUIPÉ DE LA DITE UNITÉ DE RÉCUPÉRATION DE CHALEUR CYCLONE

Publication

EP 3742070 B1 20230719 (EN)

Application

EP 19741070 A 20190118

Priority

- JP 2018007071 A 20180119
- JP 2019001499 W 20190118

Abstract (en)

[origin: EP3742070A1] A cyclone refrigeration device comprises a cylindrical portion 1, an exhaust pipe 3, a cooling portion 4 with a cavity 4a communicating with an interior space 1b of the cylindrical portion, a refrigerant inflow pipe 5 and a decompression unit 6. A liquid-phase refrigerant condensed under high pressure is supplied into the refrigerant inflow pipe and decompressed into a solid-gas two-phase refrigerant by the decompression unit, and the solid-gas two-phase refrigerant flows downward into the interior space of the cylindrical portion while forming a first vortex flow and separating into a solid-phase refrigerant and a gas-phase refrigerant. The solid-phase refrigerant deposits in the cavity and the gas-phase refrigerant forms a second vortex flow rising from the bottom of the cavity through the inside space of the first vortex flow to flow out through the exhaust pipe. A circulation pipeline for circulating fluid to be cooled 7a, 7b extends through the cavity. A heat exchanger 8 is provided in a portion of the circulation pipeline which is located within the cavity and exchanges heat between the solid-phase refrigerant and the fluid to be cooled. A pump 10 circulates the fluid to be cooled.

IPC 8 full level

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CPC (source: EP)

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