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Datasheet for the decision of 14 October 2016

Case Number: T 0556/13 - 3.4.02

Application Number: 98906460.5

Publication Number: 0963542

IPC: G01F1/84

Language of the proceedings: EN

Title of invention:
CORIOLIS FLOWMETER HAVING AXIALLY COMPLIANT CASE ENDS

Patent Proprietor:
MICRO MOTION INCORPORATED

Opponent:
ENDRESS + Hauser
(Deutschland) AG+Co.KG

Headword:

Relevant legal provisions:
EPC 1973 Art. 54(1), 56, 83
EPC Art. 123(2), 123(3)
EPC R. 116, 139
RPBA Art. 12(4)

Keyword:

Main request - novelty (no)
Auxiliary request 1 - request identical to request not admitted in first-instance proceedings - exceptionally admitted
Auxiliary request 1 - amendments - added subject-matter (yes)
Auxiliary request 2 - amendments - extension of protection (no)
Auxiliary request 2 - correction of error - immediately evident that nothing else could have been intended (yes)
Auxiliary request 2 - amendments - added subject-matter (yes)
Auxiliary request 3 - sufficiency of disclosure (yes)
Auxiliary request 3 - novelty (yes)
Auxiliary request 3 - inventive step (yes)

Decisions cited:

G 0003/89, G 0011/91, G 0007/93, G 0001/10, T 0931/06, T 0151/08, T 0023/10, T 0028/10, T 0657/11, T 0971/11, R 0011/11

Catchword:

Discretion of a board of appeal to admit a request which was not admitted in the first-instance proceedings (see point 2.1)

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Case Number: T 0556/13 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 14 October 2016

Appellant I: (Patent Proprietor)	MICRO MOTION INCORPORATED 7070 Winchester Circle Boulder Colorado 80301 (US)
Representative:	Vossius & Partner Patentanwälte Rechtsanwälte mbB Siebertstrasse 3 81675 München (DE)
Appellant II: (Opponent)	ENDRESS + Hauser (Deutschland) AG+Co.KG Colmarer Strasse 6 79576 Weil am Rhein (DE)

Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted on 20 December 2012 concerning maintenance of the European Patent No. 0963542 in amended form.**

Composition of the Board:

Chairman R. Bekkering
Members: H. von Gronau
T. Karamanli

Summary of Facts and Submissions

I. The appeal of the patent proprietor and the appeal of the opponent are directed against the interlocutory decision of the opposition division to maintain European patent No. 0 963 542 in amended form on the basis of claims 1 to 17 of the second auxiliary request filed during oral proceedings before the opposition division on 19 October 2012.

II. The opposition division had revoked the patent with its first decision posted on 31 October 2007 because independent claims 1 and 19 according to the main and auxiliary requests then on file defined subject-matter that was not disclosed in the application as originally filed (Article 100(c), Article 123(2) EPC). In particular the feature that the membrane should be fixed at an inner wall portion of the case was not regarded as disclosed in the original application documents.

In its decision T 151/08 of 18 November 2010, the board in another composition however decided that the patent as amended according to the main request then on file did not infringe Article 123(2) and (3) EPC. It remitted the case to the department of first instance for further assessment of novelty and inventive step. In its second decision posted on 20 December 2012, the opposition division maintained the patent in amended form according to the second auxiliary request then on file.

III. With its statement of grounds of appeal dated 24 April 2013, the patent proprietor filed claims according to a main request (corresponding to the main request rejected by the opposition division) and claims

according to an auxiliary request (corresponding to auxiliary request 1 rejected by the opposition division). The patent proprietor requested that the impugned decision of the opposition division be reversed and that the patent be maintained on the basis of claims 1 to 19 of the main request or, as an auxiliary measure, on the basis of claims 1 to 19 of the auxiliary request. With its letter dated 30 August 2013 sent in response to the opponent's statement of grounds of appeal, the patent proprietor filed claims according to an additional auxiliary request 2 (corresponding to auxiliary request 2 on which the patent was maintained in amended form by the opposition division in the contested interlocutory decision). The patent proprietor requested that the opponent's appeal be rejected and that, in addition to its main and auxiliary requests filed with its statement of grounds of appeal, the patent be maintained on the basis of claims 1 to 17 of auxiliary request 2.

IV. With its statement of grounds of appeal dated 26 April 2016, the opponent requested that the patent be revoked in its entirety because it did not fulfil the requirements of Articles 83 and 123(2) and (3) EPC.

V. With a summons to oral proceedings the board issued a communication expressing its provisional opinion.

VI. With a letter dated 13 September 2016, the patent proprietor filed a new set of claims 1 to 16 according to an auxiliary request 3. The new set of claims corresponded to the claims of auxiliary request 2 with dependent claim 5 deleted and the subsequent claims renumbered accordingly.

