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**Datasheet for the decision  
of 19 September 2006**

**Case Number:** T 0541/03 - 3.5.04

**Application Number:** 99101775.7

**Publication Number:** 0936614

**IPC:** G11B 25/04

**Language of the proceedings:** EN

**Title of invention:**

Magnetic disc unit

**Applicant:**

Hitachi Global Storage Technologies Japan, Ltd.

**Opponent:**

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**Headword:**

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**Relevant legal provisions:**

EPC Art. 84, 111(1), 123(2)

**Keyword:**

"Claims - clarity (yes)"

"Amendments - added subject matter (no)"

"Decision re appeals - remittal (yes)"

**Decisions cited:**

-

**Catchword:**

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Case Number: T 0541/03 - 3.5.04

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.04  
of 19 September 2006

**Appellant:** Hitachi Global Storage Technologies Japan,  
Ltd.  
2880, Kozu, Odawara-shi  
Kanagawa-ken (JP)

**Representative:** Beetz & Partner  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 29 October 2002  
refusing European application No. 99101775.7  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** F. Edlinger  
**Members:** A. Teale  
B. Müller

## Summary of Facts and Submissions

- I. The appeal is against the decision by the examining division to refuse European patent application No. 99 101 775.7 because the subject-matter of claim 1 lacked inventive step over the following document:

D1: US 4 660 110 A.

The subject-matter of claim 1 was found to differ from the disclosure of D1 only in that the disk-shroud gap did not lie in the claimed range of not less than 0.1 mm, but not greater than 0.6 mm. These difference features reduced the amplitude of disk flutter caused by the pressure differential between the upper and lower surfaces of the disk. D1 disclosed the same problem and solution as mentioned in the application; see figure 6 and column 4, lines 46 to 64. The gap sizes disclosed in D1 differed from those claimed merely because the disk thickness and rotation speed were different from those mentioned in the application. However, following the method of D1, the skilled person would have obtained the flutter amplitude vs. gap curve shown in figure 3 of the application. Moreover D1 referred to gap sizes below 3 mm (see column 4, lines 59 to 64), and the lower value in the claimed gap range of 0.1 mm was determined by the dimensional tolerance of the disk, a usual matter for the skilled person.

- II. The applicant (appellant) filed a notice of appeal and in a subsequently filed statement of grounds of appeal requested that the decision be set aside and a patent granted on the basis of amended claims.

- III. The board issued a summons to oral proceedings and a further communication in which it expressed doubts whether the claims satisfied Article 56 EPC in view of D1, which was the only document cited in the decision under appeal. The board also referred to further documents cited in the search report but indicated that it could remit the case to the first instance depending on the amendments made and the applicant's stance on the question of a possible loss of a legal instance.
- IV. In reply to these communications the appellant submitted arguments and further amendments.
- V. Oral proceedings were held on 19 September 2006 at which the appellant withdrew all requests filed in writing and submitted a single new request.
- VI. The appellant requested that the decision be set aside and the case be remitted to the first instance for a patent to be granted on the basis of the following documents:

Description:

Pages 10 and 11 as originally filed.

Pages 2, 5, 6, 8 and 9 filed with the statement of grounds of appeal dated 7 March 2003.

Pages 1, 3, 4 and 12 filed with the letter dated 14 March 2005.

Page 7 filed with the letter dated 27 July 2006.

Claims:

1 to 5 filed in the oral proceedings.

Drawings:

Figures 1 to 5 as originally filed.

VII. The set of claims consists of independent claims 1 and 5, and claims 2, 3 and 4 which are dependent on claim 1. Claim 1 reads as follows:

"1. Magnetic disc unit comprising a rotating magnetic disc (1), a head (3) for recording and reproducing data to and from said magnetic disc (1), head support mechanism (5) for supporting said head (3), a carriage (9) including a guide arm (6) linked to said magnetic head support mechanism (5), a pivot bearing (7) and a voice coil motor (8), and a shroud (20) surrounding an end surface of an outer radial periphery of said magnetic disc (1), except a part where said guide arm (6) is inserted, characterized in that a gap between said end surface of the outer periphery of said magnetic disc (1) and an inner wall (21) of said shroud (20) is set in a range not less than 0.1 mm, but not greater than 0.6 mm, said magnetic disc (1) has an outer diameter of 3.5 inches, wherein air on the upper and lower surfaces of the disc (1) is isolated so as to reduce the pressure differential, a wall (40) is formed around the entire periphery of said disc unit, the wall (40) serves as a surrounding wall of the carriage (9) and as a part of the shroud (20) and hermetically encloses said disc unit, wherein an inner wall (21) of the shroud (20) faces the disc (1) and an outer wall (22) of the shroud (20) serves as an outer wall of said disc unit, and wherein the shroud (20) is arranged to branch off from an inner part of the wall (40) and wherein the wall (40) and the shroud (20) are integrally molded with each other."

