



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 471 259 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
01.06.2005 Bulletin 2005/22

(51) Int Cl.7: **F04C 23/00, F04C 18/356**

(43) Date of publication A2:
27.10.2004 Bulletin 2004/44

(21) Application number: **04016830.4**

(22) Date of filing: **01.02.2002**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**

(30) Priority: **14.02.2001 JP 2001037083
14.02.2001 JP 2001037093**

(62) Document number(s) of the earlier application(s) in
accordance with Art. 76 EPC:
02250724.8 / 1 233 187

(71) Applicant: **Sanyo Electric Co., Ltd.
Moriguchi-shi, Osaka-fu 570-8677 (JP)**

(72) Inventors:
• **Matsumoto, Kenzo
Ora-gun Gunma-ken (JP)**
• **Tsuda, Noriyuki
Ora-gun Gunma-ken (JP)**
• **Yamanaka, Masaji
Tatebayashi-shi Gunma-ken (JP)**
• **Matsuura, Dai
Ota-shi, Gunma (JP)**

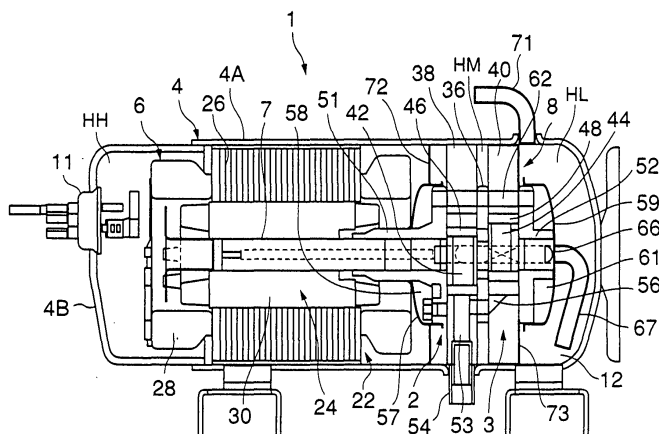
(74) Representative: **Grey, Ian Michael et al
Venner Shipley LLP
20 Little Britain
London EC1A 7DH (GB)**

(54) **Hermetic compressor**

(57) A cooling system for an electric compressor for vehicle use is disclosed. The system comprises an electric compressor having a motor housed within a closed container and a compression element driven by said motor which compresses a refrigerant gas drawn from the exterior of said closed container and thereafter discharges it to the exterior of said closed container, and

heat exchanging means arranged to establish a heat exchanging relationship with an engine cooling system of the vehicle. The refrigerant gas discharged from said compression element flows to said heat exchanging means and returns to the said motor side within said closed container and thereafter is discharged to the exterior of said closed container.

FIG.1



EP 1 471 259 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 01 6830

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 1 028 013 A (O'DONNELL, DENNIS W) 16 August 2000 (2000-08-16) * figures 1,2 * * column 1, paragraph 2 * * column 4, paragraph 26 - column 5, paragraph 27 * * column 6, paragraph 35 * -----	1,2	F04C23/00 F04C18/356
P,X	WO 01/40005 A (KANG, ABRAHAM, J) 7 June 2001 (2001-06-07) * figure 2 * * page 1, line 8 - line 11 * * page 6, line 18 - line 31 * -----	1,2	
P,X	PATENT ABSTRACTS OF JAPAN vol. 2002, no. 04, 4 August 2002 (2002-08-04) -& JP 2001 355925 A (ZEXEL VALEO CLIMATE CONTROL CORP), 26 December 2001 (2001-12-26) * abstract * -----	1,2	
X	US 6 047 770 A (ISHII KATSUYA ET AL) 11 April 2000 (2000-04-11) * claim 1 * * figure 1 * * column 1, line 14 - line 18 * * column 3, line 48 - line 61 * -----	1,2	TECHNICAL FIELDS SEARCHED (Int.Cl.7) F04C
X	US 5 520 015 A (SAPERSTEIN ZALMAN P ET AL) 28 May 1996 (1996-05-28) * claim 1 * * figure 1 * * column 3, line 43 - column 4, line 60 * -----	1,2	
X	US 4 063 431 A (DANKOWSKI GERHARD) 20 December 1977 (1977-12-20) * column 5, line 47 - line 50; claim 1 * -----	1,2	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 April 2005	Examiner Lequeux, F
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

3
EPO FORM 1503 03.82 (F04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 01 6830

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-04-2005

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1028013	A	16-08-2000	CA 2260425 A1	26-07-2000
			JP 2000249053 A	12-09-2000
			KR 2001011180 A	17-12-2001
			US 5927089 A	27-07-1999
			EP 1028013 A1	16-08-2000
			US 6134897 A	24-10-2000
WO 0140005	A	07-06-2001	AU 2063501 A	12-06-2001
			WO 0140005 A1	07-06-2001
JP 2001355925	A	26-12-2001	NONE	
US 6047770	A	11-04-2000	JP 11034640 A	09-02-1999
			DE 19833251 A1	28-01-1999
US 5520015	A	28-05-1996	US 5408843 A	25-04-1995
			AT 184961 T	15-10-1999
			AT 204981 T	15-09-2001
			AU 689058 B2	19-03-1998
			AU 1481897 A	15-05-1997
			AU 678316 B2	22-05-1997
			AU 8175294 A	05-10-1995
			BR 9500080 A	24-10-1995
			CA 2137940 A1	25-09-1995
			DE 69420834 D1	28-10-1999
			DE 69420834 T2	05-01-2000
			DE 69428141 D1	04-10-2001
			DE 69428141 T2	31-01-2002
			EP 0678661 A1	25-10-1995
			EP 0909932 A2	21-04-1999
			ES 2136172 T3	16-11-1999
			JP 7301162 A	14-11-1995
US 4063431	A	20-12-1977	JP 53040457 A	13-04-1978
			US 4138857 A	13-02-1979
			US 4190105 A	26-02-1980

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82