VII. Oral proceedings took place on 14 October 2016.
The parties' final requests were as follows:
The appellant/patent proprietor requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of claims 1 to 19 of the main request or auxiliary request 1, all filed with the statement of grounds of appeal.

As auxiliary request 2, the appellant/patent proprietor requested that the appellant/opponent's appeal be dismissed.

As auxiliary request 3, the appellant/patent proprietor requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the following documents:

Claims: Nos. 1 to 16 of auxiliary request 3 filed with letter dated 13 September 2016;

Description: Pages 2 to 8 of auxiliary request 2 filed at the oral proceedings of 19 October 2012; and

Drawings: Figures 1 to 11 of the patent specification.

The appellant/opponent requested that the decision under appeal be set aside and that the patent be revoked.

At the end of the oral proceedings, the board announced its decision.

VIII. Independent claim 1 of the main request reads as follows:

"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 [sic] 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."

Independent claim 19 of the main request reads as follows:

"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 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."

IX. Independent claims 1 and 18 according to auxiliary request 1 correspond to claims 1 and 19 respectively of the main request, with the additional feature that

"said membrane means (1002) has a permanently bowed surface oriented with its convex side outward from said case along a longitudinal axis of said flow tube means."

Auxiliary request 1 in addition comprises independent claims 2 and 19, which correspond to claims 1 and 19 respectively of the main request, with the additional feature that

"said case is cylindrical;
said membrane means is disk shaped;
said at least one membrane has a constant thickness;
said perimeter comprises a circumference of said disk shaped membrane means."

X. The claims of auxiliary request 2 correspond to the claims of auxiliary request 1, but with independent claims 2 and 19 deleted and claims 3 to 18 renumbered

as claims 2 to 17. The dependent claims read as follows:

"2. The flowmeter of claim 1 wherein said membrane means comprises a first membrane (202) defining a first end of said case and a second membrane defining a second end of said case.

3. The flowmeter of claim 1 wherein said membrane means comprises a first membrane (202) defining a first end of said case and wherein said flowmeter further includes a rigid noncompliant member (109) comprising a second end of said case.

4. The flowmeter of claim 2 wherein said membrane means comprises a first pair of spaced apart membranes (202, 209) at a first end of said case and a second pair of spaced apart membranes at a second end of said case; each pair of said spaced apart membranes being effective to prevent external bending moments of a pipe to which said flow tube means is connected from pivoting said flow tube means about a pivot point comprising said pair of spaced apart membranes.

5. The flowmeter of claim 1 wherein:
said membrane means has an axial compliance sufficient to enable it to flex axially inward and axially outward with respect to said case by an amount substantially equal to an increase and decrease in the length of said flow tube means resulting from thermal changes in said flow tube means.

6. The flowmeter of claim 1 wherein:
said membrane means has an axial compliance sufficient to enable it to flex axially with respect to said case by an amount substantially equal to changes in length

of said flow tube means minus changes in length of said case resulting from thermal changes in said flow tube means with respect to said case.

7. The flowmeter of claim 1 wherein:
said membrane means (1002) assumes an outward bowed convex position of increased curvature in response to a portion of said membrane means proximate said flow tube means having a higher temperature than the temperature of a portion of said membrane means proximate said case;
said membrane means assumes an outward bowed convex position of a decreased curvature in response to said portion of said membrane means proximate said flow tube having a lower temperature than said portion of said membrane means proximate said case.

8. The flowmeter of claim 1 wherein membrane means (202) is sufficiently thin compared to its diameter so that it does not offer sufficient resistance to a lengthwise thermal expansion of said flow tube so as to exceed the yield stress of flow tube means [sic] when said flowmeter is operated within predetermined temperature limits.

9. The flowmeter of claim 1 wherein said membrane means is sufficiently thin with respect to its transverse dimension so that a higher temperature in its center portion than at its periphery causes said membrane means to be axially displaced when not connected to said flow tube means by an amount substantially equal to the amount that a center portion of said membrane means is axially displaced when connected to said flow tube means as said flow tube means changes in length when subjected to said thermal changes.

10. The flowmeter of claim 1 in combination with:
a balance bar (107) positioned substantially parallel to said flow tube means;
balance bar membrane means (108, 218) connecting end portions of said balance bar to said flow tube means;
said flow tube means affixed to and extending through said balance bar membrane means;
said balance bar membrane means having an axial compliance sufficient to enable said flow tube means to change in length without permanent deformation in response to thermal changes in said flow tube means with respect to said balance bar.

