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Datasheet for the decision of 4 February 2015

Case Number: T 2441/12 - 3.3.06

Application Number: 02770090.5

Publication Number: 1438129

IPC: B01J19/30, B01D47/14, B01D53/18

Language of the proceedings: EN

Title of invention:
PACKING ELEMENT

Applicant:
Fluid Technologies (Environmental) Limited

Headword:
Recessed packing element/ FLUID TECHNOLOGIES

Relevant legal provisions:
EPC Art. 84, 123(2)
RPBA Art. 13

Keyword:
Late-filed request - admitted (yes) - (Main Request)
Late-filed auxiliary requests - admitted (yes) - (1st and 2nd Auxiliary Requests)
Claims - clarity - main request (no)
Amendments - added subject-matter (yes) - (1st and 2nd Auxiliary Requests)

Decisions cited:

Catchword:

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Case Number: T 2441/12 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 4 February 2015

Appellant: (Applicant)	Fluid Technologies (Environmental) Limited 50 Old London Road Kingston upon Thames Surrey KT2 6QF (GB)
Representative:	Butler, Lance Barker Brettell LLP First Floor, Atrium Court 15-17 Jockey's Fields London WC1R 4QR (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 9 July 2012 refusing European patent application No. 02770090.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	G. Santavicca
Members:	P. Ammendola
	U. Lokys

Summary of Facts and Submissions

I. This appeal lies from the decision of the Examining Division to refuse European patent application 02770090.5, *inter alia*, because none of the alternative set of claims then on file was found to comply with the requirements of Article 84 EPC.

II. With the statement of grounds of appeal the Applicant (below Appellant) disputed these findings and submitted several sets of claims as Main and Auxiliary Requests.

III. In a communication annexed to the summons to oral proceedings to be held on 4 February 2015, the Board *inter alia* expressed ist preliminary opinion that none of the versions of claim 1 on file appeared to be clear.

IV. With a letter of 5 January 2015 the Appellant *inter alia* filed an amended version of page 2 of the description.

V. In response to a further communication of the Board sent by Facsimile On 29 January 2015, the Appellant filed a further set of claims (letter of 2 February 2015).

VI. At the oral proceedings held on 4 February 2015 the Appellant replaced all previously filed sets of claims by three sets of claims labelled, respectively, Main Request and 1st and 2nd Auxiliary Requests, whereby the (final) Main Request was identical to the set of claims already filed with letter of 2 February 2015.

The Appellant **requested** that the decision under appeal be set aside and that a patent be granted on the basis

of the claims according to the Main Request submitted during oral proceedings or, alternatively the claims according to the 1st or 2nd Auxiliary Requests submitted during oral proceedings and the annexed version of page 2 of the description filed with letter of 5 January 2015 and pages 1 and 3 to 8 and figure pages 1/4 to 4/4 as originally filed.

VII. Claim 1 of the **Main Request** reads:

> " *1. A packing element (1, 11) for use in a fluidised bed in which a gas stream and a liquid stream pass counter-current to each other, the packing element (1, 11) being of substantially ellipsoidal shape with a continuous surface, characterised in that the packing element has at least one recess (3, 13, 14) having a dish shape forming a lower envelope, with a volume, measured relative to an equivalent ellipsoid with an upper envelope of the same shape as the lower envelope, which is in the range 0.2 to 30% of the displacement volume of the packing element (1, 11) itself.*"

Hereinafter the passage in this claim reading:

> "*a volume, measured relative to an equivalent ellipsoid with an upper envelope of the same shape as the lower envelope*"

is (also) referred to as **the 1st volume definition**.

Claim 1 according to the **1st Auxiliary Request** differs from Claim 1 according to the Main Request only in the

two following amended passages (the amendments have been made apparent):

"*substantially ellipsoidal shape* ***having an ellipsoidal basic outline shape*** *with a continuous surface*"

and

"*to ~~an equivalent ellipsoid~~* ***the basic outline shape*** *with*".

