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Datasheet for the decision of 3 March 2020

Case Number: T 1379/15 - 3.5.02

Application Number: 08711458.3

Publication Number: 2113987

IPC: H02K3/34, F04C29/00, F04C18/356, H02K3/52

Language of the proceedings: EN

Title of invention:
Insulator for Motor, Stator, Motor and Compressor

Applicant:
Daikin Industries, Ltd.

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

Keyword:
Inventive step - (yes)
Amendments - allowable (yes)

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Case Number: T 1379/15 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 3 March 2020

Appellant: (Applicant)	Daikin Industries, Ltd. Umeda Center Building 4-12, Nakazaki-Nishi 2-chome Kita-ku Osaka-shi Osaka 530-8323 (JP)
Representative:	Goddar, Heinz J. Boehmert & Boehmert Anwaltspartnerschaft mbB Pettenkoferstrasse 22 80336 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 26 February 2015 refusing European patent application No. 08711458.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	R. Lord
Members:	G. Flyng
	R. Cramer

Summary of Facts and Submissions

I. The applicant's appeal contests the examining division's decision to refuse the European patent application number 08 711 458.3, which was published as EP 2 113 987 A1.

II. The examining division used the following prior art document references, which the Board will adhere to:

D1: EP 1 617 543 A2

D2: US 2002/130580 A1

III. In the contested decision, the examining division considered the applicant's main (and sole) request for grant on the basis of the following application documents:

Description, Pages:

- 1 to 25 filed with entry into the regional phase before the EPO,

Claims, Numbers:

- 1 to 6 received on 6 September 2013 with letter of 4 September 2013,

Drawings, Sheets:

- 1/9 to 9/9 filed with entry into the regional phase before the EPO.

IV. The examining division held that claim 1 of the main request lacked an inventive step for the following reasons:

(a) Document D1 was considered to represent the closest prior art document.

(b) The subject-matter of claim 1 differed from document D1 by the following features (underlining as in the decision):
- the back yoke section of the stator core having planar surfaces that extend along the axis of the stator core at both sides of each tooth section; and
- each of the connecting sections of each of the insulators having planar inner surfaces that roughly coincide with the planar surfaces of the back yoke section of the stator core, as seen from the axis direction of the stator core.

(c) From these differences, the objective problem was to apply the insulator technique of document D1 to an alternative stator core.

(d) Document D2 disclosed such an alternative stator core and a combination of documents D1 and D2 and a simple workshop modification were needed to anticipate claim 1, which was therefore not inventive.

V. With the statement of grounds of appeal the appellant (applicant) stated that they pursued as a main request the documents on file that stood rejected.

VI. The Board issued a communications pursuant to Rule 100(2) EPC dated 16 September 2019 setting out their preliminary opinion that the subject-matter of claim 1 of the main request was not obvious having regard to the cited prior art. The Board drew attention to some deficiencies of clarity and two-part form and invited the appellant to amend their main request. In a communication pursuant to Rule 100(2) EPC dated

27 November 2019 the Board drew attention to remaining/ further deficiencies and invited the appellant to clearly state their request(s) and amend the claims and description.

VII. With a letter dated 11 December 2019 but filed electronically on 12 December 2019 the appellant (applicant) filed a set of amended claims 1 to 6 and stated that these now formed the basis of the main request. Furthermore, the appellant filed a clean version of amended pages 1 to 10 of the description, page 10 of which was blank.

VIII. Thus, the appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the following application documents:

Description, Pages:

- 1 to 9 filed electronically on 12 December 2019
- 11 to 25 filed with entry into the regional phase before the EPO,

Claims, Numbers:

- 1 to 6 filed electronically on 12 December 2019,

Drawings, Sheets:

- 1/9 to 9/9 filed with entry into the regional phase before the EPO.

IX. Claim 1 of the main request reads as follows:

"A stator (5) comprising:

a stator core (510);

a pair of insulators (530), which are disposed facing respective opposite end surfaces of the stator core (510), said opposite end surfaces being located in an axis (510a) direction of the stator core (510); and

a coil (520) wound around the stator core (510) and the insulators (530), wherein

the stator core (510) comprises:

a back yoke section (511); and

a plurality of tooth sections (512) protruding radially inward of an inner circumferential surface of the back yoke section (511) and arranged circumferentially of the back yoke section (511),

each of the insulators (530) comprises:

an annular section (531);

a plurality of tooth sections (532) extending radially inward of an inner circumferential surface of the annular section (531) and arranged circumferentially of the annular section (531); and

a plurality of connecting sections (535) connecting the inner circumferential surface of the annular section (531) to a radially outer end of a respective tooth section (532),

the annular section (531) including, on an axial side directed opposite from the stator core (510), a projecting portion that extends in an axial direction of the stator (5),

each of the connecting sections (535) including two circumferential planar portions (535a) extending into circumferentially opposite directions from the radially outer end of a respective tooth section (532) and a radial planar portion (535b) extending radially outward from the radially outer end of the tooth section (532), the circumferential planar portions (535a) and the radial planar portion (535b) abutting on an inner circumferential surface of the projecting portion of the annular section (531),

the tooth sections (532) of the insulators (530) being disposed in correspondence with the respective tooth sections (512) of the stator core (510),

characterized in that the back yoke section (511) of the stator core (510) has, in an inner periphery thereof located radially outward of the tooth sections of the stator core (510), planar surfaces (511b) that extend along the axis (510a) of the stator core (510) at both sides of each tooth section (512), and

each of the connecting sections (535) of each of the insulators (530) has planar inner surfaces (535c) that roughly coincide with the planar surfaces (511b) of the back yoke section (511) of the stator core (510), as seen from the axis (510a) direction of the stator core (510)."