11. The flowmeter of claim 10 wherein said balance bar is cylindrical and surrounds said flow tube means.

12. The flowmeter of claim 1 wherein said flow tube means (104) comprises a single flow tube.

13. The flowmeter of claim 12 wherein said single flow tube is affixed to a balance bar positioned substantially parallel to said flow tube means.

14. The flowmeter of claim 1 wherein said flow tube means comprises a pair of parallel flow tubes (404, 405).

15. The flowmeter of claim 1 wherein:
said membrane means has an axial compliance sufficient to facilitate an increase and decrease in length of said flow tube means with respect to said case resulting from thermal changes of said flow tube means with respect to said case.

16. The flowmeter of claim 15 further comprising:
a control circuit (801) for generating drive signals;

a driver (D) coupled to said flow tube means for oscillating said flow tube means in response to said generation of said drive signals;
sensor means (S1, S2) on said flow tube means for generating sensor output signals representing oscillations of said flow tube means;
means (802, 803) for applying said sensor means output signals to said control circuit;
a temperature detector (808) on said flow tube means for generating output signals representing the temperature of said flow tube means;
means (807) for applying said temperature detector output signals to said control circuit;
a strain gage (806) on said flow tube means for generating output information representing the axial stress on said flow tube means;
means (805) for applying said stress information to said control circuit;
said control circuit being responsive to a receipt of said sensor means output signals for generating output information of a first degree of accuracy regarding material flow in said flowmeter;
said control [sic] being responsive to a receipt of said temperature information and said stress information together with said sensor means output signals for generating output information of a higher degree of accuracy regarding said material flow in said flowmeter."

XI. The claims of auxiliary request 3 correspond to the claims of auxiliary request 2, but with dependent claim 5 deleted and claims 6 to 17 renumbered as claims 5 to 16.

XII. The following document is of relevance to the present decision:

D8: US 4 831 885 A.

Reasons for the Decision

1. Main request - claim 1

1.1 Novelty (Article 54(1) EPC 1973)

1.1.1 According to the opposition division, it was undisputed that document D8 represented the most relevant prior art with respect to the claims of the main request. In its view, document D8, in particular figure 1 and the related portions of the description, disclosed all features set out in claim 1.

1.1.2 In first-instance proceedings, the patent proprietor disputed that the feature "*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*" was known from document D8. According to the patent proprietor, document D8 disclosed a housing of 3 mm thick stainless steel (col. 16, lines 21 to 24) and therefore could not be considered to constitute membranes suitable for providing the axial compliance sought. The housing in document D8 was "very stiff" (col. 16, line 68, to col. 17, line 2).

1.1.3 However, the opposition division did not agree. The end walls of the flowmeter of document D8 provided at least some axial compliance. The only indication in the patent as to what "membranes" were was the indication

in paragraph 19 stating that "the ratio of the radial or transverse dimension to that of the thickness dimension is at least 16 to 1", and since the end walls of the flowmeter of document D8 satisfied this criterion the end walls of the housing in document D8 could be considered as being membranes.

1.1.4 In appeal proceedings, the appellant/patent proprietor contested this conclusion of the opposition division and submitted that the disclosure in document D8 with respect to the side walls 2 and 3 was rather limited and that it did not include any explicit information with regard to an axial compliance of the side walls. There was furthermore no indication in document D8 that would inherently provide for an axial compliance. Rather, a person skilled in the art would assume that the housing 4 including side walls 2 and 3 provided for sufficient stability. This was evident from column 16, line 68, to column 17, line 2, of document D8, where it was explained that the housing was very stiff in order to furnish stability. Since the wall thickness of the housing was equally thick for the housing in general (3mm), both the cylindrical portion and the side walls were described as being equally stiff and could not provide for any compliance. The problem of thermal expansion of the flow tube with respect to the case was also not addressed. Only the dependence of the elasticity of the flow tube on temperature was addressed (column 2, lines 21 to 25 and 35 to 36). In addition the side walls in document D8 did not clearly show dimensions that fulfilled the ratio of the radial dimension to the thickness dimension being at least 16 to 1. The outer diameter of the case 3 was indicated to be 83 mm (cf. column 16, lines 22 to 24). From this diameter two times the wall thickness of 3 mm had to be deducted, resulting in a diameter of 77 mm for the end

wall. The tube diameter in the centreportion was 12 mm, and the thicker portion around the tube which rendered the side walls stiffer could also not count as flexible membrane. The remaining radius of the end wall having a thickness of 3 mm would not be 16 times the thickness of the wall.

