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**Datasheet for the decision  
of 10 January 2022**

**Case Number:** T 2861/19 - 3.2.07

**Application Number:** 09798210.2

**Publication Number:** 2326428

**IPC:** B04B5/12, B01D45/14

**Language of the proceedings:** EN

**Title of invention:**  
CENTRIFUGAL SEPARATOR

**Patent Proprietor:**  
Alfa Laval Corporate AB

**Opponent:**  
REINZ-Dichtungs-GmbH (opposition withdrawn)

**Headword:**

**Relevant legal provisions:**  
EPC Art. 100(a), 54, 56, 84, 113, 116, 123(2), 123(3)  
RPBA 2020 Art. 12(2), 12(8), 15(8), 24, 25(1)

**Keyword:**

Novelty - main request (no)

Inventive step - auxiliary request 1 (yes) - ex post facto analysis

**Decisions cited:**

T 1365/15

**Catchword:**



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Case Number: T 2861/19 - 3.2.07

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.07**  
**of 10 January 2022**

**Appellant:** Alfa Laval Corporate AB  
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**Representative:** Alfa Laval Attorneys  
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**Respondent:** REINZ-Dichtungs-GmbH  
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**Representative:** Pfenning, Meinig & Partner mbB  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
13 August 2019 concerning maintenance of the  
European Patent No. 2326428 in amended form.**

**Composition of the Board:**

**Chairman** I. Beckedorf  
**Members:** A. Cano Palmero  
A. Pieracci

## **Summary of Facts and Submissions**

- I. The patent proprietor (appellant) lodged an appeal in the prescribed form and within the prescribed time limit against the decision of the opposition division to maintain European patent No. 2 326 428 in amended form on the basis of auxiliary request 3.
- II. In its decision, the opposition division essentially held
- (a) that the main request does not meet the requirements of Article 54 EPC (ground for opposition pursuant to Article 100(a) EPC),
  - (b) that auxiliary request 1 meets the requirements of Articles 123(2), 123(3), 84 and 54 EPC but does not meet the requirements of Article 56 EPC,
  - (c) that auxiliary request 2 meets the requirements of Articles 123(2), 123(3) and 54 EPC but does not meet the requirements of Article 56 EPC, and
  - (d) the auxiliary request 3 meets the requirements of the EPC.
- III. The appellant initially requested
- that the decision be set aside and
  - that the patent be maintained as granted (main request),
  - or, in the alternative,
  - that the patent be maintained in amended version according to one of the sets of claims filed as auxiliary requests 1 and 2 with the statement setting out the grounds of appeal.

- IV. The opponent withdrew the opposition with letter dated 27 February 2020.
- V. In a communication pursuant to Rule 100(2) EPC dated 14 October 2020, the Board informed the appellant that the examination of the appeal by the rapporteur had led to the preliminary conclusions,
- (a) that the findings of the opposition division in the contested decision as regards lack of novelty of the subject-matter of independent claim 1 of the **main request** would not seem to be incorrect, but
  - (b) that the findings of the opposition division and reasoning of the contested decision with respect of lack of inventive step of the the subject-matter of claim 1 according to **auxiliary request 1** would not seem to withstand a revision under appeal. Auxiliary request 1 would thus seem to meet the requirements of the EPC
- VI. With letter dated 27 October 2020, the appellant amended the auxiliary request for oral proceedings to become effective only if neither the main request nor the auxiliary request 1 filed with the statement of grounds of appeal is allowed.
- VII. The lines of argument of the appellant are dealt with in detail in the reasons for the decision.
- VIII. Independent **claim 1 of the main request** (patent as granted) reads:
- "A centrifugal separator for cleaning of gas from solid or liquid particles suspended therein which are of

greater density than the gas, which centrifugal separator comprises

- a rotor housing (1) which delimits a separation chamber (2) and has a gas inlet (3) to the separation chamber (2) and a gas outlet (4) from the separation chamber (2),

