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**Datasheet for the decision
of 27 July 2021**

Case Number: T 2414/18 - 3.2.04

Application Number: 11166240.9

Publication Number: 2525088

IPC: F03D11/00, F24D19/08

Language of the proceedings: EN

Title of invention:
Air bleeding arrangement

Patent Proprietor:
Siemens Gamesa Renewable Energy A/S

Opponent:
Vestas Wind Systems A/S

Headword:

Relevant legal provisions:

EPC Art. 54, 56
RPBA Art. 12(4)

Keyword:

Novelty - main request (no)

Inventive step - auxiliary request (yes)

Auxiliary request - submitted with the statement of grounds of appeal

Decisions cited:

Catchword:



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Case Number: T 2414/18 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 27 July 2021

Appellant: Vestas Wind Systems A/S
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 25 July 2018
rejecting the opposition filed against European
patent No. 2525088 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman T. Bokor
Members: S. Hillebrand
J. Wright

Summary of Facts and Submissions

- I. The appeal was filed by the Opponent against the decision of the Opposition Division to reject the opposition filed against the patent in suit. In this decision, the Opposition Division held i.a. that the subject-matter of granted claim 1 was novel and involved an inventive step.
- II. In a communication according to Article 15(1) RPBA 2020, the Board gave its preliminary opinion that the subject-matter of granted claim 1 was not novel, but that the subject-matter of claim 1 according to three auxiliary requests I - III was novel and involved an inventive step.
- III. Oral proceedings were held before the Board in the form of a videoconference with all parties attending remotely.
- IV. The Appellant (Opponent) requests that the decision under appeal be set aside and that the patent be revoked. The Respondent (Proprietor) requests as a main request that the appeal be dismissed, or that the patent be maintained in an amended form on the basis of auxiliary request IIa filed with letter of 28 April 2021.
- V. Claim 1 of the main request reads as follows:
"Wind turbine cooling system comprising an air bleeding arrangement, wherein
 - the cooling system comprises a locally highest point, where air (7), being present in the cooling system, collects,*
 - a bleeding nipple (6) is connected with the locally*

*highest point for the venting of the air (7) collected,
- the locally highest point is located outside the nacelle(9) of the wind turbine,
characterized in
- that the bleeding nipple (6) is connected with the locally highest point via an air bleeding duct (12), thus the air bleeding nipple (6) is arranged remote from the locally highest point, thus service personnel can easily reach the bleeding nipple without working in a potentially dangerous environment."*

Claim 1 of auxiliary request IIa comprises the following additional features:

*"wherein the cooling system comprises ducts (3, 4, 5), while the locally highest point is part of one of the ducts,
whereby the cooling system is arranged to transport heat from a heat source to a heat sink using a cooling medium (8), which is circulating in ducts,
whereby a radiator (2), which is mounted on top of the nacelle (9), comprises the locally highest point of the cooling system,
whereby the air bleeding duct (12) is arranged at an outer side of the input pipe (4) or the output pipe (5) of the radiator (2)".*

VI. In the present decision, reference is made to the following documents:

D1: WO 00/20794
D3: US 2001/095539
D4: WO 2010/085962
D5: WO 2010/085961
D6: WO 2008/131766
D7: WO 2010/085960
D8: WO2010/085963.

VII. The Appellant's arguments can be summarised as follows: Auxiliary request IIa should not be admitted as it had been filed for the first time during appeal proceedings.

The subject-matter of claim 1 according to main request and auxiliary request IIa is not new with regard to the disclosure of D3 and results obviously from combining any of Fig. 5 of the patent specification (showing the prior art) and D4 to D8 with D1.

The Respondent's arguments can be summarised as follows:

The subject-matter of claim 1 according to the main request and auxiliary request IIa is novel and involves an inventive step in the light of the cited prior art.

Reasons for the Decision

1. The appeal is admissible.

2. Background

The patent deals with cooling of wind turbine components, such as a gear box, by circulating a coolant, usually oil, through a radiator, which is exposed to a cooling air flow, usually at the top of the nacelle. In particular, venting the coolant ducts might cause problems, since air in the cooling systems tends to collect within the uppermost ducts, i.a. at the top of the radiator, where venting means such as a bleeding nipple 6 is difficult to reach for service personnel, see figure 5 of the patent.

