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**Datasheet for the decision  
of 18 November 2010**

**Case Number:** T 0151/08 - 3.4.02

**Application Number:** 98906460.5

**Publication Number:** 0963542

**IPC:** G01F 1/84

**Language of the proceedings:** EN

**Title of invention:**

Coriolis flowmeter having axially compliant case ends

**Patentee:**

MICRO MOTION INCORPORATED

**Opponent:**

ENDRESS + Hauser

**Headword:**

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**Relevant legal provisions:**

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

**Relevant legal provisions (EPC 1973):**

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**Keyword:**

"No extension beyond the application as originally filed"  
"Remittal to the opposition division for further prosecution"

**Decisions cited:**

-

**Catchword:**

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Case Number: T 0151/08 - 3.4.02

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.02  
of 18 November 2010

**Appellant:** MICRO MOTION INCORPORATED  
(Patent Proprietor) 7070 Winchester Circle  
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**Respondent:** ENDRESS + Hauser  
(Opponent) (Deutschland) AG+Co. KG  
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**Representative:** -

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 31 October 2007  
revoking European patent No. 0963542 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** A. G. Klein  
**Members:** M. Stock  
L. Bühler

## Summary of Facts and Submissions

- I. The appellant and patent proprietor lodged an appeal against the decision of the opposition division revoking European patent number 0 963 542 (application number 98 906 460.5, published as WO 98/38479).
- II. Opposition was filed against the patent as a whole, based on the ground under Article 100 EPC that the subject-matter of the patent was not patentable, because the patent did not disclose the invention in manner sufficiently clear and complete for it to be carried out by a person skilled in the art and/or because the subject-matter of the patent extended beyond the application as originally filed and/or did not involve an inventive step. Reference was made to four documents D1 to D4.
- III. The opposition division came to the conclusion that independent claims 1 and 19 according to a main request, which are the claims as granted, and independent claim 1 according to an auxiliary request then on file defined subject-matter which was not contained in the application as originally filed.
- IV. In its statement of grounds of appeal the appellant and patent proprietor requested that the patent be maintained in amended form on the basis of claims 1 and 19 enclosed therewith.

Appellant's arguments can be summarised as follows:

It was believed that the feature that the substantially straight flow tube means extended axially at a constant

diameter from within the case through the membrane means to a terminus recited in independent claims 1 and 19 met the requirements of Article 123(2) EPC.

Claim 1 referred to a disc like membrane means, a perimeter of the membrane means being affixed to an inner wall portion of a case. The opposition division had decided that the feature that the membrane means should be affixed to an inner wall portion of the case extended beyond the content of the application as originally filed. Specifically, the opposition division was of the opinion that it was not unambiguously clear that the application as originally filed revealed that the perimeter of the membrane means should be attached to an inner wall portion of the case.

Claim 1 as originally filed, however, recited that the flowmeter comprised, among other things, a disc like membrane means positioned inside said case. Original claim 1 further stated that a circumference of said membrane means is affixed to cylindrical walls of said case, i.e. that the membrane means according to original claim 1 was positioned inside and affixed to walls of the case. Consequently, the perimeter, which was believed to be an equivalent to the term circumference, was necessarily affixed to an inner wall portion of the case.

The opposition division had considered that Figures 9 to 11 could be interpreted as disclosing membranes that were not affixed to an inner wall of the case but were attached to or were integral with the (front) end of the case. However, Figs. 9-11 were qualified according to the original description as showing embodiments of

the invention, i.e. embodiments of the invention recited in claim 1 as originally filed. Therefore Figures 9 to 11 were also meant to show disc like membrane means which are positioned inside the case, similar to the embodiment shown, e.g. in Fig. 2.

Original claim 1 further described that the disc like membrane means comprised at least one end of said case or, equivalently, defined at least one end of said case, as recited in present claim 1. Consequently, the disc like membrane means, including the disc like membrane means shown in Figures 9 to 11, should be understood as defining or comprising at least one end of the case and, at the same time, being positioned inside the case. Since the case was, on the one hand, defined by structure 102 shown in Figure 2 as well as in Figures 9 to 11, said structure 102 having a wall 101 (e.g. see page 10, line 7 of the originally filed description), and, as defined in original claim 1, the membrane means was positioned inside said case and had a circumference or perimeter being affixed to said wall 101, the portion of the wall to which the membrane means was affixed necessarily was an inner portion of case 102. This followed directly and unambiguously from the application as originally filed.

It should be noted that the feature that a perimeter of the disc like membrane means is affixed to the inner wall portion of the case was not present in claim 19. Rather, claim 19 recited the method step of "affixing a perimeter of a disc like membrane means to a case".

The subject-matter of claims 1 and 19 was therefore supported by the application as originally filed.

V. The respondent and opponent requested that the appeal be dismissed. Without prejudice to the objections made in the opposition proceedings under Article 100(a) and (b) EPC the following was put forward:

The features "...extending at a substantially constant diameter..." or "...extending at a constant diameter..." were found neither in the description nor in the original claims. Moreover, Figures 4 and 8 showed flow tube means which had significantly differing inner and outer diameters and were even in contradiction to present claim.