1.1.5 In the course of the oral proceedings before the board, the appellant/opponent maintained that in claim 1 it was defined that a transverse dimension of the membrane should be substantially greater than its thickness. The transverse dimension clearly did not correspond to the radius, so it was not allowable to take half of the diameter. The claim did not comprise the ratio of 16 to 1, which was only mentioned for the embodiment. This ratio therefore did not need to be met in document D8 in order to be novelty-destroying for the subject-matter of claim 1. Furthermore, the thicker portion of the end wall around the tube in document D8 was a clear indication that the wall was flexible. This centre boss was designed to allow the wall to flex without creating stress on the tube wall.

1.1.6 The board follows the opponent's and the opposition division's view. Each metal wall has a certain flexibility and compliance. The degree of compliance depends on the material and the dimensions. The patent defines in claim 1 that the membrane has a transverse dimension substantially greater than its thickness and specifies in paragraph [0019] only that the membranes are made of stainless steel, further stating in this paragraph: "*Because the membranes are relatively thin compared to their radial or transverse dimension, their center portions that [sic] can easily move in an axial direction. The ratio of the radial or transverse dimension to that of the thickness dimension is at*

least 16 to 1." The claim does not actually define this precise ratio; so any ratio disclosed in the prior art that is within or close to that of the embodiment mentioned in the description of the patent certainly achieves the compliance of the subject-matter of claim 1. The board therefore concurs with the opposition division that the subject-matter of claim 1 is not new over document D8.

2. Auxiliary request 1

2.1 Admission into the appeal proceedings (Article 12(4) RPBA)

2.1.1 Under Article 12(1) and (4) RPBA, the board has to take into account everything presented by the parties, inter alia in the notice of appeal, the statement of grounds of appeal and any written reply of the other party or parties, if and to the extent that it relates to the case under appeal and meets the requirements set out in Article 12(2) RPBA. The board, however, has the power to hold inadmissible facts, evidence or requests which could have been presented or were not admitted in the first-instance proceedings.

2.1.2 Together with its statement of grounds of appeal, the patent proprietor filed auxiliary request 1. In comparison with claim 1 of the main request, claim 1 of auxiliary request 1 has the additional feature that said membrane means has a permanently bowed surface oriented with its convex side outward from said case along a longitudinal axis of said flow tube means. This feature is also comprised in granted claim 7. Independent claim 2 is based on claim 1 of the main request and has the additional features that said case is cylindrical, said membrane means is disk-shaped,

said at least one membrane has a constant thickness, and said perimeter comprises a circumference of said disk-shaped membrane means. These features are also comprised in granted claim 16. Independent method claims 18 and 19 define corresponding methods of fabricating a flowmeter.

2.1.3 The present auxiliary request 1 had already been filed as auxiliary request 1 during the first-instance oral proceedings. The opposition division considered this auxiliary request to be late-filed and did not admit it into the first-instance proceedings. The opposition division was of the opinion that the subject-matter of independent claim 2 (and of corresponding independent method claim 19) was still not novel with respect to document D8 and that there was no direct and unambiguous basis under Article 123(2) EPC for the amendment in these claims. The opposition division stated with respect to the additional features of claim 2: "*(i) said case is cylindrical - which is the case also in D8 in that the housing 4 is said to have an outside diameter (of 83 mm - see col. 16, l. 22 and fig. 1); (ii) said membrane means is disk shaped - which is the case also for the end walls 2 and 3 in D8; (iii) said at least one membrane has a constant thickness - which is true also for the radially outer "membrane" portion of the "membrane means" 2 and 3 of the flowmeter of D8; and (iv) said perimeter comprises a circumference of said disk shape membrane means - which was undisputed to be revealed also by fig. 1 of D8. Hence, there was no doubt that these additional features compared to those of claim 1 of the main request were known from document D8 as well. Therefore, since claim 1 of the main request had been found to lack novelty over D8, the additional features - emanating from the amended dependent claim 16 as*

granted - cannot render independent claim 2 of the first auxiliary request- [sic] novel.

The opposition division also shared the opponent's opinion that "a constant thickness" of the membrane was not unambiguously disclosed in the application as originally filed (Article 123(2) EPC). The patentee in this respect referred to the figures of the drawings. However, the figures show the membrane only in a schematic cross-sectional view so that it is not clear beyond doubt that the membrane as a whole has a "constant thickness"." (cf. point 18 of the Reasons of the contested decision).

2.1.4 Under Rule 116 EPC, it was at the opposition division's discretion not to admit late-filed amended claims. According to established case law of the boards of appeal, a board of appeal should only overrule the way in which a department of first instance has exercised its discretion when deciding on a particular case if it concludes that it has done so according to the wrong principles, or without taking into account the right principles, or in an unreasonable way. It is generally not the function of a board of appeal to review all the facts and circumstances of the case as if it were in the place of the department of first instance, in order to decide whether or not it would have exercised such discretion in the same way (cf. decisions cited in Case Law of the Boards of Appeal of the European Patent Office, 8th edition 2016, IV.E.3.6).

