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**Datasheet for the decision
of 6 March 2024**

Case Number: T 0201/22 - 3.2.05

Application Number: 05822927.9

Publication Number: 1830992

IPC: B29C37/00, B29C70/08, F03D1/06,
B29C70/30, F03D80/40, B29C35/08

Language of the proceedings: EN

Title of invention:

A method of manufacturing a fibre-reinforced part for a wind power plant

Patent Proprietor:

LM Wind Power A/S

Opponent:

ENERCON GmbH

Relevant legal provisions:

EPC 1973 Art. 54(1), 56, 83, 84, 100(a)
EPC Art. 123(2)
RPBA 2020 Art. 12(6)

Keyword:

Grounds for opposition - lack of patentability (yes)
Inventive step (main request, auxiliary requests 1, 1a, 2 to 8: no; auxiliary request 10: yes)
Late-filed request - admitted in first-instance proceedings (no) - circumstances of appeal case justify admittance (auxiliary requests 1a and 10: yes)
Amendments - added subject-matter (auxiliary request 10: no)
Sufficiency of disclosure (auxiliary request 10: yes)
Novelty (auxiliary request 10: yes)
Claims - support in the description (auxiliary request 10: examination not possible in view of decision G 3/14)

Decisions cited:

G 0003/14



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 0201/22 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 6 March 2024

Appellant I: LM Wind Power A/S
(Patent Proprietor) Jupitervej 6
6000 Kolding (DK)

Representative: COPA Copenhagen Patents
Rosenørns Allé 1, 2nd floor
1970 Frederiksberg C (DK)

Appellant II: ENERCON GmbH
(Opponent) Dreekamp 5
26605 Aurich (DE)

Representative: Eisenführ Speiser
Patentanwälte Rechtsanwälte PartGmbB
Postfach 10 60 78
28060 Bremen (DE)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
26 November 2021 concerning maintenance of the
European Patent No. 1830992 in amended form.**

Composition of the Board:

Chairman P. Lanz
Members: T. Vermeulen
M. Blasi

Summary of Facts and Submissions

- I. