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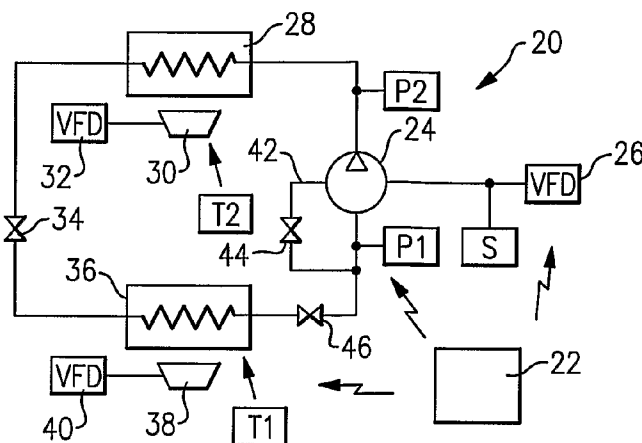
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(54) Title: CONTROLLING A VOLTAGE-TO-FREQUENCY RATIO FOR A VARIABLE SPEED DRIVE IN REFRIGERANT SYSTEMS



(57) Abstract: A refrigerant system is provided with at least one variable frequency drive. In the past, the variable frequency drives were operable such that the voltage-to-frequency ratio remained constant regardless of operation. The present invention realizes that variations in the voltage-to-frequency ratio may be desirable, and the refrigerant system control drives the motors associated with relevant refrigerant system components to reach an optimum voltage-to-frequency ratios in order to achieve higher efficiency, provide operational safety and prevent nuisance shutdowns.

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/18768

## A. CLASSIFICATION OF SUBJECT MATTER

IPC (8): F25B 01/00(2007.01)

USPC: 62/228.1, 228.4

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)

USPC:62/228.1, 228.4

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

USPC: 62/228.1, 228.4 all classes/subclasses (text search - see terms below)

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

West - variable speed drive, motor, frequency, voltage, electric, fans, pump, compressor, condenser, evaporator, refrigerant, unloader, valve, modulation, suction.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.    |
|-----------|--------------------------------------------------------------------------------------|--------------------------|
| X         | US 6,434,960 B1 (Rousseau) 20 August 2002 (20.08.2002), col.3, ln 1-30 and figure 1. | 1, 3, 6-11, 13 and 16-20 |
| Y         |                                                                                      | 2, 4-5, 12 and 14-15     |
| Y         | US 4,765,150 A (Persem) 23 August 1988 (23.08.1988), col. 5, ln 9-61 and figure 1    | 2 and 12                 |
| Y         | US 6,647,735 B2 (Street et al.) 18 November 2003 (18.11.2003), Table V.              | 4 and 14                 |
| Y         | US 5,924,847 A (Scaringe et al.) 20 July 1999 (20.07.1999), col. 17, ln 3-8.         | 5 and 15                 |

☐ Further documents are listed in the continuation of Box C.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search

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