Claim 1 according to the **2nd Auxiliary Request** differs from Claim 1 according to the 1st Auxiliary Request only in the appended wording

"***, wherein the ellipsoidal outline shape is selected from egg-shaped, ovoidal or acorn-shaped.".***

Hereinafter the wording (present in each version of claim 1 according to the 1st and 2nd Auxiliary Requests) reading:

"*a volume, measured relative to the basic outline shape with an upper envelope of the same shape as the lower envelope*"

is (also) referred to as **the 2nd volume definition.**

VIII. The Appellant's arguments of relevance for the present decision can be summarized as follows.

The Appellant did not provide any counter argument against the objection of lack clarity (Article 84 EPC) raised by the Board at the oral proceedings that the

1st volume definition given in claim 1 of the **Main Request** (because of its ambiguous wording) allowed for at least two substantially distinct but equally plausible constructions. It merely reacted thereto by filing the sets of claims of the 1st and 2nd Auxiliary Requests.

As to the compliance with Article 123(2) EPC of the 2nd volume definition, present in claim 1 of the **1st Auxiliary Request** as well as in claim 1 of the **2nd Auxiliary Request**, the Appellant argued that:

i) In both versions of claim 1 at issue the claimed **p**acking **e**lements carrying at least one **recess** (below **recessed PEs**) had been clearly limited to those preferred embodiments of the originally disclosed invention (reference was in particular made to lines 23 to 29 of page 3 of the original description) that had - in the sense that they corresponded to - an hypothetical **b**asic **o**utline **shape** (below **BO shape**) that was "*ellipsoidal*".

ii) The whole patent disclosure (reference was in particular made to line 1 of page 4 to line 5 of page 5) also disclosed that in the context of the present invention the recess(es) volume was that of the depression(s) to be (e.g. hypothetically) formed in the BO shape in order to arrive at the actual recessed PEs.

iii) A skilled reader of the application as filed, taking into account the above disclosure, considered implicitly disclosed in Figure 1 and its description on page 6 of the specification, those preferred PEs of the invention which had an ellipsoidal BO shape and wherein the dish-shaped concave surface(s) (i.e. the "*lower envelope*"(s)) of the recess(es) mirroring the missing

convex surface(s) of the ellipsoidal BO shape (i.e. the "*upper* envelope"): in other words, the original application implicitly disclosed preferred embodiments of the PEs of the invention in which the corresponding ellipsoidal BO shape was manifestly identical to the "*equivalent ellipsoid*" as defined with reference of Figure 1 (i.e. "*with an upper envelope of the same shape as the lower envelope*").

Since the 2nd volume definition was based on an implicit disclosure already provided in the application as filed, it was allowable in view of Article 123(2) EPC.

Reasons for the Decision

Admissibility of the Main Request and of the 1st and 2nd Auxiliary Requests

1. The sets of claims according to the Main Request, 1st and 2nd Auxiliary Requests have been filed either immediately before (the set of claims of Main Request is identical to that filed with letter of 2 February 2015) or during the oral proceedings, so that their consideration is left to the Board's discretion (Article 13 RPBA). Since they were manifestly filed in reaction to objections raised by the Board in the communication sent by Facsimile on 29 January 2015 or at the beginning of the oral proceedings, i.e. they were occasioned by developments during the proceedings and did not constitute an abuse of procedure, nor did they extend the scope of discussion, but were genuine attempts to overcome all of the objections raised, the Main Request and the 1st

and 2nd Auxiliary Requests have been admitted into the appeal proceedings, despite their late filing.

Main Request

2. As the set of claims of this request was only discussed at the hearing in view of the clarity of claim 1, and since already in view of this discussion the Board has come to the conclusion that the Main Request was not allowable (see below), it has not been necessary for the Board to further investigate if this set of claims also complied with Article 123(2) EPC.

3. Clarity (Article 84 EPC) - Claim 1

3.1 This claim (see VIII *supra*) defines a substantially ellipsoidal recessed PE wherein the recess has *"a dish shape forming a lower envelope*" and "*a volume, measured relative to an equivalent ellipsoid with an upper envelope of the same shape as the lower envelope*" (1st volume definition) which must be from 0.2 to 30% of the displacement volume of the packing element itself (i.e. the substantially ellipsoidal recessed PE itself).

