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**Datasheet for the decision  
of 30 June 2022**

**Case Number:** T 1015/19 - 3.2.06

**Application Number:** 08171954.4

**Publication Number:** 2072754

**IPC:** F01C21/10, F04C18/02,  
F04C23/00, F04C27/00, H02K11/00

**Language of the proceedings:** EN

**Title of invention:**  
Motor-driven compressor with multi-part casing

**Patent Proprietor:**  
Kabushiki Kaisha Toyota Jidoshokki

**Opponent:**  
Bitzer Kühlmaschinenbau GmbH

**Headword:**

**Relevant legal provisions:**  
EPC Art. 100(a), 56, 123(2)

**Keyword:**  
Inventive step - main request (no)  
Amendments - auxiliary request 7 - added subject-matter (yes)

**Decisions cited:**

G 0002/10

**Catchword:**



**Beschwerdekammern**

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**Chambres de recours**

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Case Number: T 1015/19 - 3.2.06

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.06**  
**of 30 June 2022**

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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
11 February 2019 concerning maintenance of the  
European Patent No. 2072754 in amended form.**

**Composition of the Board:**

**Chairman** M. Harrison  
**Members:** P. Cipriano  
J. Hoppe

## Summary of Facts and Submissions

- I. In its interlocutory decision dated 11 February 2019 the opposition division found that European patent No. 2 072 754 in an amended form met the requirements of the EPC.
- II. This decision was appealed by the opponent and the patent proprietor. In light of this, the Board will henceforth refer to the parties as the opponent and (patent) proprietor respectively.
- III. The proprietor requested with its grounds of appeal that the decision of the opposition division be set aside and the patent be maintained as granted (main request).
- IV. The opponent requested with its grounds of appeal that the decision under appeal be set aside and the patent be revoked.
- V. With its reply to the opponent's appeal, the proprietor filed auxiliary requests 1 to 8.
- VI. The following documents are relevant for the present decision:  
E1 WO 2007/086257 A1  
E1a Translation of E1  
E2 WO 02/50408 A1
- VII. The Board issued a summons to oral proceedings and a subsequent communication, in which it indicated *inter alia* that the inventive step attack starting from E1 in combination with E2 might require discussion and that

claim 1 of auxiliary request 7 did not seem to fulfil the requirement of Article 123(2) EPC.

- VIII. With its letter dated 30 May 2022, i.e. after the summons to oral proceedings, the proprietor filed auxiliary requests 1a, 1b, 1c, 1d and 2a and withdrew auxiliary requests 2, 3, 5, 6 and 8. The proprietor also stated that the auxiliary requests had the following order: auxiliary request 1, 1a, 2a, 7, 1b, 1c, 1d and 4.
- IX. Oral proceedings took place before the Board, during which the proprietor withdrew auxiliary requests 1, 1a, 2a, 1b, 1c, 1d and 4.
- X. Claim 1 of the main request (patent as granted) reads as follows, with feature numbering added by the Board:
- "1. A motor-driven compressor (10) comprising:
- M1.1 a compression mechanism (19) compressing a refrigerant gas;
- M1.2 a rotary shaft (16) rotating to drive the compression mechanism (19);
- M1.3 an electric motor (18) connected to the rotary shaft (16);
- M1.4 a motor drive circuit (41) for driving the electric motor (18), the motor drive circuit (41) having a plurality of electronic components (44);
- M1.5 a connecting terminal (30) electrically connected (*sic*) the electric motor (18) to the motor drive circuit (41); and

M1.6 a housing assembly in which the compression mechanism (19), the electric motor (18) and the motor drive circuit (41) are disposed along the axial direction of the rotary shaft (16),

M1.7 the housing assembly has a first housing (12) used for mounting the electric motor (18) and the compression mechanism (19), and having a cylindrical shape with one end covered and a fastening portion (121 D, 12E) at the radially peripheral portion of the first housing (12),

characterized in that

M1.8 a second housing (13) having a terminal mounting portion (13C) for fixing the connecting terminal (30) and a fastening portion (13A, 13E) at the radially peripheral portion of the second housing (13), and thermally coupled to the electric component (44) of the motor drive circuit (41), and

M1.9 a third housing (14) having a cylindrical shape with one end closed, and joined to the second housing (13) to form an accommodation space (T) for accommodating the motor drive circuit (41), and

in that

M1.10 a closed casing (M) is formed by fastening the fastening portion (13A, 13E) of the second housing (13) to the fastening portion (121D, 12E) of the first housing (12) by means of a first bolt (B1), and connecting the second housing (13) to the open end of the first housing (12),

wherein the first housing (12) is joined to the second housing (13), and the second housing (13) is joined to the third housing (14)."

