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Datasheet for the decision of 8 December 2006

Case Number: T 1483/05 - 3.4.02

Application Number: 95916909.5

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Language of the proceedings: EN

Title of invention:
Mounting of pressure sensor

Applicant:
MKS INSTRUMENTS

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56, 84
EPC R. 67

Keyword:
"Clarity, inventive step (no)"
"Refund of the appeal fee (no)"

Decisions cited:
T 0063/86, T 0047/90

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1483/05 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 8 December 2006

Appellant: MKS INSTRUMENTS
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 19 August 2005 refusing European application No. 95916909.5 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: A. Klein
Members: A. Maaswinkel
C. Rennie-Smith

Summary of Facts and Submissions

I. European patent application No. 95 916 909.5 relating to a pressure sensor was refused in a decision, dispatched on 25 October 2002, of the examining division on the ground that the subject-matter of claim 1 did not involve an inventive step (the first decision). Against this decision the applicant (appellant) lodged an appeal which was received on 27 December 2002 and paid the fee for the appeal on the same day. With the statement setting out the grounds of appeal filed on 25 February 2003 the appellant filed a new set of claims.

II. On 2 June 2003 the examining division ordered rectification of this decision. In a subsequent communication dated 4 June 2003 the division stated that the new claims filed with the appeal contained new features taken from the description which had not been considered by the examining division before. According to the division, although the modifications did not lead to allowable claims, the decision under appeal had to be rectified to preserve the applicant's right to have the case considered at two instances. With respect to the patentability of the claims, the applicant had not commented on the arguments given in the decision, therefore the examining division maintained its assessment that the subject-matter of the claims did not involve an inventive step having regard to the teachings of documents D2, D3 and D4:

D2: EP-A-0 549 229
D3: US-A-4 898 035
D4: US-A-5 186 055.

Also the additional features taken from the description were known from documents D2 and D3 and added nothing inventive to the claims.

III. In a letter received on 28 January 2005 the applicant maintained the claims filed on 25 February 2003 and submitted arguments why in its opinion this set of claims contained patentable subject-matter.

IV. In a decision dispatched on 19 August 2005 (the second decision) the examining division refused the patent application on the ground that the subject-matter of claim 1 filed with the letter of 25 February 2003 did not involve an inventive step so that the requirements of Article 52(1) in combination with Article 56 EPC were not fulfilled. Also the further claims did not involve patentable subject-matter.

V. The wording of claim 1 reads as follows (labelling (a) to (g) of the features added by the board):

"A pressure sensor for measurement of the pressure of a fluid, comprising
(a) a house (11, 9) connectable to a volume containing the fluid,
(b) a sensor element (1) made of parts or components based on a ceramic, in particular a glass ceramic, material, the sensor element comprising a diaphragm, a thicker house part and electrical conductors (19) which provide an electrically detectable quantity which is changed when the diaphragm element is influenced by an exterior pressure, the sensor element having the shape

of a plate comprising two large surfaces and an edge surface extending around a circumference, and

(c) a support ring (5, 5', 5”) made of metal, surrounding the sensor element and rigidly connecting the sensor element to the house, the sensor element being mechanically attached to the house only by the support ring,

characterized in

(d) that the support ring is provided with an interior shoulder in an inner surface facing its center axis, the shoulder forming an annular radially and inwardly projecting protrusion (15, 15’), against which a marginal region of one of the large surfaces of the sensor element rests,

(e) that the support ring is directly connected to the sensor element by means of a joint (3, 3’) made of ceramics, in particular glass ceramics, along an annular region of the edge surface of the sensor element and along a surface of the protrusion,

(f) that the support ring is connected to the house through a weld (7) of an exterior surface opposite the inner surface, and

(g) that the metal material in the support ring has a coefficient of thermal linear expansion which is substantially equal to the coefficient of thermal linear expansion of the ceramic material in the sensor element".

VI. In a letter of 20 October 2005 the applicant lodged an appeal against the second decision and paid the appeal fee the same day. In its statement of the grounds of appeal the appellant stated that the invention included an inventive step and referred to its previous letters, in particular that dated 28 January 2005. The appellant

requested that the decision dated 19 August 2005 be set aside and that the application be further processed.

Furthermore the appellant requested refund of the appeal fee. It was argued that an appeal fee had already been paid for this patent application on 27 December 2002 (see I above). According to the appellant, by paying that previous fee the applicant expected to obtain an opinion and a decision on the inventive step of the invention from the board of appeal. Instead the appeal was processed by the same examining division that had previously refused the application.

VII. In a communication pursuant to Article 11(1) RPBA, dated 22 September 2006 and accompanying the summons to oral proceedings on 8 December 2006, the board expressed the following provisional opinion:

(i) The request for refund of the appeal fee:

According to Rule 67 EPC reimbursement of an appeal fee shall, if an appeal is allowable, be ordered *inter alia* if the board of appeal deemed such reimbursement equitable by reason of a substantial procedural violation. Therefore both conditions have to be met. As to the question whether the appeal will be allowable in substance, this will depend on the outcome of the oral proceedings. As to the second question, in the last paragraph of the letter of 20 October 2005 the appellant has not explicitly argued that the procedure followed by the examining division was seriously flawed by rectifying its decision according to Article 109(1) EPC.

The procedure for interlocutory revision is documented in the Guidelines, Part E, Chapter 7.1. One of the reasons for rectification is given in example (iii), if "... the decision of the department concerned does not appear to be incorrect, but the applicant... files amendments, which overcome the objections of the decision under appeal...". In the paragraph following this example, it is explained "If the amendments meet the objections contained in the decision under appeal, but raise new ones not yet discussed, interlocutory revision must also be allowed as the applicant has the right to two instances".

