Title (en)

Dry vacuum pump apparatus and method of cooling the same

Title (de)

Trockenvakuumpumpenvorrichtung und Kühlverfahren dafür

Title (fr)

Appareil de pompe à vide à sec et son procédé de refroidissement

Publication

EP 2378122 A2 20111019 (EN)

Application

EP 11003266 A 20110418

Priority

- JP 2010096539 A 20100419
- JP 2010096540 A 20100419

Abstract (en)

A dry vacuum pump apparatus is small in size as it includes a highly efficient cooling unit for cooling, with a coolant such as cooling water, large-current circuit components of high self-heating value, typically switching devices of an inverter. The dry vacuum pump apparatus includes a dry vacuum pump including a pump unit and a motor for actuating the pump unit, an inverter for converting AC power from an AC power supply into AC power having a predetermined frequency and supplying the AC power to the motor, an electric equipment enclosure accommodating therein a control electronic circuit assembly including the inverter, a pump enclosure accommodating therein the dry vacuum pump and an operation monitoring sensor of the dry vacuum pump, a liquid-cooled partition interposed between the electric equipment enclosure and the pump enclosure, and having a coolant circulating therein, and an external enclosure housing therein the electric equipment enclosure, the pump enclosure, and the liquid-cooled partition as an integral structure.

IPC 8 full level

F04C 25/02 (2006.01); **F01C 21/00** (2006.01); **F04C 28/08** (2006.01); **F04C 29/04** (2006.01)

CPC (source: EP KR)

F01C 21/007 (2013.01 - EP); **F04C 15/06** (2013.01 - KR); **F04C 25/02** (2013.01 - EP KR); **F04C 28/08** (2013.01 - EP); **F04C 29/00** (2013.01 - KR); **F04C 29/02** (2013.01 - KR); **F04C 29/025** (2013.01 - KR); **F04C 29/04** (2013.01 - KR); **F04C 29/045** (2013.01 - EP); **F04C 29/047** (2013.01 - EP); **F04C 29/068** (2013.01 - KR); **F04D 29/58** (2013.01 - KR); F04C 2220/12 (2013.01 - EP); F04C 2240/30 (2013.01 - EP); F04C 2240/40 (2013.01 - EP); F04C 2240/403 (2013.01 - EP); F04C 2240/808 (2013.01 - EP)

Citation (applicant)

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- JP 2006520873 A 20060914
- JP H0821392 A 19960123 - MITSUBISHI HEAVY IND LTD, et al

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WO2018054868A1; TWI601881B

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2378122 A2 20111019; **EP 2378122 A3 20140219**; **EP 2378122 B1 20170927**; CN 102220980 A 20111019; CN 102220980 B 20150826; KR 101623823 B1 20160524; KR 20110116991 A 20111026; TW 201202555 A 20120116; TW I491804 B 20150711

DOCDB simple family (application)

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