3.2 The Board preliminarily notes that the 1st volume definition attempts to use the original wording (on page 6, lines 14 to 17, of the application as originally filed) describing the embodiment of the invention depicted in Figure 1, in order to arrive at a clear definition of an essential feature of the invention (i.e. the recess volume that all versions of Claim 1 on file require to be from 0.2 to 30% of the displacement volume of the recessed PE itself).

3.2.1 The Board also notes that the dish-shaped surface actually present on the convex surface of the

substantially ellipsoidal recessed PEs according to Claim 1 of the Main Request, is just a concave open surface. Hence, it is possible to associate a volume to the recess only after having also identified which hypothetical further (complementary) surface may be considered to delimit (in combination with the dish-shaped surface actually present on the recessed PE) the portion of space associated to the recess. Hereinafter this hypothetical surface is also referred to as **the missing recess-volume boundaries**.

3.2.2 It is still preliminarily noted that the specification of the original application, after making repeated reference to the BO shape associated to the recessed PEs of the invention, provides a general definition of the recess volume (see the sentence bridging pages 4 and 5 of the originally filed description, reading: "*The term "volume" as used herein ..... in relation to the recess(es) per se is the total volume of the respective depression(s) compared with the shape the element would have without the depression(s).*"). However, this general definition is manifestly unclear (at least in the general context of all the possible variants of the recessed PEs and their possible BO shapes embraced by the general disclosure of the original application) because it is not supplemented with any explicit or implicit generally applicable instruction which would allow to univocally identify the shape of the hypothetical PE "*without the depression(s)*" (i.e. the BO shape), to be associated to each possible recessed PE of the invention. Indeed, any recessed PE appears hypothetically obtainable by forming different depressions onto different (but nevertheless equally plausible) BO shapes and, thus, the above general definition results in possibly

associating several different recess(es) volumes to each recessed PE of the invention.

3.2.3 It is also useful to stress that some of the words in the 1st volume definition (substantially identical to the description of Figure 1 at page 6, lines 14 to 17, see Point 3.2 *supra*) are understood by the skilled reader of Claim 1 at issue to have the following meanings:

- the term "*lower envelope*" indicates the (concave) dish-shaped surface actually observable on the recessed PE,

and

- the wording "*an upper envelope of the same shape of the lower envelope*" indicates an hypothetical convex surface (the mirror image of the "*lower envelope*") that, when added to the recessed PE in replacement of the "*lower envelope*" (i.e. the result of overturning the lower envelope to make it an upper envelope), generates an hypothetical shape (without any recess), i.e. the "*equivalent ellipsoid*".

3.2.4 Hence, the 1st volume definition that the Appellant has introduced in Claim 1 at issue is substantially different from the (ambiguous) general definition (Point 3.2.2 *supra*), already because the former requires the recess volume to be "*measured relative to the equivalent ellipsoid*".

3.3 However, also the 1st volume definition remains ambiguous, because it still allows for different recess volumes to be associated to the same recessed PE.

3.3.1 Indeed, no feature of claim 1 appears to explicitly or implicitly define the "*upper envelope*" as necessarily coinciding with the missing recess-volume boundaries. It is of particular relevance that the wording "*measured relative" (*to the equivalent ellipsoid) as used in the 1st volume definition (but also as used in the context of the description of the invention's embodiment depicted in Figure 1, description that does not allow to infer any further details as to how the actual volume measurement has been carried out in that example) is vague, indefinite.

3.3.2 Accordingly, it is apparent to the Board, and undisputed by the Appellant, that the 1st volume definition (even when considered just in view of the particular embodiment depicted in Figure 1) still allows for **at least two** technically plausible but nevertheless totally distinct meanings. Indeed, it may reasonably be assumed:

a) either that the hypothetical BO shape (which also comprises the missing recess-volume boundaries which define the recess volume) coincides with the "*equivalent ellipsoid*" and, thus, the "*upper envelope*" represents the missing recess-volume boundaries (with the obvious consequence that the volume of the recess is the **total difference** between the displacement volume of the "*equivalent ellipsoid*" and the displacement volume of the claimed recessed PE, whatever axis of the solid is considered on which the recess is formed),