The feature "... a perimeter of said membrane means affixed to an inner wall portion (101) of said case..." was nowhere unambiguously disclosed in the description and the figures of the present application. Apart from that the wording in original claim 1 "...a disk like membrane means (202) comprising at least one end of said case and positioned inside said case perpendicular to a longitudinal axis of said [cylindrical] case..." and "...a circumference of said membrane means affixed to cylindrical walls (101) of said [cylindrical] case...." did not support the interpretation that the [circular] perimeter of the membrane means should be affixed to an inner wall portion of the case. This was particularly true in view of the figures which evidently pointed towards a fixation at the outside of the case.

Support for the feature "affixed to inner wall portion" was not provided by the figures which did not indicate the function and interaction of the isolated feature

with other features not taken up into the claim. The figures e.g. did not show any type of flowmeter, but specifically a Coriolis-mass-flowmeter having further features which should also be recited in claim 1, in particular the feature that the terminus for coupling to an external pipeline is arranged at a distance from the case.

- VI. In an annex to the summons to oral proceedings requested by the parties, the Board inter alia stated that the opposition division had decided only on the issue of original disclosure under Article 123(2) EPC. Therefore, the oral proceedings would also be limited to the discussion of this ground for opposition under Article 100(c) EPC. It was likely that the case would be remitted to the opposition division with the order to investigate the remaining grounds. This would give the parties the opportunity to have their case considered by two instances.
- VII. Oral proceedings took place on 18 November 2010. In the oral proceedings the opponent requested that the patent be revoked whereas the patent proprietor requested that the patent be maintained in amended form on the basis of independent claims according to the main request filed with the statement of grounds of appeal dated 7 March 2008. These claims read as follows:
1. A flowmeter comprising:
    - a case (102) having a first and a second end;
    - a disk like membrane means (202) defining at least one end of said case;
    - a perimeter of said membrane means affixed to an inner wall portion (101) of said case;

a substantially straight flow tube means (104) positioned within said case substantially parallel to the longitudinal axis of said case and extending axially at a constant diameter from within case through said membrane means to a terminus (103) exterior to said case adapted for coupling to a material source and to a material receiver;  
said flow tube means being affixed to said membrane means;  
said membrane means comprises at least one membrane having a transverse dimension substantially greater than its thickness and having an axial compliance sufficient to enable said flow tube means to increase or decrease in length without permanent deformation in response to thermal changes in said flow tube means with respect to said case.

19. A method of fabricating a flowmeter comprising the steps of:  
affixing a perimeter of a disk like membrane means to a case so that said membrane means defines at least one end of said case, said case having a first and a second end;  
positioning a substantially straight flow tube means within said case and extending axially at a constant diameter from within said case and through said membrane means to a terminus (103) exterior to said case;  
said flow tube means being affixed to said membrane means;  
said membrane means comprising at least one membrane having a transverse dimension substantially greater than its thickness;

said membrane means comprises at least one membrane having a transverse dimension substantially greater than its thickness and having an axial compliance sufficient to enable said flow tube means to increase and decrease in length without permanent deformation in response to thermal changes of said flow tube means with respect to said case.

### **Reasons for the Decision**

1. In the following the disclosure of the claimed subject-matter in the application as originally filed is indicated by reciting the features one by one and adding to each a comment in parenthesis as to its basis in the original documents.

2. Claim 1 according to the main request is directed to a flowmeter comprising:

- a case having a first and a second end;

(Original claim 1 recites a cylindrical case. The limitation to "cylindrical cases" is not essential in view of independent claim 19 as originally filed and the general part of the description at page 5 "solution" defining a case without the limitation to a cylindrical shape. First and second ends of the case are mentioned in original claim 19, 3rd and 4th line)

- a disk like membrane means defining at least one end of said case;

(See original claim 19, 2nd and 3rd line)

- a perimeter of said membrane means affixed to an inner wall portion of said case;

(According to original claim 1, see W098/38479, page 17, lines 3 to 6, the membrane means is positioned inside the case and a circumference of the membrane means is affixed to the walls of the case. It follows directly from this that the fixation is performed at an inner wall portion.)

- a substantially straight flow tube means positioned within said case substantially parallel to the longitudinal axis of said case and extending axially at a constant diameter from within (the) case through said membrane means to a terminus exterior to said case adapted for coupling to a material source and to a material receiver;

(Most of this wording is found in original claim 1. Support for the flow tube means extending axially from within the case through the membrane to a terminus is found in original claim 19. A constant diameter of the flow tube is consistently shown in Figures 2, 4, 8, 10 and 11 and is a design feature offering certain advantages explicitly mentioned in the description, see WO 98/38479, page 5, lines 3 to 9. Substantially parallel instead of parallel is for consistency with the flow tube means being substantially straight.)

- said membrane means comprises at least one membrane having a transverse dimension substantially greater than its thickness and

having an axial compliance sufficient to enable said flow tube means to increase or decrease in length without permanent deformation in response to thermal changes in said flow tube means with respect to said case.

