

Title (en)

REFRIGERANT SYSTEM WITH MULTI-SPEED PULSE WIDTH MODULATED COMPRESSOR

Title (de)

KÄLTEMITTELSYSTEM MIT PULSBREITENMODULIERTEM MEHRGESCHWINDIGKEITSKOMPRESSOR

Title (fr)

SYSTÈME RÉFRIGÉRANT AVEC COMPRESSEUR À MODULATION D'IMPULSIONS EN DURÉE À VITESSE MULTIPLE

Publication

**EP 2074357 A4 20130612 (EN)**

Application

**EP 06825706 A 20061006**

Priority

US 2006039583 W 20061006

Abstract (en)

[origin: WO2008041996A1] A refrigerant system is provided with a compressor having a motor that is operable at least at two distinct speeds. The pulse width modulation control is provided to cycle a compressor motor operation between its at least two speeds at a specific rate to exactly match thermal load demands in a conditioned space. The present invention reduces cycling and other efficiency losses as have been experienced in the prior art, as well as minimizes cost and may improve reliability. Also, the present invention can be utilized in conjunction with other known unloading techniques.

IPC 8 full level

**F25B 1/00** (2006.01); **F04B 49/00** (2006.01); **F25B 41/04** (2006.01); **F25B 49/00** (2006.01)

CPC (source: EP US)

**F04C 18/0215** (2013.01 - EP US); **F04C 23/008** (2013.01 - EP US); **F04C 28/08** (2013.01 - EP US); **F04C 29/042** (2013.01 - EP US);  
**F25B 49/025** (2013.01 - EP US); **F25B 41/22** (2021.01 - EP US); **F25B 2400/13** (2013.01 - EP US); **F25B 2600/0252** (2013.01 - EP US);  
**F25B 2600/0261** (2013.01 - EP US)

Citation (search report)

- [X] US 2006042296 A1 20060302 - LUDWIG BRADLEY M [US], et al
- [XYI] GB 2075724 A 19811118 - THERMOKING CORP
- [Y] US 2005086957 A1 20050428 - LIFSON ALEXANDER [US], et al
- [X] WO 2006095571 A1 20060914 - HOSHIZAKI ELECTRIC CO LTD [JP], et al
- [X] US 6336337 B1 20020108 - YANG TAI-HER [TW], et al
- [X] WO 2006072838 A1 20060713 - ARCELIK AS [TR], et al
- [X] US 5548969 A 19960827 - LEE KUN B [KR]
- [X] US 4831313 A 19890516 - BEILFUSS ROBERT C [US]
- [X] US 4663725 A 19870505 - TRUCKENBROD GREGORY R [US], et al
- [X] US 5634347 A 19970603 - HANSON JAY L [US], et al
- See references of WO 2008041996A1

Citation (examination)

- WO 2006132638 A1 20061214 - CARRIER CORP [US], et al
- APREA C ET AL: "Experimental analysis of the scroll compressor performances varying its speed", APPLIED THERMAL ENGINEERING, PERGAMON, OXFORD, GB, vol. 26, no. 10, 15 December 2005 (2005-12-15), pages 983 - 992, XP029052070, ISSN: 1359-4311, DOI: 10.1016/J.APPLTHERMALENG.2005.10.023
- POORT M J ET AL: "Applications and control of air conditioning systems using rapid cycling to modulate capacity", INTERNATIONAL JOURNAL OF REFRIGERATION, ELSEVIER, PARIS, FR, vol. 29, no. 5, 1 August 2006 (2006-08-01), pages 683 - 691, XP027948389, ISSN: 0140-7007, [retrieved on 20060801]

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

**WO 2008041996 A1 20080410**; CN 101523129 A 20090902; CN 101523129 B 20110119; EP 2074357 A1 20090701; EP 2074357 A4 20130612;  
HK 1136617 A1 20100702; US 2009308086 A1 20091217

DOCDB simple family (application)

**US 2006039583 W 20061006**; CN 200680056044 A 20061006; EP 06825706 A 20061006; HK 10101929 A 20100224; US 37525509 A 20090127