- a rotor (8) which by means of a driving device (9) is rotatable around a rotational axis (R) and adapted, during operation, to bring the gas into rotation in the separation chamber (2), wherein the rotor (8) comprises a stack of frustoconical separation discs (22) which are disposed coaxially with one another and concentrically with the rotational axis (R) and which by means of spacing elements (26, 30) are arranged at mutual spacing such that they delimit between them interspaces (27) for gas to flow through,

- an inlet space (25) arranged centrally in the stack of separation discs (22), which inlet space communicates with the gas inlet (3) and with a radially inner part of the interspaces (27) between the separation discs (22), and

- an annular flow space (28) which surrounds the rotor (8) and is delimited radially by the rotor housing (1), which annular flow space communicates with a radially outer part of the interspaces (27) between the separation discs (22) and with the gas outlet (4), characterized in that

- the interspaces (27) between the separation discs (22) at least at their radially outer part are open for flow of the gas in the circumferential direction, and that mutually adjacent separation discs (22) are

arranged at mutual spacing such that rotation of the rotor (8) causes in the interspaces (27) a pumping action which drives the gas from the gas inlet (3), through the interspaces (27) between the separation discs (22) and out via the gas outlet (4) and wherein the separation discs have a plurality of spot-formed spacing elements (26), which are arranged in said interspaces (27)."

IX. Independent **claim 1 of auxiliary request 1** reads:

"A centrifugal separator for cleaning of gas from solid or liquid particles suspended therein which are of greater density than the gas, which centrifugal separator comprises

- a rotor housing (1) which delimits a separation chamber (2) and has a gas inlet (3) to the separation chamber (2) and a gas outlet (4) from the separation chamber (2),

- a rotor (8) which by means of a driving device (9) is rotatable around a rotational axis (R) and adapted, during operation, to bring the gas into rotation in the separation chamber (2), wherein the rotor (8) comprises a stack of frustoconical separation discs (22) which are disposed coaxially with one another and concentrically with the rotational axis (R) and which by means of spacing elements (26, 30) are arranged at mutual spacing such that they delimit between them interspaces (27) for gas to flow through,

- an inlet space (25) arranged centrally in the stack of separation discs (22), which inlet space communicates with the gas inlet (3) and with a radially

inner part of the interspaces (27) between the separation discs (22), and

- an annular flow space (28) which surrounds the rotor (8) and is delimited radially by the rotor housing (1), which annular flow space communicates with a radially outer part of the interspaces (27) between the separation discs (22) and with the gas outlet (4),

characterized in that

- the interspaces (27) between the separation discs (22) at least at their radially outer part are open for flow of the gas in the circumferential direction, and that mutually adjacent separation discs (22) are arranged at mutual spacing such that rotation of the rotor (8) causes in the interspaces (27) a pumping action which drives the gas from the gas inlet (3), through the interspaces (27) between the separation discs (22) and out via the gas outlet (4) and wherein the separation discs have a plurality of spot-formed spacing elements (26), 5 which are arranged in said interspaces (27), and wherein a height of the interspaces (27) is of the order of 0.2 - 0.6 mm."

X. Since the present decision is taken on the basis of the main request and auxiliary request 1, there is no need to reproduce auxiliary requests 2 and 3.



## **Reasons for the Decision**

1. *Transitional provisions - Revised Rules of Procedure of the Boards of Appeal (RPBA 2020)*

The appeal proceedings are governed by the revised version of the Rules of Procedure which came into effect on 1 January 2020 (Articles 24 and 25(1) RPBA 2020) with the exceptions provided for in Article 25(2) and (3) RPBA 2020.

2. *Procedural matters*

- 2.1 Withdrawal of the opposition

- 2.1.1 Since the opponent withdrew the opposition, it ceased to be a party to the appeal proceedings and all its requests (mainly the revocation of the patent) became obsolete. The appellant on the other hand remained the sole party to the present proceedings and its final requests are the only valid remaining requests in the present appeal proceedings (see Case Law of the Boards of Appeal [CLB], 9th edition 2019, III.Q.3.3, with further references).