XI. Claim 1 of auxiliary request 7 reads as for claim 1 of the main request but with the following amendment appended at the end of feature M1.8:

"the second housing (13) being formed substantially in a disk shape having a diameter large enough to close the open end of the first housing (12),"

XII. The arguments of the proprietor relevant to this decision can be summarized as follows:

*Main request - Articles 100(a) and 56 EPC*

The subject-matter of claim 1 involved an inventive step.

E1 did not disclose feature M1.9. The cover member 7 shown in Figure 1 of E1 had a plain disc shape, not a cylindrical shape with one end closed as claimed. Cover member 7 could therefore, by itself, not accommodate any part of the motor drive circuit.

The specific shape of the third housing defined in claim 1 provided more room for the components and made them more easily accessible.

The skilled person would have had no motivation to modify the cover 7 of E1. Even with the knowledge of E2 they would not have been prompted to replace the flat cover 7 of E1 by the cylindrical cover 4 of E2, because this led to a larger overall structure of the compressor. E1 already disclosed a space large enough to host all the power electronics, such that there was

no motivation for the skilled person to adapt E1 and create a larger space.

*Auxiliary request 7 - Article 123(2) EPC*

Claim 1 of auxiliary request 7 fulfilled the requirement of Article 123(2) EPC.

Page 5, lines 36-38, of the description as originally filed provided a basis for the feature taken up into claim 1 of auxiliary request 7. This added feature was not inextricably linked to the other features related to the diameter and fixation of the wall disclosed in the same paragraph, which were not essential.

XIII. The arguments of the opponent relevant to this decision can be summarized as follows:

*Main request - Articles 100(a) and 56 EPC*

The disc shaped cover member 7 of E1 could essentially be seen as a cylindrical cover with little height and having two ends closed (i.e. it had one end closed).

On the basis that the subject-matter of claim 1 differed over E1 due to the third housing of E1 not having a cylindrical shape as defined in feature M1.9, this shape anyway did not provide any specific effect and was a simple alternative to the disc shape of the cover member 7 in E1.

E2 disclosed a third housing with a shape as defined in feature M1.9 of claim 1 such that the skilled person, when seeking an alternative, would make the cover member of E1 cylindrical with one closed end without exercising an inventive step.



The subject-matter of claim 1 therefore lacked an inventive step.

*Auxiliary request 7 - Article 123(2) EPC*

Claim 1 of auxiliary request 7 did not fulfil the requirement of Article 123(2) EPC.

Page 5, lines 26-28, of the originally filed description did not provide a basis for the subject-matter of claim 1 of auxiliary request 7. The proprietor had not interpreted the disclosure in the last paragraph of page 5 correctly. The expression "the following will describe in detail the second housing 13", at the beginning of the third paragraph, meant that the whole paragraph constituted a disclosure of the second housing. In addition, the term "specifically" in the third sentence would be understood by the skilled person as being the specific way in which the diameter of the second housing and the cylindrical wall member were arranged in order to close the rear open end of the first housing and it was not an optional possibility of the disclosure.

**Reasons for the Decision**

1. Main request - Articles 100(a) and 56 EPC
- 1.1 E1/E1a discloses all the features of claim 1 with the exception of feature M1.9:

"a third housing (14) having a cylindrical shape with one end closed, and joined to the second housing (13)

to form an accommodation space (T) for accommodating the motor drive circuit (41)".