b) or that the hypothetical BO shape, although different from the "*equivalent ellipsoid*", is

nevertheless in some measurable relation with this latter: this occurs at least when considering the plausible option for the relevant BO shape only differing from the shape of the recessed PE in that an hypothetical flat (planar) surface is present instead of the recess (i.e. a BO shape as that obtainable when filling to the edge the dish-shaped recess e.g. by a liquid). Also in such a case the volume of the recess can be "*measured relative*" to the "*equivalent ellipsoid*" as required in the 1st volume definition, e.g. by **dividing by two the total difference** between the displacement volume of the "*equivalent ellipsoid*" and the displacement volume of the claimed recessed PE (in other words, in this case the measured recess volume can be a particular fraction (half) of the recess volume determined according to the construction of the 1st volume definition considered in "a)" above).

3.3.3 The Board considers it appropriate to additionally stress that the plausibility of construction "b)" is even more evident when considering that:

- The requirement in claim 1 that the recessed PEs must be "*substantially ellipsoidal*" certainly does not exclude the possibility that these PEs might e.g. be formed by generating a (dish-shaped) depression in a OB shape comprising a flat portion,

- The construction "b)" is manifestly consistent with the general vague definition (see 3.2.2 *supra*) in the description of the patent application.

- This interpretation corresponds to attributing to the recess volume the same meaning that the Appellant

itself has explicitly alleged (e.g. in the statement of grounds of appeal, in the third paragraph on page 1) to be the "fill" volume normally associated to concave surfaces (that are e.g. apt at capturing a liquid, as e.g. the recesses in the present invention).

3.3.4 The above considerations are sufficient for concluding that the 1st volume definition is ambiguous, at least in the sense that it can plausibly be construed in one or the other of the two interpretations discussed above. Thus, it provides an unclear definition of the corresponding essential feature of the claimed recessed PEs, with the consequence that legal certainty on the extent of protection sought-for by the claimed subject-matter cannot be established unambiguously, whereby legal certainty is the principle underlying the requirement of clarity under Article 84 EPC.

3.4 If only for this reason, the Board concludes that claim 1 of the Main Request does not comply with article 84 EPC.

3.5 Thus, the Main Request cannot be allowed.

1st Auxiliary Request

4. Added subject-matter (Article 123(2) EPC) - Claim 1

4.1 The claim at issue (see VIII *supra*) comprises, *inter alia*, the 2nd volume definition, for which there is no literal correspondence in the application as originally filed.

4.2 The Appellant has argued (see IX *supra*) that a skilled person, who considered Figure 1 in combination with its description at page 6 and the remainder disclosure in

the original application (e.g. from page 3, line 23 to page 5, line 5), would become aware of the preferred embodiments of the invention with an ellipsoidal BO shape, in which the recess(es) were dish-shaped and mirrored the missing portion(s) of the ellipsoidal BO shape, i.e. of the preferred recessed PEs for which the **same definition** originally given for the "***equivalent ellipsoid***" (i.e. "*with an upper envelope of the same shape as the lower envelope*") also identified **the ellipsoidal BO shape**. Hence, the original application disclosed the 2nd volume definition.

4.3 The Board notes however that even if one assumes, for the sake of an argument in favour the Appellant, that the skilled reader of the whole application:

- aware of the general definition (see 3.2.2 *supra*) that the recess(es) volume was that of the depression(s) to be (hypothetically) formed in the (hypothetical) BO shape in order to arrive at the actual recessed PEs;

- construing, as also implied by the Appellant's line of reasoning, the wording "*lower envelope*" and "*upper envelope having the same shape as the lower envelope*" originally disclosed the passage at lines 14 to 17 of page 6 (identically present in the 1st volume definition) as discussed above at 3.2.3;

and

- considering evident from Figure 1 that in the recessed PE depicted therein the (hypothetical) "*equivalent ellipsoid*" formed by the (hypothetical) "*upper envelope*" mirroring the

"*lower envelope*" of the recess, manifestly appeared to **coincide** with the **most regular** ellipsoidal shape from which the depicted recessed PE appears possibly obtainable;

can reasonably conclude that **in the specific recessed PEs depicted in Figure 1** this (hypothetical) most regular ellipsoidal shape is the (sole) ellipsoidal shape that could reasonably be equated to the relevant (ellipsoidal) OB shape (which allows to identify the recess volume).