- 2.1.2 As a further consequence of the withdrawal of the opposition, the scope of the appeal proceedings is limited to a substantive review of the opposition division's decision pursuant to Article 12(2) RPBA 2020. The Board's examination can include the examination of arguments and evidence submitted by the former respondent prior to the withdrawal of the opposition (see decision T 1635/15 of the same Board in different composition and CLB, *supra*, III.Q.3.3, with further references).

- 2.2 Decision in writing (Article 12(8) RPBA 2020)
  - 2.2.1 The case is ready for decision which is taken in written proceedings without holding oral proceedings in accordance with Article 12(8) RPBA 2020 and with Articles 113 and 116 EPC.
  - 2.2.2 The principle of the right to be heard pursuant to Article 113(1) EPC is observed because the appellant's submissions are fully taken into account. After having been informed by the Board in its communication pursuant to Rule 100(2) EPC that the appeal appeared to unallowable in respect of the main request because the opposition division's reasoned finding of lack of novelty of the claimed subject-matter of the patent as granted over the disclosure of D3 (**WO 02/20954 A1**) were not incorrect, but allowable with regard to auxiliary request 1 because the opposition division's finding of lack of inventive step of the claimed subject-matter of auxiliary request 1 did not withstand a revision under appeal, the appellant did not file a response submitting arguments on the merits. Rather the appellant stated that it expected a final decision by the Board setting aside the decision under appeal and ordering the maintenance of the patent in amended form on the basis of auxiliary request 1 (see letter dated 27 October 2020, page 2, "conclusions").
  - 2.2.3 The appellant's request for oral proceedings pursuant to Article 116(1) EPC is auxiliary to its request that the decision under appeal be set aside and that a patent be granted on the basis of either the main request or the auxiliary request 1.

2.2.4 Thus, since the second alternative of the appellant's aforementioned request is followed by the Board, the auxiliary request for oral proceedings remains procedurally inactive.

3. *Main request - Patent as granted. Novelty, Articles 100(a) and 54 EPC*

3.1 The appellant argues that the subject-matter of claim 1 as granted is new over the disclosure of document D3 (**WO 02/20954 A1**). In particular, the appellant is of the view that since the (first embodiment of the) device of D3 is devised for counter-current separation and the compressor 15 has to draw air through the disc stack, the skilled person understands that the flow resistance through the disc stack has to be as low as possible. That is, the interspaces between the discs have to be of comparatively large height, therefore the discs 9 of the separator of D3 must necessarily be provided with elongated spacing members extending in a generally radial direction of the discs, so that spot-formed spacing element in the sense of claim 1 as granted are not possible. According to the appellant, since the only modification in the second embodiment of first paragraph on page 8 of D3 is the omission of the compressor, the spacing members must still be elongated. Due to the necessary provision of these elongated distance members between the discs 9, the interspaces 10 cannot be open for flow of gas in the circumferential direction as required by the the subject-matter of claim 1 as granted, which is therefore new over D3.

3.2 The Board cannot share this view. Indeed, as correctly put forward by the opposition division in point 3.3 of the reasons of the decision under appeal, D3 clearly

discloses on page 8, lines 18-22, that the spacing elements 18 between the separation discs 9 can be spot-formed for both embodiments of the separator. This passage is in the Board's view a clear disclosure of the spot-formed separators in the sense of claim 1 as granted. The Board additionally agrees with the opposition division that the provision of elongated space members in D3 is presented as an alternative embodiment, so that the argument of the appellant that all embodiments of the separator must be provided with such elongated spacing members is a mere allegation which is not convincing for the Board. Document D3 therefore discloses at least one embodiment with spot-formed separators between the discs with the interspaces between those separation discs being open for flow of the gas in the circumferential direction at least at their radially outer part.

3.3 The appellant does not seem to dispute that rest of the features of claim 1 are disclosed by D3. The Board is of the view that the feature analysis of point 3 of the decision under appeal is thus correct and the subject-matter of claim 1 of the patent as granted is therefore not new.

