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[Continued on next page]

(54) Title: SYSTEM AND METHODS FOR COOLING ELECTRONIC EQUIPMENT

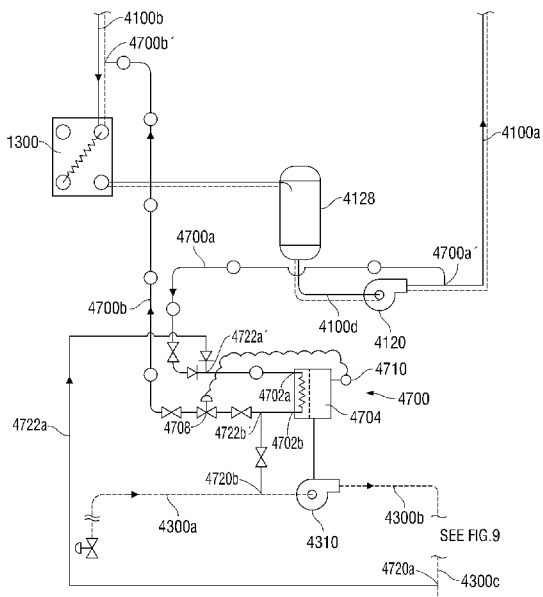


FIG. 10

(57) Abstract: Systems and methods for cooling an inverter of a variable frequency drive that drives a compressor in a cooling system for electronic equipment are disclosed. The system includes a first fluid circuit that cools electronic equipment using a first fluid flowing therethrough and a second fluid circuit that free cools a second fluid flowing therethrough. The second fluid circuit cools the first fluid using the free-cooled second fluid. The system further includes a third fluid circuit that mechanically cools the second fluid using a third fluid flowing therethrough as a function of the wet bulb temperature of atmospheric air. The third fluid circuit includes at least one compressor compresses the third fluid and is driven by a motor coupled to the variable frequency drive. At least a portion of the first fluid flowing through the third fluid circuit is diverted to cool the inverter of the variable frequency drive.

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A. CLASSIFICATION OF SUBJECT MATTER*F25B 49/02(2006.01)i, F25B 49/00(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F25B 49/02; F25D 31/00; F28D 15/00; F25B 49/00; F24F 5/00; F24F 11/053; F25B 1/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: inverter, cooling, bypass, wet bulb temperature, electronic equipment

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2011-0100045 A1 (CARLSON ANDREW B.) 05 May 2011 See paragraphs [0029]-[0055]; and figure 1.	1-20
A	JP 2009-216295 A (HITACHI PLANT TECHNOLOGIES LTD) 24 September 2009 See paragraphs [0022]-[0029]; and figure 1.	1-20
A	US 2004-0237554 A1 (STARK MICHAEL ALAN et al.) 02 December 2004 See paragraphs [0012]-[0037]; and figures 1-2.	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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