- 1.2 Figure 1 of E1 discloses a cover member 7 in the form of a disc, which, due to its joined arrangement with respect to the second housing, forms a third housing. Specifically, this cover member 7, as shown in Figure 1, is screwed to the wall 3c, which itself corresponds to a second housing as defined in claim 1, and is therefore joined to a second housing to form an accommodation space (i.e. the accommodation space of the third housing) for accommodating the drive circuit - Figure 1 also discloses a drive circuit 6 in this accommodation space which corresponds to the motor drive circuit defined in claim 1.
- 1.3 However, the cover member 7 does not have a cylindrical shape with one end closed as defined in feature M1.9. Although the disc shaped cover member 7 in Figure 1 of E1 has a circular cross-section like a cylinder shaped body, it is a solid body and therefore does not have one end closed since this wording implies a hollow space inside the body that can be "closed".
- 1.4 Both parties agreed that E1 disclosed the remaining features of claim 1 and the Board also does not see a reason to find otherwise.
- 1.5 The proprietor argued that the cylindrical shape with one end closed "to form an accommodation space" of the third housing as defined in claim 1 meant that the third housing, as such, had to provide a volume. This allegedly provided more space and easier access for mounting the electronic components during assembly in comparison to the corresponding space seen in Figure 1 of E1. According to the proprietor's argument during

oral proceedings, the portion of paragraph [0029] in column 7, at lines 42-55 of the patent specification also disclosed this effect.

The Board does not find this argument persuasive. The accommodation space defined in feature M1.9 of claim 1 is formed by joining the second and third housings and the claim does not define any further dimensions for these housings such that the definition of the basic shape of the third housing as cylindrical with a closed end alone does not provide more space or easier access for mounting the electronic components.

The Board further notes that column 7, lines 42-55, of the patent specification as cited by the proprietor, discusses the assembly of the second housing 13 with the first housing 12 and not the third housing 14, as well as the resulting ease of assembly of the electric motor 18 to the connecting terminal 30 mounted to the second housing 30. Although the first housing is also defined as being cylindrical with one end closed, the cited passage does not attribute any of these advantages specifically to the third housing.

- 1.6 The Board thus finds that any possible assembly advantage would result only from the interaction of both the shape and sizes of the second and the third housings which are, however, not defined in the claim, and does not result from the third housing simply having a cylindrical shape with one end closed. The objective problem can thus only be seen as providing an alternative shape for the third housing.
- 1.7 E2, Figure 2, discloses a compressor having cover ("Haube 4") joined to the second housing ("Statorbuchse 1") to form an accommodation space for accommodating

the motor drive circuit ("Leistungselektronik 13") already having a cylindrical shape and with one end closed. The skilled person looking for an alternative shape for the cover member 7 of E1 and faced with the teaching of E2 would adopt a cylindrical shape of the cover 4 and arrive at a compressor as defined in claim 1 without exercising an inventive step.

1.8 The proprietor argued that adopting a protruding cover would go against the teaching of E1, where a thermal protector is exchanged for a discharge temperature detecting means (see paragraph [0013] of E1), in order to increase the design freedom and the space for mounting the compressor (see paragraph [0003] of E1/E1a). According to the proprietor, when starting from E1, the person skilled in the art would not be motivated to change the housing and thus increase the overall volume of the compressor. In addition, the proprietor argued that the compressor of E1 already provided enough volume such that there was no reason to make any change.

1.8.1 The Board does not find these arguments persuasive either. The size of the cover and of the housings are not defined in claim 1 nor would a cover having the shape of a cylinder with an open end necessarily require the readoption of a thermal protector (leading to more parts) instead of the discharge temperature detecting means proposed in E1. Nothing in the teaching of E1 would therefore deter the skilled person from adopting a cover having the shape of a cylinder with an open end, such as the one of E2.

1.8.2 Further, faced with the problem of simply looking for an alternative shape and not with the problem of increasing the space (see item 1.5 above) the skilled

person adopting a cover with a cylindrical shape with an open end would not need to increase the volume of the overall compressor in a meaningful way. Indeed, even a very shallow peripheral wall on the disc shaped member 7 in E1, as argued by the opponent, would already correspond to the housing shape defined in claim 1, while a taller peripheral wall like that in E2 was also not excluded by claim 1.