Claims 2 to 6 are dependent on claim 1.

X. The appellant submitted that the objective technical problem as formulated in the contested decision was not well-chosen, as it was not based on the technical effect that the invention provides over the closest prior art (see Guidelines G, VII, 5.2).

The appellant further submitted that even if applying the insulator technique of document D1 to another stator core were indeed a valid objective technical problem, an abundance of possibilities of choosing a particular stator core would exist and reasons would have to have been provided as to why the skilled person would select the stator core of document D2 out of all possible stator cores. Without such reasons, the argumentation of the examining division was, according to the appellant, based on an inadmissible ex-post-facto view.

The appellant maintained that the closest prior art was that stated in the background section of the application and submitted that based on that, the objective technical problem could be formulated as being to provide for more coil winding space.

The appellant submitted that starting from the prior art cited in the application and confronted with this objective technical problem the skilled person would not have arrived at the claimed subject-matter without involving inventive activity as the cited documents would not have incited the skilled person to amend the teaching of the cited prior art to arrive at the claimed subject matter.

The appellant concluded that the subject-matter of claim 1 of the main request provided for an inventive step over the cited prior art.

Reasons for the Decision

1. *Inventive step, Article 56 EPC*

1.1 In the contested decision the technical problem is derived in paragraph 2.2.3 as being "to apply the insulator technique of D1 to an alternative stator core". This technical problem has been derived without any assessment of the technical results (or effects) achieved by the claimed invention when compared to the disclosure of document D1. Such an assessment is generally considered to be an essential step in the proper application of the problem and solution approach, cf. Case law of the Boards of Appeal, 9th edition, I.D.2, step (b)). Furthermore, its omission does not appear to be mitigated by any other factors in the present case. Hence, the chain of reasoning presented in the contested decision for the finding of lack of inventive step is not complete.

1.2 Notwithstanding the above, even if *arguendo* it is considered that the skilled person would start from the disclosure of document D1 and would seek to apply its insulator technique to an alternative stator core, the contested decision does not give any reasons for why the skilled person would, and not just could, choose to apply it to the specific stator core of document D2 from among the vast range of other stator cores known in the prior art. For this reason the Board considers that document D2 would only have been selected with the benefit of hindsight.

1.3 Thus, the reasons given in the contested decision do not support the finding of lack of inventive step.

1.4 Furthermore, the Board does not consider it to be obvious to come to the combination of features of claim 1 when starting from the prior art shown in figures 7 to 9 of the application.

2. *Amendments, Article 123(2) EPC*

2.1 The examining division did not raise any objections under Article 123(2) EPC against the claims of the then main request, and the Board finds no reason to do so.

2.2 Claim 1 of the present main request differs from that considered in the contested decision only in that:

- the feature "being disposed radially outward of a rotor (6) of a motor" has been deleted;
- the first reference to "extending in an axial direction of the stator" has been deleted, and
- the claim has been cast in the two-part form based on the prior art shown in figures 7 to 9 of the application.

2.3 The deleted feature "being disposed radially outward of a rotor (6) of a motor" was unclear, as claim 1 does not comprise a rotor or a motor. Furthermore, it is unnecessary given that claim 1 sets out the geometric arrangement of the stator, with the tooth sections of the stator extending radially inward of an inner circumferential surface of the annular section of the stator. Hence, the deletion of the feature does not add subject-matter in contravention of Article 123(2) EPC.

2.4 The feature "extending in an axial direction of the stator" appeared twice in claim 1 as considered in the contested decision, the second being superfluous, thus contravening Article 84 EPC. The deletion of the

second, superfluous reference does not add fresh subject-matter.

2.5 The Board considers the prior art shown in figures 7 to 9 of the application to be a more appropriate starting point for the assessment of inventive step than document D1 as the shape of the stator core is more similar. Casting claim 1 in the two-part form based on this prior art does not add fresh subject-matter.

3. Conclusion

For these reasons the decision under appeal meets the requirements of the convention and the contested decision has to be set aside.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division with the order to grant a patent in the following version:

Description, Pages:
- 1 to 9 filed electronically on 12 December 2019
- 11 to 25 filed with entry into the regional phase before the EPO,

Claims, Numbers:
- 1 to 6 filed electronically on 12 December 2019,

Drawings, Sheets:
- 1/9 to 9/9 filed with entry into the regional phase before the EPO.

The Registrar: The Chairman:

U. Bultmann R. Lord

Decision electronically authenticated