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**Datasheet for the decision
of 3 May 2021**

Case Number: T 1444/18 - 3.2.04

Application Number: 12724565.2

Publication Number: 2715112

IPC: F03D1/00

Language of the proceedings: EN

Title of invention:

APPARATUS FOR MANIPULATING A WIND TURBINE BLADE AND METHOD OF
BLADE HANDLING

Patent Proprietor:

Vestas Wind Systems A/S

Opponent:

Siemens Aktiengesellschaft

Headword:

Relevant legal provisions:

EPC Art. 100(c), 56

RPBA 2020 Art. 13(2)

Keyword:

Amendments - added subject-matter - main request (yes)

Inventive step - auxiliary request (no)

Amendment after summons - exceptional circumstances (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1444/18 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 3 May 2021

Appellant: Vestas Wind Systems A/S
(Patent Proprietor) Hedeager 42
8200 Aarhus N (DK)

Representative: Worthington, Richard Easton
Withers & Rogers LLP
4 More London Riverside
London SE1 2AU (GB)

Appellant: Siemens Aktiengesellschaft
(Opponent) Werner-von-Siemens-Straße 1
80333 München (DE)

Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
16 April 2018 concerning maintenance of the
European Patent No. 2715112 in amended form.

Composition of the Board:

Chairman A. de Vries
Members: S. Hillebrand
T. Bokor

Summary of Facts and Submissions

I. The appeals were filed by the opponent and the patent proprietor against the interlocutory decision of the Opposition Division finding that the patent in an amended form according to the auxiliary request met the requirements of the EPC.

In particular, the Opposition Division held that

- the subject-matter of claim 1 according to the main request extended beyond the content of the application as filed;
- the subject-matter of claim 1 according to the auxiliary request was novel and did involve an inventive step.

II. In a communication pursuant to Rule 15(1) RPBA 2020, the Board expressed the preliminary opinion that

- the subject-matter of claim 1 according to the main request extended beyond the content of the application as filed;
- the subject-matter of claim 1 according to the auxiliary request was novel, but did not involve an inventive step.

III. Oral proceedings were held before the Board in form of a videoconference, in which all parties participated remotely.

IV. The appellant-opponent requests that the decision under appeal be set aside and the patent be revoked.

The appellant-proprietor requests that the decision under appeal be set aside and the patent be maintained as granted (main request). Auxiliarily they request the

dismissal of the opponent's appeal, i.e. to maintain the patent in the amended form as upheld by the Opposition Division (auxiliary request 1), or further auxiliarily to maintain the patent in an amended form on the basis of one of the auxiliary requests 2 to 5 filed with letter received on 23 April 2021.

V. The independent claim of the main request reads as follows:

"An apparatus for manipulating a wind turbine blade having lifting points on the blade, the apparatus comprising:

a base (36);

a support structure (34) carried on the base; and
a connecting structure or structures for engaging the blade;

wherein the support structure (34) is movably supported on the base so as to pivot or rotate relative thereto about a substantially horizontal axis in order to vary the orientation of a blade supported thereon;

characterised in that the or each connecting structure comprises a bracket (32) having protruding legs (38) for engagement in respective openings in the blade at the blade lifting points (2)".

Claim 1 of auxiliary request 1 differs from claim 1 according to the main request in that the connecting structure(s) is/are defined as being "on the support structure".

Claim 1 of auxiliary request 2 differs from claim 1 according to auxiliary request 1 in that the protruding legs (38) are for "~~engagement~~ engaging blade lifting points (2) in respective openings in the blade at the blade lifting points (2)".

Claim 1 of auxiliary request 3 differs from claim 1 according to auxiliary request 1 in that the lifting points on the blade are defined as being "provided spaced equidistantly about the blade's centre of gravity".

Claim 1 of auxiliary request 4 differs from claim 1 according to auxiliary request 1 in that "each leg has transverse openings for receiving locking shear pins to lock the bracket on the blade".

Claim 1 of auxiliary request 4 differs from claim 1 according to auxiliary request 1 in that "the base comprises a floor mounted structure".

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

D1: WO 2005/071261 A1
D2: DE 102 00 401 A1
K7: US 2005/0031431
K8: US 2006/0285937
K9: WO 03/057528 A1.