The board sees no indication that the opposition division exercised its discretion not to admit auxiliary request 1 into the proceedings according to the wrong principles, or without taking into account the right principles, or in an unreasonable way. Nor

was the opposition division's discretionary decision challenged by the appellants. Under these circumstances, the board sees no reason to overrule the way in which the department of first instance exercised its discretion.

2.1.5 However, auxiliary request 1, which was not admitted into the first-instance proceedings, was re-filed by the patent proprietor with its statement of grounds of appeal. Hence, under Article 12(4) RPBA, the board had its own discretionary power to hold auxiliary request 1 inadmissible.

2.1.6 The board is aware of the line of jurisprudence of the boards of appeal establishing that, where it has to be decided under Article 12(4) RPBA whether to hold a request not admitted into the first-instance opposition proceedings inadmissible in appeal proceedings, this usually amounts to a review of the opposition division's exercise of its discretion under Rule 116 EPC and therefore that admitting such requests into appeal proceedings under Article 12(4) RPBA undermines the discretion conferred on the opposition division under Rule 116 EPC, unless the opposition division did not properly exercise its discretion (cf. decision T 28/10, point 2.1 of the Reasons, and Case Law of the Boards of Appeal of the European Patent Office, 8th edition 2016, IV.E.4.3.2, a); cf. also Brigitte Günzel, "The treatment of late submissions in proceedings before the boards of appeal of the European Patent Office", OJ EPO 2007, Special edition 2, 30, point 7).

2.1.7 In the board's view, this jurisprudence is not to be understood as meaning that the discretion conferred on the boards of appeal under Article 12(4) RPBA is limited to such an extent that the board must generally

hold inadmissible a request which had not been admitted into the proceedings by the opposition division by a correct discretionary decision (cf. similar considerations concerning the admission of a document into the appeal proceedings in decision T 971/11, points 1.2 and 1.3 of the Reasons).

Rather, the present board recalls that the board's power under Article 12(4) RPBA is a discretionary one, and in these cases, too, it must be exercised as such. According to established jurisprudence, discretion has to be exercised equitably, i.e. all relevant factors which arise in a case have to be considered, taking into account the particular circumstances of the case (G 7/93, OJ EPO 1994, 775, point 2.5 of the Reasons; R 11/11, point 9 of the Reasons; T 931/06, point 3.5 of the Reasons; T 23/10, point 2.3 of the Reasons). This requires the board to consider and weigh up the relevant factors having regard to the individual circumstances of each case. Consequently, it is not ruled out that, in view of the particular facts and circumstances of a particular case, the board will not hold a request inadmissible, although it was rightly not admitted into first-instance proceedings by the opposition division. This may occur, for example, if the board is confronted with additional facts and different circumstances or with additional submissions made by a party in the appeal proceedings (cf. for example T 971/11, point 1.2 of the Reasons). Another example could be that the reasons for the contested decision themselves contain considerations which go beyond those which were relevant for the opposition division's discretionary decision not to admit a request. That a board takes into account the specific circumstances of an individual case is not to say that the board re-exercises the discretion of the department

of first instance. Rather, it indicates that the board is exercising its own discretion under Article 12(4) RPBA.

2.1.8 The present board took account of the particular circumstances of the case before it when it exercised its discretionary power under Article 12(4) RPBA. The opposition division did not admit auxiliary request 1 into the opposition proceedings and provided sufficient reasoning for that. In this reasoning, however, the opposition division expressed a detailed opinion on the merits of the case with respect to claim 2 of auxiliary request 1, regarding the substantive issues of novelty and added subject-matter (cf. point 2.1.3 above). In view of this, the board considered it appropriate in the present circumstances also to address these substantive issues in the appeal proceedings. However, the board would be in a position to review the findings of the opposition division on novelty and added subject-matter only if auxiliary request 1 were to be taken into account in the appeal proceedings. Therefore, in these particular circumstances, the board, exercising its discretion under Article 12(4) RPBA, took into account auxiliary request 1.

2.2 Added subject-matter (Article 123(2) EPC)

2.2.1 The opposition division has shared the opponent's opinion that "a constant thickness" of the membrane in claim 2 was not unambiguously disclosed in the application as originally filed (Article 123(2) EPC). The figures showed the membrane only in a schematic cross-sectional view; so it was not clear beyond doubt that the membrane as a whole had a "constant thickness".

2.2.2 In the course of the oral proceedings before the board, the patent proprietor argued that a constant thickness of the membrane was not only disclosed in the figures, where a constant thickness of the membrane without a thicker centre portion was clearly disclosed, but also followed from original claim 16, where it was disclosed that the membrane had a substantially flat surface.