In other words, the Board finds that the skilled reader of the whole application may consider implicitly disclosed that in the preferred recessed PEs exemplified in Figure 1, the OB shape coincides with the "*equivalent ellipsoid*".

4.3.1 The Board notes however that the recessed PE depicted in Figure 1 represents a very special embodiment of the invention, in which the shaped recess having a particular shallowness is centered on one end of the longest axis of the recessed PE. In particular, at least the symmetrical orientation of the dish-shaped recess / "*lower envelope*" (and possibly also its dimensions relative to the dimensions of the PE) contribute **substantially** to the possibility for a skilled person to immediately perceive the coincidence between the most regular OB shape and the "*equivalent ellipsoid*" and, thus, to arrive at the the above conclusion as to the implicitly disclosed coincidence between the ellipsoidal BO shape and the "*equivalent ellipsoid*".

Hence, the above identified contents of the original disclosure only support a definition of the OB shape as

given in the 2nd volume definition **in the context** of the other relevant features (such as the orientation and possibly the relative dimensions of the recess) present in the preferred recessed PEs exemplified in Figure 1.

It is apparent that instead claim 1 does not express these other relevant features (e.g. the position on the longest axis, the appropriate shallowness, etc.).

4.3.2 The fact that the original disclosure does **not** even indirectly suggest, let aside disclose, any other embodiments of the invention in which the ellipsoidal BO coincided the "*equivalent ellipsoid*", is also apparent when considering that:

- no passage in the original application referring in general to the BO shapes associated to the recessed PEs of the invention, provides any direct or implicit reference to the possibility that the missing portion of the hypothetical BO shape in correspondence to a dish-shaped recess, might be the mirror image of the recess concave surface (i.e. the "*lower envelope*");

- no passage of the description as originally filed, directly or indirectly referring to the possibility of producing the recessed PEs of the invention by forming a depression/indentation in a previously formed PE with the basic shape (see e.g. page 4, lines 16 to 18), provides any explicit or implicit reference to the possibility that such formed depression/indentation should be made so as to mirror the portion of basic shape (i.e. the "*upper envelope*"), which disappears during the depression/indentation forming step;

- in Figure 2 (certainly) the dish-shaped recess 14 (but possibly also the dish-shaped recess 13) is such that (when capsizing the lower envelope) its mirror "*upper envelope*" does not appear to produce the most regular (hypothetical) ellipsoidal shape that a skilled person would consider associated to the depicted recessed PS, but rather manifestly results in a "bump" along such most regular (hypothetical) ellipsoidal shape.

4.3.3 Accordingly, the application as filed does not at least implicitly disclose that (at least) in the recessed PEs of the invention having at least one dish-shaped recess and an ellipsoidal BO shape, it is preferable **in general** that this latter coincides with the "*equivalent ellipsoid*" obtainable by mirroring outwardly the recess's dish-shaped surface. Hence, the description of the ellipsoidal BO shape in the 2nd volume definition finds no direct and unambiguous basis in the application as originally filed, with the consequence that the subject-matter of claim 1 does not comply with Article 123(2) EPC.

4.4 The Board thus concludes that, since claim 1 of the 1st Auxiliary Request does not comply with article 123(2) EPC, also this request cannot be allowed.

2nd Auxiliary Request

5. Added subject-matter (Article 123(2) EPC) - Claim 1

Since also Claim 1 of the 2nd Auxiliary Request (see VIII *supra*) *inter alia* comprises the 2nd volume definition, also Claim 1 of the 2nd Auxiliary Request does not comply with article 123(2) EPC (for the same

reasons indicated above for Claim 1 of the 1st Auxiliary Request). Thus, also this last claim request of the Appellant cannot be allowed.

Order

For these reasons it is decided that:

The appeal is dismissed

The Registrar: The Chairman:

D. Magliano G. Santavicca

Decision electronically authenticated