VII. The appellant-opponent's arguments can be summarised as follows:

The subject-matter of claim 1 according to the main request extends beyond the content of the application as originally filed. The subject-matter of claim 1 according to the auxiliary request is obvious in the light of D8's apparatus and D1's connecting structure. The issue addressed by the auxiliary requests is not new, and these should not be admitted as late filed.

The appellant-proprietor's arguments can be summarised as follows:

The subject-matter of claim 1 according to the main

request implicitly includes all its originally disclosed features.

A person skilled in the art would neither start from D8 in order to obtain the subject-matter of claim 1 according to auxiliary request 1, nor would he combine the teaching of D8 with that of D1 let alone arrive at the claimed apparatus by means of such combination. The auxiliary requests were filed in response to a new interpretation of the claim wording in the Board's communication and should therefore be admitted.

Reasons for the Decision

1. Both appeals are admissible.
2. The patent deals with support structures for wind turbine blades during their fabrication and transport, in particular for wind turbine blades having lifting points. The support structure is rotatable about a horizontal axis in order to vary the orientation of an attached blade rotating together with the support structure.
According to the invention as defined in granted claim 1, the blade is attached to the support structure by means of at least one connecting structure comprising a bracket with protruding legs for engagement in respective openings in the blade at its lifting points.

3. Admission of documents K7 - K9

- 3.1 In section 2 of the communication under Article 15(1) RPBA 2020, the Board expressed the following preliminary opinion with regard to the admission of documents K7 - K9:

"2.1 The Appellant-Opponent filed documents K7 - K9 in opposition proceedings on 22 January 2018, the final date for making written submissions according to Rule 116 EPC. K7 - K9 are family documents of D2, filed with the notice of opposition, basically of the same content but having slightly clearer and more detailed figures. After having heard the parties during oral proceedings on this issue, the Opposition Division admitted K7 - K9 and based its decision on them, which means that they have factually become part of the proceedings.

2.2 The Board does not see the legal basis for retroactively not admitting those documents that were admitted into the proceedings by the Opposition Division. Furthermore, the Opposition Division seems to have applied correct criteria when exercising its discretion according to Article 114(2) EPC, and to have done so reasonably without manifest error. In particular, it considered the relevance of K9 to novelty and procedural economy (which it considered not to be unduly impaired by the admission of K7 - K9).

2.3 It would appear therefore that the division exercised its discretion properly in deciding to admit K7 - K9 into the proceedings."

3.2 The appellant-proprietor did not challenge this opinion and the Board does see no reason for changing it. Consequently, documents K7 - K9, which were admitted by the Opposition Division, form part of the appeal proceedings.

4. **Main Request - Added subject-matter**

4.1 In section 3 of the communication under Article 15(1) RPBA 2020, the Board expressed the following preliminary opinion on added subject-matter in claim 1:

"3.1 Granted claim 1 contains the features of original claims 1 and 2 apart from the expression "on the support structure", which details the location of the connecting structure for engaging the blade in original claim 1.

3.2 The Board tends to agree with the Opposition Division that the omission of this limiting expression in claim 1 results in added subject-matter, in

particular encompassing independent connecting structures or at least connecting structures not associated with the support structure. Those do not seem to have been envisaged by the original application."

4.2 Since the appellant-proprietor did not comment on this preliminary view , the Board sees no reason to change it. It thus considers that claim 1 as granted (main request) was amended to add subject-matter extending beyond the content of the application as originally filed, Article 100(c) EPC.

5. **Auxiliary Request 1 - Interpretation of claim 1**

5.1 Subject-matter of claim 1 is an apparatus for manipulating a wind turbine blade having lifting points on the blade. It is common ground that the blade and its lifting points do not form part of the claimed apparatus. These features rather define the intended use of the claimed apparatus. Hence, any features pertaining to the blade and its lifting points can only have a limiting effect on the claimed apparatus insofar as they imply specific adaptations of the apparatus for that use.

In the present case, the features in question are protruding legs [suitable] for engagement in respective openings in the blade. The claim is silent on the location and arrangement of the lifting points or the particular means of engagement, and the Board is unable to infer any clear structural limitations in this regard from the stated use.