Accordingly, the invention as defined in granted claim 1 is to connect the "locally highest point" of the cooling system located outside the nacelle via an air bleeding duct to a remote and easily reachable bleeding

nipple, e.g. inside the nacelle.

3. Main Request - Novelty

3.1 D3 discloses a wind turbine cooling system 1 comprising an air bleeding arrangement, see paragraphs [0046] - [0049], [0060] and Fig. 1. In particular, a pump 6 circulates cooling medium in ducts in order to transport heat from a heat source 3 to a heat sink in form of a radiator 5 outside a nacelle 2. An inlet pipe and an outlet pipe of the radiator 5 are connected to a cooling medium tank 7 inside the nacelle 2. The tank 7 comprises a relief valve (not shown), which automatically bleeds air having collected inside the tank 7 on top of cooling medium.

3.2 According to the laws of physics, air collects at all locally highest points to which it can travel through the ducts as soon as the pump 6 stops working. Although this is not explicitly mentioned in D3, as noted by the Respondent, this can be considered as an inherent and thus implicit feature of its cooling system. Consequently, air will also collect in this case in the uppermost duct of the radiator 5 as a locally highest point.

As set out in paragraph [0014] of D3, "when the pump is [again] activated, the heat transfer medium is pumped into the cooling system, pushing air present in the system down into the tank". Accordingly, also air collected in the top duct of the radiator is conveyed together with the cooling medium to the tank *via* the output pipe of the radiator. Therefore, the Board considers the output pipe of the radiator to serve as an air bleeding duct in the sense of claim 1.

3.3 Furthermore, the Board is unable to see a difference between an automatic relief valve arranged in a top part of the tank 7 (see paragraph [0060] of D3) and the claimed bleeding nipple.

A bleeding nipple is a protrusion comprising any means allowing for bleeding, typically a valve. It encompasses thus both, automatically and manually activated valves.

Being located on top of the tank 7 inside the nacelle, the relief valve / bleeding nipple of D3 is also arranged as claimed, namely remote from the locally highest point in the radiator 5 at a position, where service personnel can easily reach the bleeding nipple without working in a potentially dangerous environment.

Claim 1 does not specify for which purpose service personnel would like to reach the bleeding nipple, whether this was for instance for checking on it or servicing it. Even an indication of the purpose "for manually activating it" in claim 1 would not restrict the claimed bleeding nipple to a purely manually activated one - such a functional feature in the device claim would only define the position of the bleeding nipple as being suitably located to be reached for manual activation.

3.4 The Respondent objects that the output pipe of D3's radiator is not disclosed as being directly connected to the locally highest point in the radiator.

The Board notes that claim 1 does not require such direct connection, only that the bleeding nipple is connected to the locally highest point *via* an air bleeding duct, which is the case in D3 (see above, point 3.2).

3.5 Since D3 thus discloses a wind turbine system comprising all features claimed, the subject-matter of claim 1 is not new in the sense of Article 54(1), (2) EPC.

4. **Auxiliary request IIa - Admission**

4.1 Auxiliary request IIa filed with letter of 28 April 2021 corresponds, apart from the suppression of of a duplicated feature, to former auxiliary request II filed with the Respondent's reply to the appeal. The Board considers the deletion of the duplicated feature in claim 1 of auxiliary request IIa not to be an amendment to the Respondent's case in the sense of Article 13(2) RPBA 2020, but to be a correction of an obvious error in former auxiliary request II. Consequently, if former auxiliary request II had been admissible, this would also apply for later auxiliary request IIa replacing it.

4.2 According to Article 25(2) of the revised Rules of Procedure of the Boards of Appeal, which entered into force on 1 January 2020, Article 12(4) RPBA 2020 shall not apply to former auxiliary request II, since the grounds of appeal have been filed before the date of entry into force, and the reply was filed in due time. Instead, admission of auxiliary request II was at the discretion of the Board under Article 12(4) RPBA 2007.

The Appellant argues that any of auxiliary requests II, IIa should have been filed during opposition proceedings, and came as a surprise to it in appeal proceedings. Moreover, they had not been substantiated by the Respondent upon submission.