2.2.3 The opponent did not agree. First, the figures showed the membrane only in a cross-sectional view; so it was not possible to see whether different sections had a different thickness. Second, the original claim 16 stated that the membrane had a flat surface. This statement left open whether the other surface of the membrane was also flat. The end wall shown in figure 1 of document D8 also had one flat surface, but the wall did not have a constant thickness. Even if the membrane had flat surfaces on both sides, the membrane did not have a constant thickness when the surfaces were not parallel.

2.2.4 The board follows the opponent's line of argument and concludes that the amendments in claim 2 do not meet the requirements of Article 123(2) EPC.

3. Auxiliary request 2

3.1 Extension of the protection conferred by the patent (Article 123(3) EPC)

3.1.1 The opponent argued that, in the granted patent, independent method claim 19 contained the definition "*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". In present independent method claim 17 the first occurrence of the wording "said membrane means comprising at least one membrane having a transverse dimension substantially greater than its thickness" was deleted. The opponent insisted that this deletion resulted in an extension of the protection conferred by the patent. The repetition of the above-cited wording resulted in a method that had membrane means with two membranes as shown in figures 2 and 4. The amended claim 17 now required only at least one membrane, which extended the scope of protection. The claim therefore did not meet the requirements of Article 123(3) EPC and, in addition, the amendment was not caused by a ground for opposition, contrary to Rule 80 EPC. According to decision G 1/10 (OJ EPO 2013, 194) correction of the text of a patent was not to be allowed under Rule 140 EPC.

3.1.2 According to the patent proprietor, deletion of the repetition of the wording in method claim 17 did not violate Article 123(3) EPC. The person skilled in the art clearly understood from the wording of the claim, first paragraph, defining that a perimeter of a disk-like membrane means was affixed to a case, that only one disk-like membrane means was required. This portion of the claim further clearly described that said membrane means defined at least one end of the case. Given the clear definition of the membrane means in the first paragraph, the repetition in independent method claim 19 as originally granted would clearly not be

understood by a skilled person as implying the provision of two separate membrane means, but would rather be understood as an erroneous repetition. The patent proprietor further pointed out that the deletion of this passage was proposed by the board in its previous decision (cf. T 151/08, point 11 of the Reasons).

3.1.3 The board in its previous decision (cf. T 151/08) merely took note that the wording in question was repeated in granted independent claim 19 and suggested that one occurrence of that wording should perhaps be deleted. This is rather an obiter dictum than a finding of the board. The board therefore has to rule in the present decision whether the deletion of the wording is allowable.

The board agrees with the arguments provided by the patent proprietor. The deletion does not represent an amendment extending the scope of protection within the meaning of Article 123(3) EPC. By deleting the first occurrence of the wording in question no features are removed from the claim, and thus the claim does not extend the protection it confers. Already in granted claim 19 it is clearly defined that the membrane means merely comprises at least one membrane and not at least two membranes. The repetition of the identical definition in granted claim 19 does not add a feature to the claim. The deletion of the repeated wording is rather a correction of the claim wording under Rule 139 EPC. As pointed out in decision G 1/10, point 13 of the Reasons, "it is always open to a patent proprietor to seek to amend his patent during opposition or limitation proceedings and such an amendment could remove a perceived error". However, an amendment with the (sole) aim of removing a mistake or an error in the

claims, description and the drawings of the patent as granted cannot be said to be "occasioned by a ground for opposition under Article 100", as required by Rule 80 EPC. It follows that such mistakes or errors in the unamended part of the text in question may only be removed by way of a correction pursuant to Rule 139 EPC, and that rule and the specific requirements defined therein apply independently of Rule 80 EPC (cf. T 657/11, point 3.4 of the Reasons). The second sentence of Rule 139 EPC reads: "if the request for such correction concerns the description, claims or drawings, the correction must be obvious in the sense that it is immediately evident that nothing else would have been intended than what is offered as the correction". In its opinion G 3/89 (OJ EPO 1993, 117) and its decision G 11/91 (OJ EPO 1993, 125), the Enlarged Board concluded that the parts of a European application or patent relating to the disclosure (description, claims and drawings) could be corrected only within the limits of what the skilled person would derive directly and unambiguously, using common knowledge and seen objectively and relative to the date of filing, from the whole of these documents as originally filed. Such a correction was of a strictly declaratory nature and thus did not infringe the prohibition of extension under Article 123(2) EPC 1973 (cf. G 3/89, Conclusion, and G 11/91, Order). In the present case, the consecutive repetition of three lines of text defining the same feature twice with the same words makes it evident to the skilled reader that this repetition is erroneous. It is also evident to the skilled reader that this erroneous repetition can be remedied by deleting one occurrence of this text. Therefore, the correction is allowable.