5.2 The fact that the points are *lifting* points or that the legs engage *in* the openings does not of itself imply that the legs must be long enough and have coupling

means that couple directly to the internal load bearing structure, as shown in figure 3 and described in paragraphs [0027] and [0028]. The claim itself does not otherwise provide detail of how the legs engage, let alone that they directly engage with the internal load bearing structure at specific lifting points. Indeed, the patent itself in specification paragraphs [0050], [0051] describes embodiments comprising clamping flanges 150 provided with two protruding legs, where the brackets "can be locked ... *indirectly* to the load-bearing structure of the blade, for example an internal spar" with the "clamping flanges ... bear[ing] against the outer faces of the blade" (see column 12, lines 48 - 57), and exercising a clamping force on the spar as shown in Fig. 24. In this case, the loads are distributed over a spar section by the clamping flanges and do not concentrate on protruding legs engaged in openings or at lifting points.

5.3 Nor does the fact that its legs connect to lifting points imply that the apparatus must be such as to carry the full weight of the blade during its manipulation. The claim does not require or otherwise imply that manipulation includes lifting of the blade. In the embodiments, the apparatus serves mainly to rotate the blade, with additional supports to assist in bearing the blade weight being provided if necessary, see figures 5 and 7 (elements 60 and 62).

6. **Auxiliary Request 1 - Inventive step**

6.1 According to the appellant-proprietor, a person skilled in the art would not consider the apparatus of K8 as an appropriate starting point for assessing inventive step of the subject-matter of claim 1.
K8 only deals with transport and rotation of a blade

and not with the lifting of blades. Consequently, K8's apparatus is a transport vehicle, which is not designed for attachment to lifting points of the blade. Apart from that, the fixation of the blade to the apparatus is disclosed in K8 in such inconsistent and ambiguous manner, that a person skilled in the art would generally disregard this document for lacking important technical information.

The Board disagrees. As stated previously, claim 1 is directed at an apparatus for manipulating blades by pivoting and rotating them, not for lifting them. Though K8 is concerned with transport, the blade holding device 20 shown in figure 1 to 3 is intended for manipulating the blade by rotation/pivoting about its axis, for example to navigate difficult passages during transport, cf. abstract and paragraphs [0025], [0026]. As noted, the fact that it may not act on lifting points is immaterial as that feature does not imply any clear limitation.

Furthermore, it is true that the disclosure of K8 shows some gaps when it comes to the arrangement of lugs on the blade, which is only treated briefly in paragraph [0037]. However, its main focus is the design of the rotating support mechanism 20, see abstract, claim 1. Indeed, the rotating support mechanism is not only disclosed in great detail in connection with Figs. 1 - 4, but is also quite similar to that of the patent. How exactly the lugs connect to the blade was therefore not of interest to the author, most likely also as they assumed this to fall within the sphere of common general knowledge.

For these reasons, the Board concludes that K8 is a promising starting point for assessing inventive step

of the subject-matter of claim 1.

6.2 It is not disputed that the apparatus of K8 comprises a base 14 and a support structure 20 movably supported on the base so as to pivot or rotate relative thereto about a substantially horizontal axis in order to vary the orientation of a blade 16 supported thereon (paragraphs [0001], [0002], Figs. 1, 2). The support structure carries in turn a connecting structure 23, 29 for engaging the blade 16, paragraph [0037], Fig. 3.

6.3 The connecting structure comprises a blade holding frame 23 with protruding lugs 21, which can represent a bracket in the sense of claim 1. The bracket engages with the blade via mating lugs on the blade and one locking pin or bolt per bracket, see Fig. 5 and paragraph [0037]. In the Board's view this engagement mechanism differs from that claimed: neither the lugs 21 on the frame 23 nor the pin or bolt can reasonably be considered to be protruding legs that engage *in openings in the blade 16*.

K8 therefore does not disclose that the bracket of the connecting structure has protruding legs for engagement in respective openings in the blade at the blade lifting points.

6.4 The mating lugs are shown in Fig. 3 as being arranged on element 29, which is referred to as a "passage" in paragraph [0037] of K8. In Fig. 3, the element is shown as rectangular of shape and within or on the blade surface, which suggests a distinct panel in or on the blade surface. However, the lugs might possibly also be formed integrally to the blade surface. As the parties and the Board agree, that the lugs and any distinct panel bearing them, if present, would have to be

removed from the blade 16 before putting it into operation, such integral lugs would then have to be cut off with concomitant risk of damage to the blade.