4.3 In the Board's view, there was no need to file an auxiliary request earlier in the opposition proceedings, since the preliminary opinion of the Opposition Division expressed in the annex to the summons for oral proceedings was entirely in favour of the Respondent. Nor did the necessity to file an auxiliary request occur during oral proceeding, as reflected in the minutes. Given that the patent was upheld as granted, such auxiliary request would not have changed the decision under appeal anyway, as the Opposition Division would not have been expected to give reasons for a lower-ranking auxiliary request in their decision (see Guidelines (November 2017) Part E, Chapter X.2.9, similarly in the latest version). In this manner, there is no obstacle before a "judicial review of the decision under appeal" and the underlying case (see point 4.3 of the grounds of appeal). It remains that in view of Article 11 RPBA the Board would be expected to decide on this request for the first time anyway, even if it had been filed earlier.

Furthermore, unlike the Appellant, the Board does not see a surprising course of action in a Respondent defending its patent by filing an auxiliary request, when its maintenance is challenged by an appeal.

4.4 The Respondent argued in its reply to the appeal at the end of section B.2. that the features added in claim 1 of auxiliary request II/IIa were not known from any of the cited prior art documents and therefore prima facie suitable for establishing novelty and inventive step. The Board considers this to be a sufficient reasoning for the purposes of Articles 12(2) and (4) RPBA 2007, as it is not apparent what further arguments should have been necessary to prove that a claimed feature is missing in the prior art - *negativa non sunt probanda*

(see point 4.4 of the grounds of appeal). It is also not apparent why the Respondent should have been expected to give further reasons in advance, for example in support of inventive step, not knowing from the appealed decision why its main request might fail. It may be that this is perceived as a procedural imbalance (see grounds of appeal point 4.5), but this is already inherent in the different procedural positions of an Appellant and a Respondent, where the former inevitably must be more active, given that the appealed decision can only be overturned if the Appellant takes action, while the decision may well remain in force even if the Respondent does not act at all.

4.5 For the above reasons, the Board has admitted auxiliary request IIa to the appeal proceedings (Article 12(4) RPBA 2007 in conjunction with Article 25(2) RPBA 2020).

5. **Auxiliary request IIa - Interpretation of claim 1**

5.1 The interpretation of the features added to claim 1 from original claim 7
"whereby the air bleeding duct (12) is arranged at an outer side of the input pipe (4) or the output pipe (5) of the radiator (2)"
revealed to be crucial for the assessment of novelty and inventive step.

5.2 First of all, the Board takes it from the use of the definite articles for both pipes that the radiator introduced in claim 1 comprises an output pipe as well as an input pipe. Furthermore, an air bleeding duct is arranged at an outer side of either this input pipe or this output pipe of the radiator. Consequently, at least three separate pipes/ducts are required by the

features added to claim 1.

- 5.3 "At a side of a pipe" as such is commonly understood as adjacent a pipe, close to or even in contact with an outer surface of the pipe. The Board would also agree to the definition given by the Respondent "outside a pipe and not remote from it" to correspond to "at a side of a pipe".

However, the side of the pipe is further limited in claim 1 to be an *outer* side. The term "outer side" is only mentioned in the description of the embodiment according to Fig. 2 of the patent specification, column 4, lines 56 - 58. The arrangement of the air bleeding duct 12 "at the *outer* side of the U-shaped form of the input pipe 4 or the output pipe 5" is at the same time outside the radiator 2, whereas by contrast the air bleeding duct 12 of Fig. 3 is arranged within the radiator 2 "at the *inner* side of the U-shaped form of the input pipe 4 or the output pipe 5", see column 5, lines 3 - 6. An outer side of the input or output pipe can therefore be understood as facing away from the radiator, whereas an inner side of such pipe faces towards (the inside of) the radiator. Since in both Fig. 2 and Fig. 3 the air bleeding duct 12 is outside the pipe 4, 5, the Board is not convinced by the Respondent's argument that "at an *outer* side of a pipe" would mean the same as just "outside the pipe" at any side around the pipe.

6. **Auxiliary request IIa - Novelty**

- 6.1 D3 fails to disclose three separate pipes or ducts. In Fig. 1, an input pipe and an output pipe of the radiator 5 can be identified, but no additional air bleeding duct. Even if the output pipe were to be

considered to represent the air bleeding duct, as suggested by the Appellant, the schematic circuit represented in Fig. 1 would not allow to derive clearly and unambiguously that the air bleeding duct/output pipe was "at the outer side of the input pipe" in the sense of "close to the input pipe".