3.2 Added subject-matter (Article 123(2) EPC)

3.2.1 The opponent argued that dependent claims 2 to 6 and 8 to 16 did not meet the requirements of Article 123(2) EPC, because they were now dependent on amended independent claim 1, which had the additional feature from original dependent claim 7, defining a permanently bowed surface of the membrane. The combination of features of the dependent claims and claim 1 therefore resulted in a combination that was not claimed in the original claims. These combinations were also not disclosed in the description (cf. grounds of appeal of the opponent, paragraph bridging pages 5 and 6). In the course of the oral proceedings before the board, the opponent further explained that the original application disclosed two distinct embodiments. One was shown in figure 2 as having soft and flexible membranes, the flexible membranes being elastically deformed by the flow tube. The other embodiment was shown in figures 10 and 11 and was originally claimed in dependent claim 7 and now in independent claim 1. This embodiment followed a different approach of compensating the difference in length of the flow tube. The membranes in figure 10 were extremely stiff, and as they were bowed outwardly and fixed to the tube they could not flex at all. In this embodiment the membrane's outward bowing varied with the temperature gradient in the membrane. This effect of the outward bowing of the membrane due to the temperature gradient was described with respect to figure 10 on pages 14 and 15 of the original description. When the flow tube became hotter than the case, the outward bowing was increased, and when the case also became hot and the temperature difference between the case and the tube decreased, the outward bowing was decreased. Thus, with a proper design, the membrane movement matched the flow tube expansion with respect to the case. In particular,

dependent claims 5 and 6 now defined that the membrane means in addition did flex, which was originally not disclosed. But the subject-matter of claims 10, 11, 13, 14 and 16 too was originally not disclosed in combination with the bowed surface of the membrane.

3.2.2 The patent proprietor replied that the combination of amended independent claim 1 with the dependent claims found support in the application as originally filed in accordance with the requirements of Article 123(2) EPC. The original application described the embodiment shown in figure 10 as disclosing a solution to the problem of the non-linear behaviour of the flat case end membrane of figure 9 in response to a thermal gradient. The difference of the solution shown in figure 10 from the flowmeters described in the remaining portion of the detailed description, in particular the flowmeter shown in figure 9, was described to be a permanently bowed membrane 1002 connected to walls 110 of flow tube 104. By using the reference numerals also used in the remaining figures, with the exception of the reference numeral relating to the membrane being modified in the embodiment of figure 10, the original description gave a clear and unambiguous teaching that the specific membrane means shown and described with reference to figure 10 could equally be used in combination with any of the features described in the remaining portion of the application, in order to provide a solution to the problem discussed with reference to figure 9 in lines 11 to 17 on page 14 of the original application. This was further clear from the description of additional figure 11, which showed a corresponding solution for the situation where a pair of membranes was used. From this teaching, a skilled person would clearly take the disclosure that all remaining embodiments and features described as being in accordance with the invention in

the original application may be combined with the specific embodiment using permanently bowed membranes (cf. patent proprietor's letter dated 30 August 2013, page 3, 3rd and 4th paragraphs). In the course of the oral proceedings before the board, the patent proprietor confirmed that the bowing of the membranes was also due to temperature gradients in the membranes between tube and case. But this effect was not disclosed as an isolated embodiment, and nowhere in the application was it disclosed that the membrane was stiff. From the original description, page 11, lines 27 to 28, and page 12, line 28, it was apparent that the expressions "bow" and "flex" were used as synonyms. The first lines of page 15 referred to an optimum amount of initial bow which caused the central portion of the membrane to displace by the same amount as the flow tube, but under realistic conditions the displacement of the membrane due to the temperature gradient was just an extra effect. The fact that the membrane means had the dimensions and the compliance sufficient to enable said flow tube means to increase or decrease was already in the original claim 1 and thus also in dependent claim 7. Therefore the combination of present claim 1 with dependent claims 5 and 6 did not add any new information.

3.2.3 The board shares the view of the patent proprietor. The fact that the membrane means has a permanently bowed surface oriented with its convex side outwardly from the case along a longitudinal axis of the flow tube means is not in contradiction to the compliance of the membrane. The outwardly bowed membrane solves the problem described with respect to figure 9. From the original description it is evident that the outwardly bowed membranes can still be combined with the other features of the flowmeter described in relation to

initially non-bowed membranes. Therefore, dependent claims 2 to 4 and 6 to 16 do not add subject-matter which extends beyond the content of the application as filed. However, the board does not see that the subject-matter of dependent claim 5 is disclosed in the original application documents defining membrane means with an axial compliance sufficient to enable it to flex axially inward with respect to said case. This feature was claimed and described in the original application with an initially straight membrane (cf. page 11, lines 27 to 30). The membrane in relation with figure 10 is described as being permanently bowed outwardly to a greater or lesser extent with respect to the case (cf. page 14, lines 23 to 29). The definition that a permanently outward bowed membrane is enabled to flex inwardly with respect to the case is not originally disclosed. The subject-matter of claim 5 therefore does not meet the requirements of Article 123(2) EPC.