4. *Auxiliary request 1*

4.1 Auxiliary request 1 as filed with the statement of grounds of appeal corresponds essentially with auxiliary request 1 filed during the oral proceedings before the opposition division, on which the decision under appeal is based, whereby the feature in claim 1:

"that mutually adjacent separation discs (22) are arranged at mutual spacing such that rotation of the rotor (8) causes in the interspaces (27) a pumping

action which drives the gas from the gas inlet (3), through the interspaces (27) between the separation discs (22) and out via the gas outlet (4) "

has been transferred from the preamble to the characterising portion of the claim.

4.2 The Board is of the view that the reasoned findings of the opposition division of points II.5 to II.8 of the decision under appeal with respect to auxiliary request 1 as filed during opposition proceedings apply *mutatis mutandis* to auxiliary request 1 as filed with the statement of grounds of appeal, and that no further issue is triggered by this amendment.

4.3 The Board concurs with the view of the appellant and with the findings of the opposition division that auxiliary request 1 meets the requirements of Articles 123(2), 123(3), 84 and 54 EPC, namely for the same reasons given in the decision under appeal in points II.5 to II.7 to which reference is made (Article 15(8) RPBA 2020).

4.4 Inventive step

4.4.1 The opposition division found the subject-matter of claim 1 of the auxiliary request 1 to lack an inventive step in view of the teaching of D3 (**WO 02/20954 A1**) as closest prior art in combination with the teaching of E2 (**US 7 022 163 B2**).

4.4.2 The opposition division held in point II.8 of the decision under appeal, that the skilled person, starting from D3 and faced with the objective technical problem of improving the separation efficiency, would consider the teaching of E2, which discloses a

centrifugal separator in the same field of cleaning gas as D3. Document E2 indicates in column 5, lines 58 to 60, that the distance members between separation discs keep these at a distance of 1 mm from each other. This distance between separation discs or the height of spacing elements are well known to the skilled person as a standard range, so the opposition division. With the intention of further increasing the separation efficiency, it would be an obvious and a normal design measure for the skilled person, namely when the same result is to be achieved, to reduce as much as possible the distance between the discs further to improve the pumping effect for a given volume. According to the opposition division, the skilled person would always be motivated to optimize the cleaning effect and the efficiency by narrowing the distance of the discs as already exemplarily shown in E2, and thereby arriving at the subject-matter of claim 1 of the auxiliary request 1 in an obvious manner.

4.4.3 The Board is not persuaded by this finding and its reasoning. As correctly put forward by the appellant, interspaces of a height in the range of 0.2 - 0.6 mm ensure not only that the pumping action is achieved by the rotation of the rotor, but also that no contaminants are caught in the interspaces (see paragraph [0033] of the patent in suit). These two aspects achieved by such an interspace height provide a synergistic effect of improved cleaning efficiency.

4.4.4 Document E2 discloses a centrifugal separator with a distance of 1 mm between the separation discs (see col. 5, lines 58 - 60). This means that if the skilled person was to directly apply the teaching of E2, he would still not arrive at the subject-matter of claim 1 of the auxiliary request 1, which requires quite a

different height in the range of 0.2 - 0.6 mm. The Board cannot recognise any hint in E2 to reduce even more the distance between the plates departing from the only teaching of 1 mm. Moreover, the related problem of providing enough distance so that the contaminants are not caught between the plates is also absent in D3 and E2. Therefore, the Board is convinced that the skilled person, starting from D3 as closest prior art in view of the teaching of E2 would only arrive at the subject-matter of claim 1 of the auxiliary request 1 as a result of an *ex post facto* analysis.

5. It follows that the appellant has demonstrated in a convincing manner that the essential considerations underpinning the decision under appeal with respect to inventive step of auxiliary request 1 do not withstand a review in appeal.
  
6. Thus, the decision under appeal is to be set aside and a patent can be maintained on the basis of the set of claims of the auxiliary request 1, filed with the statement of grounds of appeal.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent in amended form with the following claims and a description to be adapted thereto:

Claims 1 to 12 of auxiliary request 1  
filed with the statement of grounds of  
appeal dated 19 December 2019.

The Registrar:

The Chairman:



G. Nachtigall

I. Beckedorf

Decision electronically authenticated