- 6.2 With the remaining features added to claim 1 of auxiliary request IIa being known from D3, as set out under points 3.1, 3.2, above, the subject-matter of claim 1 differs from the wind turbine cooling system according to D3 in that the air bleeding duct (12) is arranged at an outer side of the input pipe (4) or the output pipe (5) of the radiator (2). Consequently it is new in the sense of Article 54(1), (2) EPC with regard to the disclosure of D3.

7. **Auxiliary request IIa - Inventive step**

The wind turbine cooling system shown in Fig. 5 of the patent specification can be considered to represent the closest prior art.

It is common ground that the subject-matter of claim 1 differs from this wind turbine cooling system in that the bleeding nipple (6) is connected with the locally highest point via an air bleeding duct (12), thus the air bleeding nipple (6) is arranged remote from the locally highest point, thus service personnel can easily reach the bleeding nipple without working in a potentially dangerous environment, whereby the air bleeding duct (12) is arranged at an outer side of the input pipe (4) or the output pipe (5) of the radiator (2).

- 7.1 The problem to be solved can therefore be considered in line with paragraphs [0018], [0029] of the patent

specification as providing an arrangement that allows an easier and safer access to the bleeding nipple of the wind turbine cooling system of Fig. 5 without restricting "the free space for the air to move through the radiator". Any further reference to a "*structurally convenient manner*" as suggested by the Appellant seems not be derived from the effects of the differing features with regard to the prior art of Fig. 5, but with regard to the arrangement shown in Fig. 9 of D1 with its air bleeding duct 26 fixed to a wall 23.

- 7.2 The Board fully endorses the analysis of the Appellant that three steps are necessary in order to obtain the subject-matter of claim 1 from a combination of Fig. 5 of the patent and D1, namely
- recognizing that D1 could provide a solution;
 - isolating and transferring features contributing to a solution from the cooling system according to Fig. 9 of D1;
 - further adapting and modifying these features in the wind turbine cooling system shown in Fig. 5 of the patent.

The presence of an inventive step could only be denied if all three steps were obvious for a person skilled in the art. In the Board's view, the person skilled in the art is, in the present case, a mechanical engineer with specific knowledge and experience in the cooling of machine components such as gears, engines, motors, generators.

- 7.3 The Board is not convinced that the person skilled in the art would take into consideration D1 for solving the above problem.
- Although D1 addresses generally "pipe installations in which a medium in fluid state, primarily water, is

transported" on page 1, lines 3/4, the only more specific example given in the introduction relates to "closed, water-carrying circulation plants, such as e.g. heating or cooling plants" (page 1, lines 11/12). Heating or cooling plants are quite different from machine cooling systems with regard to their design and are usually conceived by different persons skilled in the art.

The Appellant refers to I.C.8.1.1 CLBA and draws the attention to the importance of the problem to be solved, which could indeed direct a person skilled in the art to seek a solution in a neighbouring technical field such as cooling of buildings. The Board notes that the main aspect of the problem - *safe and easy access* of the bleeding nipple - is, however, not addressed on the first four pages of D1. The problem to be solved by the arrangements proposed in D1 is rather "to provide an air relief pipe with which the venting of a pipe installation can be effected *more quickly and with a more reliable result*", see page 3, lines 1 - 3. In the following paragraphs of pages 3 and 4, the design of the duct in the highest point and of connecting stubs is presented as contributing to the solution, not the location of the bleeding nipple. Thus the problem would not prompt a person skilled in the art to look for a solution in D1.

When looking at Fig. 9 of D1 all the same, this shows clearly parts of a central heating plant located below a roof or ceiling 22 (see page 10, lines 24 - 28). Again, safe access to the bleeding nipple is not mentioned, but at least "easy operation". Nevertheless, the subject-matter and its location is so different from the wind turbine cooling system according to Fig. 5 that the Board strongly doubts that a person skilled

in the art would study Fig. 9 in detail and isolate features which could be usefully applied in Fig. 5 of the patent specification.

Consequently, already the first step necessary for obtaining the claimed solution is not obvious for the person skilled in the art.