4. Auxiliary request 3

4.1 Added subject-matter (Article 123(2) EPC)

The claims of auxiliary request 3 correspond to the claims of auxiliary request 2, but with dependent claim 5 deleted and claims 6 to 17 renumbered as claims 5 to 16.

The opponent raised the same objections under Article 123(2) EPC as it raised against auxiliary request 2. The board is of the opinion that only claim 5 depending on claim 1 of auxiliary request 2 does not meet the requirements of Article 123(2) EPC (cf. point 3.2.3 above). However, the claims of auxiliary request 3 no

longer include dependent claim 5 of auxiliary request 2.

In the board's judgment, therefore, the claims of auxiliary request 3 meet the requirements of Article 123(2).

4.2 Insufficient disclosure of the invention (Articles 100(b) and 83 EPC 1973)

4.2.1 The opponent raised an insufficiency of disclosure objection with respect to independent claim 16 and referred to its written submissions for claim 17 of auxiliary request 2 (cf. page 8 of the grounds of appeal), which likewise applied to independent method claim 16 of the present request. It was insufficiently disclosed how the sequence of steps defined in claim 16 could be performed. The method of claim 16 did not disclose how the elements could be put together. It was impossible to fix the membrane means at the ends of the case and then to position the flow tube means (together with the driver means and the sensor means) in the case.

4.2.2 The patent proprietor also referred to its corresponding written submissions (cf. patent proprietor's letter dated 30 August 2013, point 2.4). The patent proprietor saw no specific order of method steps in independent claim 16. The definition of "said flow tube means being affixed to the membrane means" did not imply any order and thus did not define whether this second affixing step had to be performed before or after the first step of affixing the perimeter of the disc-like membrane means to the case.

4.2.3 The board does not recognise a particular order in the method steps of claim 16 and concludes that the subject-matter of claim 16 is disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

4.3 Novelty and inventive step (Articles 54(1) and 56 EPC 1973)

4.3.1 In the contested decision, the opposition division reasoned its finding regarding the independent claims of auxiliary request 2 then on file as follows:

"*The subject-matter of the independent claims according to the second auxiliary request differs from what is known from document D8 in that the membrane means is required to have a permanently bowed surface oriented with its convex side outward from said case along a longitudinal axis of said flow tube means.*
Said difference addresses the problem of eliminating unpredictable and non linear behavior in set-ups like that of figure 9 as detailed in paragraph [0042] of the specification. Since the provision of such a permanently outwardly bowed membrane means is neither known from, nor rendered obvious by the available prior art documents on file, the independent claims of the second auxiliary request fulfill the requirements of Articles 52(1), 54 and 56 EPC as to novelty and inventive step." (cf. point 19 of the Reasons).

4.3.2 Independent claims 1 and 16 of auxiliary request 3 are identical to independent claims 1 and 17 of auxiliary request 2. In the course of the appeal proceedings, the opponent did not raise any objections as to lack of novelty or lack of inventive step for the subject-matter of the independent claims of auxiliary request 2

or auxiliary request 3. The board also cannot identify any reason why it should deviate from the findings of the opposition division. None of the available prior-art documents suggests having a flowmeter comprising membrane means with a permanently bowed surface oriented with its convex side outward from the case along a longitudinal axis of the flow tube means. The board therefore agrees with the opposition division that the subject-matter of the independent claims is novel and involves an inventive step.

4.3.3 Claims 2 to 15 are dependent on claim 1 and, therefore, their subject-matter is also novel and involves an inventive step.

4.4 Description

The adapted description was approved by the opposition division for auxiliary request 2 then on file. In the appeal proceedings, the opponent did not raise any objections regarding the adapted description. The board is of the opinion that the description meets the requirements of the EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent in amended form on the basis of the following documents:

Claims: Nos. 1 to 16 of auxiliary request 3 filed with letter dated 13 September 2016;

Description: Pages 2 to 8 of auxiliary request 2 filed at the oral proceedings of 19 October 2012; and

Drawings: Figures 1 to 11 of the patent specification.

The Registrar: The Chairman:

M. Kiehl R. Bekkering

Decision electronically authenticated