- 1.9 The Board thus finds that the subject-matter of claim 1 of the main request does not involve an inventive step when starting from E1 as the closest prior art and, given the technical problem to be solved, when considering the teaching of E2.
- 1.10 The ground for opposition under Article 100(a), 56 EPC prejudices maintenance of the patent as granted.
2. Auxiliary request 7 - Article 123(2) EPC
  - 2.1 Claim 1 of auxiliary request 7 differs from claim 1 of the main request in that the following feature was appended at the end of feature M1.8:  
"the second housing (13) being formed substantially in a disk shape having a diameter large enough to close the open end of the first housing (12),".
  - 2.2 The proprietor argued that page 5, lines 26-28 of the description as filed provided a basis for this amendment. It was further argued that the added feature was not inextricably linked to the other features related to the diameter and fixation of the wall disclosed in the same paragraph on page 5, as these were not essential.

According to the proprietor, the use of the term "specifically" on page 5, line 29, together with the feature "the diameter of the second housing 13 being substantially the same as that of the cylindrical wall member 121 at the second flange portion 121C" meant that the feature was an additional more specific disclosure that was not essential, but just a possible example.

2.2.1 The Board does not accept these arguments. First the Board notes that for compliance of an amendment with Article 123(2) EPC, it is not of relevance whether features disclosed in an embodiment in the description and Figures which are not taken-up into the claim are considered "essential to the invention" or not. Rather the standard to be met (gold standard) is that the subject-matter resulting from the amendment must be directly and unambiguously derivable, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of the application as filed (see e.g. G2/10).

2.2.2 In the present case, page 5, lines 26-28 of the description as filed literally includes the wording "the second housing 13 is formed substantially in a disk shape having a diameter enough to close the rear open end of the first housing 12 or the cylindrical wall member 121" which corresponds to the amendment made to feature M1.8 of claim 1 of auxiliary request 7.

However, the skilled person reading the description understands from the previous sentence at the beginning of the third paragraph on page 5 starting with "*The following* will describe in detail the second housing 13" that at least the whole third paragraph will

provide a disclosure of the second housing 13, not simply some part of it.

In addition and contrary to the argument of the proprietor, the skilled person would not understand that the term "specifically" renders the relationship between the diameters of the second housing 13 and of the cylindrical wall member 121 at the second flange portion 121C merely as a possible example. In the present case, the word "Specifically" starts the sentence immediately following the wording introduced into claim 1, such that quite the opposite of what the proprietor argues is the case. The term "specifically" links the fact of both the second housing and the second flange portion 121C having the same diameter to the previous sentence which requires that the second housing has "a diameter enough to close the rear open end of the first housing 12 or the cylindrical wall member 121" in order to build a single disclosure.

Also, the wording is taken from a description of an embodiment which is shown in Figure 1 (also seen in Figure 3). Figures 1 and 3 of the application, however, only disclose a more specific compressor with a second housing 13 having the same diameter as that of the cylindrical wall member 121 at the second flange portion 121C, such that the Figures also do not provide any hint to the skilled person that having the same diameter is only one of several possibilities.

2.2.3 The application as originally filed thus provides a single disclosure of how to close the open end of the first housing 12 and the diameters of the involved parts are structurally and functionally linked features to the disk shape of the housing 13 for achieving this closure. The skilled person would therefore not

directly and unambiguously derive from the whole of the application as filed a second housing closing the rear open of the first housing having a disk shape but with a diameter other than that of the cylindrical wall member at the second flange portion.

The equal diameter of the second housing and of the cylindrical wall member 121 at the second flange portion 121C thus forms an integral part of the disclosure of the structural relationship of the parts, but has been omitted from the introduced wording.

- 2.3 Consequently, the subject-matter of claim 1 of auxiliary request 7 does not fulfil the requirement of Article 123(2) EPC. Auxiliary request 7 is thus not allowable.
  
3. In the absence of any request which meets the requirements of the EPC, the patent has to be revoked (Article 101(3)(b) EPC).



## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



C. Rodríguez

M. Harrison

Decision electronically authenticated