7.4 When comparing Fig. 5 of the patent specification and Fig. 9 of D1 all the same, it appears to be a promising approach to isolate the connection stub 17, the nipple piece 24, the T-Piece 25, the air automatic bleeder 5, the air relief pipe 26, the pipe brackets 27 for securing the vertical part of the air relief pipe to the next wall, the manual escape cock 28, the screw cap 29 and the chain 30 for also securing it to the wall. This entire pipe system could replace the bleeding nipple 6 in Fig. 5 of the patent specification with the air bleeding duct 26 extending horizontally from the T-piece 25 as shown in Fig.9 of D1 and then vertically into the nacelle 9, where it could be fixed to the right wall visible in Fig. 5 by means of the pipe brackets 27.

In this way, the manual escape cock 28 would be safely and easily accessible and the air bleeding duct 26 would not impede air from passing through the radiator, and thus the problem would be solved.

Therefore, the Board acknowledges that assuming, for the sake of the argument, that a person skilled in the seriously analysed Fig. 9 of D1, the second step of isolating and transferring features to the wind turbine cooling system of Fig. 5 might be obvious.

7.5 Such a second step, which might be obvious on its own, does, however, not lead to the claimed solution of an

air bleeding duct arranged at an outer side of the radiator's input or output pipe.

The Board is unable to see any incentive for this further modification of D1's air bleeding system as a third step, which provides for the bonus effect of a *compact* arrangement without impeding air flow through the radiator in the wind turbine cooling system of Fig. 5.

D1 does not show a radiator, but a heating pipe 3, which runs horizontally under a ceiling 22 and not downwardly as the input and output pipes 4, 5 of the radiator according to Fig. 5.

The above described arrangement resulting from a direct transfer of D1's air bleeding system to the wind turbine cooling system of Fig. 5 of the patent specification is already "structurally convenient". It thus provides a satisfactory solution to the "second step" problem "how to embody Fig. 9 of D1 in a structurally convenient manner?" defined by the Appellant, but is different from the claimed solution.

The Board considers therefore also the third step of further adapting and modifying the air bleeding system of D1 not to be obvious for a person skilled in the art.

7.6 For the above reasons, the subject-matter of claim 1 of Auxiliary request IIa involves an inventive step in the sense of Article 56 EPC in the light of a combination of the wind turbine cooling system shown in Fig. 5 of the patent specification with document D1.

7.7 The wind turbine cooling systems of D4 to D8 are less promising starting points than that shown in Fig. 5 of the patent specification.

Since D4 to D8 do not disclose details of cooling ducts and air venting equipment, in particular no uppermost horizontal cooling duct and air bleeding nipple, not even the second step of transferring D1's air bleeding system to one of their cooling systems would be straightforward.

Therefore, their respective combinations with the embodiment of D1, Fig. 9, would also not obviously and directly lead to the subject-matter of claim 1 of auxiliary request IIa.

8. **Auxiliary Request IIa- Description**

The Respondent has adapted the description (version IV) in order to comply with the requirements of Article 84, Rule 42(1)c) EPC. In particular, former embodiments of the invention, which are not encompassed anymore by the independent claim 1 of auxiliary request IIa have been indicated as such.

9. **Conclusion**

With its appeal, the Opponent successfully challenges the findings of the Opposition Division according to which the subject-matter of granted claim 1 (main request) was new in the sense of Article 54(1), (2) EPC. Consequently, the Opposition Division's decision to reject the opposition cannot be upheld.

Taking into account the amendments made by the Proprietor in auxiliary request IIa, including those of the patent description (version IV), the patent and the invention to which it relates comply with the requirements of Articles 54(1), (2), 56, 84 and Rule 42(1)c) EPC. The patent can thus be maintained as amended, Article 101(3)a), 111(1) EPC.

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 as amended in the following version:

Description:

page 2 of the patent specification,
pages 3 - 4, columns 3-5 as filed in the oral proceedings
before the Board as Version IV,

Claims:

No. 1 to 4 of the Auxiliary Request IIa as filed with letter
dated 28 April 2021,

Drawings:

Figures 1 to 6 of the patent specification.

The Registrar:

The Chairman:



G. Magouliotis

T. Bokor

Decision electronically authenticated