(This feature corresponds to the last feature indicated in original claim 1. Amendments in the wording of this feature are related to clarifications which are evident to the skilled person.)

3. Similar considerations apply to claim 19 which is understood as providing a method for fabricating the flowmeter defined in claim 1.
4. The dependent claims 2 to 18 correspond to original claims 2 to 18. It is evident to the skilled person that these claims are related to embodiments not only of the subject-matter of the original claim 1 but also of claim 1 as amended in accordance with the main request.
5. The opponent generally argued that the amendments in claim 1 in relation to the constant diameter of the flow tube actually led to an inadmissible "intermediate generalisation". Since the amendments were based mainly on figures, it was necessary to introduce in the wording of the claim any feature describing the context of the amendments. In the present case the context was not related to general flowmeters but Coriolis-Flowmeters. The shape and location of the "terminus" indicated in the claims was not defined. It was only disclosed in the context of other features, e.g. that it was located at a certain distance from the case.

6. However, the Board is of the opinion that even for the feature defining a constant diameter of the flow tube along its extension from within the case through the membrane to the terminus the skilled person derives from the discussion of various designs of flowmeters, in particular, on original page 5, lines 3 to 9, that the constant diameter shown in the figures is significant per se, since this measure avoids disadvantages related to cleanability and fluid pressure drop. Therefore under the requirement of the disclosure under Article 123(2) EPC no further limitation either to Coriolis-Flowmeters or to a specific arrangement of the terminus at a distance from the case is considered necessary. It can be left open whether such features might have been required at the examining stage to ensure support of the claims by the description under Article 84 EPC, since this is no ground for opposition.
7. The opponent put forward the argument, that it was not originally disclosed that the perimeter of the membrane was affixed to an inner wall portion of the case. It was also not clear from the patent how the skilled person could perform this measure. It was rather evident that the membrane was welded to the outer annular wall portion of the case at its front end. This was also possible for a membrane placed inside the case and having a step-like flange to be welded to such annular wall portion of the case at its outer end surface. In Figure 8 it was shown that the bending line 209A had a fix-point at the outer diameter of the case and not at the inner wall. Apart from this there was no constant diameter as required by claim 1. The only

situation in which a membrane was affixed at the inner wall of the case was when a double membrane was used as shown in Figures 2, 4, 6, 8, and 11. Figure 5 was presented to demonstrate a disadvantage, namely the sensitivity of a single membrane to a bending torque. From this a more bending resistant double membrane construction was derived. From the detail shown in Figure 10 it was not clear whether it was related to a single membrane and whether it was affixed to the inner or outer wall.

8. These arguments are, however, not convincing to the Board. The drawings must be construed as merely schematic illustrations as far as the method of affixing of the membrane to the case is concerned. The cited bending lines hint only at what might generally occur during bending but in the Board's view the skilled person would not have expected them to be meant to be exact reproductions of the bent membranes. In any case the Board sees no contradiction between the claims and what is shown in the figures, since the wording used has a solid basis in the application as originally filed. Such wording is found in the original claim 1, defining the position and extension of the flow tube means with respect to the case, which leads to the conclusion as to the perimeter of the membrane being affixed to the inner wall of the case.

The Board can also accept the explanations of the proprietor in relation to how the affixing at the inner wall could be performed, e.g. in principle by cutting from a single piece of material or by welding from both sides of the membrane. Therefore the implication that the amendment to claim 1 would amount to a technically

- non realisable feature which the skilled person, accordingly, would not have derived from the application documents is not convincing.
9. There was no additional argumentation presented to the Board against the admissibility of independent claim 19 and dependent claims 2 to 18 under Article 123(2) EPC.
  10. Therefore, by taking into due account the essential arguments of the opponent, the Board comes to the conclusion that the patent with the independent claims according to the main request filed by the proprietor with letter dated 17 March 2008 does not extend beyond the corresponding application as originally filed, see Article 123(2) EPC.
  11. The patent in its version as granted has been amended by deleting "substantially" in front of "constant diameter" in the independent claims 1 and 19. These amendments are limitations which do not amount to an extension of the protection conferred by the patent; see Article 123(3) EPC. It is to be noted that in claim 19 the feature related to "membrane means comprising...", see patent, column 17, lines 29 to 31, is repeated in lines 32 to 34. One of these wordings should eventually be deleted.
  12. As announced in the annex to the summons to oral proceedings and undisputed by the parties, the case is remitted to the opposition division in accordance with Article 111(2) EPC for resolving the remaining issues, in particular, whether the subject-matter of the claims according to the main request, which according this decision, does not infringe Article 123(2) and (3) EPC,

also meets the requirements of Article 52(1) with respect to novelty in the meaning of Article 54(1) and (2) EPC and inventive step in the meaning of Article 56 EPC.

## **Order**

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

1. The decision of the opposition division is set aside.
2. The case is remitted to the first instance for further prosecution on the basis of the main request filed with the statement of grounds of appeal dated 7 March 2008.

The Registrar:

The Chairman:

M. Kiehl

A. G. Klein