The text of claim 5 is identical to that of claim 1 except that the gap is set in a range "not less than 0.1 mm, but not greater than 0.4 mm" and the magnetic disc (1) "has an outer diameter of 2.5 inches".

VIII. The appellant argued that figure 6 of D1 disclosed a disk-shroud gap as low as 2 to 3 mm, but showed a flat curve in this region. D1 gave no hint that lower values could be worth investigating. The appellant had however found that for gap values in the claimed range flutter dropped to values many times lower than those found in the prior art. This was the main aspect of the invention, the presence of a hermetic seal in the external wall of the disk unit being a secondary issue. D1 disclosed embodiments of the inner shroud both with and without apertures. Figure 10 and column 6, lines 35 to 40 showed a greater increase in off-track phenomena due to heating when there were no apertures. The apertures resulted in an airflow to cool the disk, and any further reduction in gap size would restrict the airflow and result in insufficient cooling. In D1 the dust cover 9 was not integral with the inner shroud 13, since one would remove a dust cover to reveal the inside of the disk unit. In contrast, the shroud defined in the claims resulted in enhanced transfer of heat from the shroud to the external wall of the disk unit, since the shroud and wall were one piece of material. This also reduced the parts count, thus reducing manufacturing costs. Reducing heating in the disk unit also led to fewer tolerance problems and allowed cheaper bearings to be used.

## Reasons for the Decision

1. The appeal is admissible.
2. Amendments

Claim 1 differs from claim 1 on which the decision under appeal was based (which sets out essentially the same subject-matter as claim 1 as originally filed) in the addition of the following features which were disclosed in the application as filed (references are made to the corresponding passages of the published application):

- (a) a "guide arm" as part of the carriage: this is disclosed in column 3, lines 16 to 17.
- (b) a "pivot bearing" and "voice coil motor": these are disclosed in column 3, line 17.
- (c) the magnetic disc has an outer diameter of 3.5 inches: this is disclosed in column 4, lines 21 to 22 and original claim 3.
- (d) air on the upper and lower surfaces of the disc is isolated so as to reduce the pressure differential: this is disclosed in column 2, lines 36 to 40.
- (e) a wall is formed around the entire periphery of said disc unit, the wall serving as a surrounding wall of the carriage and as a part of the shroud and hermetically encloses said disc unit: this is disclosed in column 3, lines 37 to 40 and 43 to 45 and figure 1B.

- (f) an inner wall of the shroud faces the disc and an outer wall of the shroud serves as an outer wall of said disc unit: this is disclosed in column 4, lines 2 to 5, column 3, lines 38 to 40 and figure 1B.
- (g) the shroud is arranged to branch off from an inner part of the wall: this is disclosed in column 3, lines 40 to 42 and figure 1B.
- (h) the wall and the shroud are integrally molded with each other: this is disclosed in column 3, lines 25 to 27 and column 4, lines 1 and 2.

Independent claim 5 differs from claim 1 on which the contested decision is based in the addition of features (a), (b) and (d) to (h) set out above and also the following features:

- (i) a range not less than 0.1 mm, but not greater than 0.4 mm: this is disclosed in original claim 4.
- (j) the magnetic disc has an outer diameter of 2.5 inches: this is disclosed in column 5, line 30 and original claim 4.

The amendments to claims 2, 3 and 4 have a basis in original claim 3, original claim 5, column 4, lines 47 to 48, column 5, lines 22 to 25 and figure 4C.

The board finds that the claims are clear, Article 84 EPC, and that they do not contain added subject-matter, Article 123(2) EPC.



3. Remittal, Article 111(1) EPC

While the appealed decision is relevant to added feature (i) and the comments made by the examining division in a communication dated 3 March 2000 regarding original claims 2, 3 and 4 are relevant to features (c), (j) and (h), the patentability of the remaining added features (a), (b), (d), (e), (f) and (g) in the independent claims are not discussed in the appealed decision, nor do they seem to have been considered in proceedings before the first instance. The amendments to the claims made at the oral proceedings have consequently created a substantially "fresh case" which has not been examined by the first instance. Moreover, among the documents cited in the search report, only D1 was referred to in the examination procedure. A reconsideration of the requirements for the grant of a patent is consequently necessary. In order to prevent a loss of instance by the appellant the board decides to allow the appellant's request to remit the case to the first instance.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The case is remitted to the first instance for further prosecution.

The Registrar:

The Chairman:

D. Sauter

F. Edlinger