Otherwise, K8 provides little detail of how exactly the "passage" 29 with its lugs is realized with respect to the blade. When putting the apparatus of K8 into practice, a person skilled in the art would therefore have to close this gap in the disclosure of K8. In other words, they would look for an appropriate design for the connecting structure, which involves removable lugs and allows a tight connection with the blade without damaging the blade surface. Indeed the objective technical problem associated with the above differences can be formulated accordingly as how to realize the part of the connecting structure located on the blade and mating with the counterpart of the connecting structure located on the support structure of K8.

- 6.5 The skilled person, an engineer involved in the design of wind turbine blades and their handling, would be familiar with the contents of D1. D1 in particular shows a connecting structure that would "fit the bill" as it meets all the requirements, i.e. removable lugs, tight engagement with a blade and prevention of blade damage.

It comprises brackets or panels 9a, 9b adapted to the shape of the blade profile, each comprising a lug with a hole 10, which could receive one of K8's locking bolts, see page 11, line 24 - page 12, line 16, Figs. 3, 4.

The brackets 9a, 9b are placed at a position, which corresponds substantially to the location of the area or panel 29 on the blade of K8 (see Fig. 1 and Fig. 5a

of D1), where they are removably mounted on opposite sides of the blade by means of two bolts 11, 13. The bolts pass through openings 20a, 20b, 22 in the brackets 9a, 9b and the blade such that the brackets sandwich an internal support structure, namely the spar 16, with the bolts running along opposite sides of the spar 16 (see Fig. 3). In this way, the brackets can exercise a considerable clamping force on the spar 16, which allows their firm attachment to the blade and the maintenance of a tight grip also during rotation of the blade in the support system of K8. This is further assisted by a surface layer 18 with high friction coefficient interposed between brackets 9 and blade shell 17, which prevents slippage during such rotation of the blade, page 12, third paragraph. The surface layer also protects the blade surface from damage caused by the clamping force. To this end, protecting distance pieces 15 are also placed between the end sections of the brackets 9a, 9b and the blade surface (page 11, lines 27 - 30, Fig. 3). The shell 11 of the blade is reinforced in the area surrounding the bolts 11, 13 in order to prevent deformation, page 12, third paragraph.

For the above reasons, a person skilled in the art recognises that D1's connecting structure is eminently suitable for putting the apparatus of K8 into practise and filling the gaps in K8's disclosure.

- 6.6 The Board does not share the view of the appellant-proprietor that the skilled person would refrain from using the connecting structure of D1 in K8's support structure, because both systems were not compatible as the brackets 9a, 9b of D1 would be too thick to fit between the radial frames of K8. In the Board's view, even if there were some mismatch in dimensions (both K8

and D1 are in fact silent on size) then it would be well within the skilled person's routine skills to make the necessary adaptations with regard to the exact position of the lugs mating with K8's lugs 21 and the distance of K8's holding frame 23 to the blade, so that there is enough space between them to accommodate the thickness of the brackets 9, see Fig. 3 of K8. They would also naturally and without problem choose dimensions that would not interfere with the operation of the trailer 14 of K8 to navigate difficult passages during transport. As the trailer is located at the tapering end of the blade (Fig. 1) this would in any case not seem particularly critical.

- 6.7 The appellant-proprietor disputes that the area or panel 29 of K8's blade is provided at a blade lifting point, as K8 only deals with transport and rotation of blades, not with lifting them. Consequently, any combination of K8 and D1 could not lead to the apparatus of claim 1, which comprises legs for engagement at lifting points of the blade.