This is also in line with the established Case Law, see the decision T 63/86 (OJ 1988, 224) and T 47/90 (OJ 1991, 486). In point 5 of the Reasons of that decision the board observed "*...the procedure before the Examining Division can be more streamlined, and the time and expense of an appeal possibly avoided, if in response to communications indicating an intention to reject the application such as occurred in the present case, the applicant presented one or more auxiliary requests progressively limiting the claims, simultaneously with his main request, accompanied if appropriate by evidence and arguments in support of each request. The Examining Division should then decide upon the allowability of each request in succession (assuming the previous request is not allowable), and if the applicant is not satisfied by the decision of the Examining Division insofar as certain requests have been refused, an appeal can be filed in respect of all such refusals*". Therefore, in the present opinion of

the board of appeal, in allowing interlocutory revision the examining division acted correctly.

(ii) Article 84 EPC

In claim 1, feature (e) it is defined that "the support ring is directly connected to the sensor element by means of a joint (3,3') made of ceramics, in particular glass ceramics..." (underlined by the board). It is noted that this feature had been defined in claim 2 as originally filed. However, the accompanying description apparently does not disclose any further information how the glass particles embedded in the organic binding agent (see page 10, line 17) would be converted into a polycrystalline (glass ceramic) material. The board understands that the conversion of amorphous glass into a polycrystalline glass ceramic state involves a special temperature treatment with strict conditions (narrow temperature limits, well defined heating and cooling time). At least in the second and third paragraphs on page 10 such conditions are not disclosed. Rather, the material, even after the melting or fusing step, remains in the glassy state (see last three lines on page 10).

It is noted that in the letter of 12 March 2001 the applicant had explained "As to the question of the materials of the joints, the term "joint of ceramics" in the claims is used to define a joint made of a material similar to that of the sensor element and to distinguish the considered joint from a welded joint". However, since the definition in claim 1 involves structural features ("made of ceramics, in particular glass ceramics") this wording cannot be interpreted as

merely a distinguishing feature over prior art welded joints, since the joint is in fact a glass joint.

(iii) Patentability

In the second decision, see points 10 and 11 of the Reasons, the examining division started from the disclosure in document D3 in the discussion of inventive step. In the following the features of claim 1 will be addressed using the same lettering as in the letter of 28 January 2005.

(a) According to the applicant the house (22) in D3 is not connectable to a fluid. In point 13.3 of the second decision the examining division expresses its view that the house is connectable via the diaphragm. In the provisional opinion of the board this reasoning appears correct; in any case feature (a) does not seem to define a technical restriction to a general pressure sensor enabling one type of sensor to be distinguished from another.

(b) According to the applicant, in the device disclosed in D3 the support body of the diaphragm is an annular cylindrical body and the sensor element is not plate-shaped. In point 13.3 the examining division refers to the embodiment in Figure 5 of D3 and argues that the elements shown in the figures of the patent application and those of D3 do not seem to be really different.

(c) For this feature both the applicant and the division refer to element 26; according to the division

(point 11.1, "feature a") element 26 is a support ring in the sense of the patent application.

(d) There is agreement that the device disclosed in D3 does not show this feature (commented upon in point 11.4 of the Reasons of the decision).

(e) According to the division, sealing member 26 is directly connected to the sensor element by means of joint (20), which may be a glass joint (see point 11.2, for the feature "ceramics", see the objection under Article 84 EPC *supra*); the applicant observes that in the device of D3 no protrusion is provided.

(f) Concerning this feature the examining division argues that element 26 is connected to the house through a weld 24; as to arrangement of the weld on the exterior surface opposite the inner surface of the sensor element the division argues in point 11.5 ("feature e") that the particular welding positions on the device would be chosen by the skilled person depending on the requirements.

(g) As regards the feature that the metal material in the expansion ring has a coefficient of thermal linear expansion substantially equal to that of the ceramic material of the sensor element, the examining division points to the underlying problem addressed by this feature, which problem is known (and is addressed in D3 by offering a different solution, see Figure 3) and to solutions in documents D2 and D4 similar to that in the patent application.

It would appear that the major differences between the subject-mater of claim 1 and the prior art pressure sensor in D3 reside in some constructional differences (the shoulder and protrusion defined in feature (d)) and in feature (g). At present it seems that whereas feature (d) has as its purpose to improve the mechanical stability of the device (see point 11.4 of the Reasons), the aim of feature (g) is a different one, namely to improve the stability of the device under varying thermal conditions.

The communication concluded by observing that, at the oral proceedings it would therefore be discussed whether it would have been obvious for the skilled person to modify the device disclosed in D3 in order to solving these problems (mechanical and thermal stability).

VIII. By a facsimile letter of 7 December 2005 the appellant informed the board that it would not be attending the oral proceedings. The appellant did not make any observations whatsoever on the board's communication.

IX. Oral proceedings took place on 8 December 2006 in the absence of the appellant. The board gave its decision at the end of the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. In the communication of the board, the appellant was informed in detail of the reasons why its request for

refund of the appeal fee was considered unfounded, why claim 1 was objectionable under Article 84 EPC and, furthermore, why the subject-matter of claim 1 differed from the closest prior art in document D3 in the two features labelled (d) and (g). It had already been pointed out by the examining division that these features are not related and solve different technical problems (mechanical and thermal stability), which problems and the respective solutions were known from documents D2, D3 and D4.

3. The appellant made no substantive response to the board's communication. Having again considered its own reasoned objections as set out in that communication and making express reference thereto, the board sees no reason to deviate from the examining division's conclusion and from its own earlier assessment. Consequently, the appellant's requests must be refused.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

E. Görgmaier A. Klein