As noted previously the Board is unable to see in features of the blade, which are not part of the claimed apparatus, clear structural limitations of the apparatus itself, but merely of its intended use. In any case, the apparatus of K8 and the bracket of D1 are well *suited for engagement* at lifting points of blades, even if located on internal blade structures, such as spars. D1's brackets are not only placed at blade positions similar to those of K8's panels 29 (see point 6.4, above), but these positions correspond to blade lifting points as shown in D1, Fig. 6. Moreover, the arrangement of D1's brackets and bolts/legs with regard to the spar 16 (Fig. 3) corresponds to the embodiment shown in Fig. 24 of the patent

specification, see point 5.2, above, and fulfills the definition of lifting points provided in specification paragraphs [0005], [0010], which are "... lift points in the form of openings ... through the blade surface into or adjacent the internal load-bearing structure of the blade, *such being configured to allow connection of a lifting assembly to the load-bearing structure.*"

6.8 Since the obvious combination of K8 and D1 results thus directly in the subject-matter of claim 1 according to auxiliary request 1, the latter does not involve an inventive step in the sense of Article 56 EPC.

7. **Auxiliary requests 2 - 5 - Admission**

7.1 Auxiliary requests 2 - 5 were received on 23 April 2021, i.e. long after notification of the summons to oral proceedings in June 2020 and about one week before oral proceedings on 3 May 2020. As late amendments to the appellant-proprietor's appeal case, they shall, in principle, not being taken into account unless there were exceptional circumstances, which the appellant-proprietor has justified with cogent reasons, Article 13(2) RPBA 2020.

7.2 Only at the oral proceedings did the appellant-proprietor argue as exceptional circumstances that the Board had adopted in its communication pursuant to Article 15(1) RPBA for the first time an interpretation of the legs' engagement in the blade, which would be different from the Opposition Division's view as expressed under section 19 of the impugned decision.

The Board notes that section 19 relates to the differences between K9 and the subject-matter of claim 1, in particular to the fact that the locking bolts

passing through the lugs, which correspond to the locking bolts of K8, do not represent protruding legs in the sense of claim 1. Since the Board has reached the same conclusion in point 5.1 of its communication and in point 6.3, above, it does not deviate from the impugned decision under this aspect. The Board rather endorses the findings of the Opposition Division according to which "the feature that the legs of the connecting structure engage with openings in the blade at the lifting points (2) of the blade implies that openings at the lifting points are occupied by the legs". Likewise, the Board did not hold a different view as regards the bolts 11, 13 of D1 representing protruding legs engaging in openings at blade lifting points, cf. section 20 of the decision under appeal.

The Board's provisional view did differ from the Opposition Division's conclusion on inventive step with regard to the assessment of the skilled person's *motivation to combine* the teachings of documents K7-K9 and D1. However, in this regard it followed the appellant-opponent's line of argument as presented in their statement of grounds for appeal, point 6.2, so that the issue was thus not raised for the first time by the Board in its communication.

Therefore, the Board is unable to identify any surprising development that would constitute exceptional circumstances justifying the late filing of auxiliary requests 2 - 5.

7.3 Furthermore, the independent claims of all requests contain additional features, which apparently stem from the description and have been isolated from a respective context of related features. The appellant-proprietor has indicated a basis of disclosure only for

auxiliary request 2.

As they point out, each amendment attempts to highlight the significance of lifting points inside the blade and their interaction with the protruding legs. This does, however, not apply to auxiliary request 5, whose independent claim specifies that the base comprises a floor mounted structure. Moreover, attempts to define in various manners the same aspect do not qualify as convergent approach of claim limitation. Lastly, further specifying the position of lifting points on the blade or other *external* elements, e.g. locking shear pins in auxiliary request 4, does not substantially limit the claimed apparatus, which includes legs being suitably arranged *for* engagement with these external elements.

For the above reasons, the Board considers neither of the auxiliary requests 2 - 5 to be *prima facie* allowable.

- 7.4 For all these reasons the Board, using its discretion under Article 13(2) RPBA, decided not to admit the late filed auxiliary requests 2 - 5.
8. With regard to the main request, the Board confirms the findings of the impugned decision that the ground of opposition according to Article 100c) EPC prejudices the maintenance of the patent as granted, since the subject-matter of claim 1 extends beyond the content of the application as originally filed.
- Taking into consideration the amendments made in auxiliary request 1, the subject-matter of claim 1 does not meet the requirement of inventive step according to Article 56 EPC, which leads to the revocation of the patent under Articles 101(3)b) and 111(1) EPC.

Order

For these reasons it is decided that:

1. **The decision under appeal is set aside.**

2. **The patent is revoked.**

The Registrar:

The Chairman:



D. Magliano

A. de Vries

Decision electronically authenticated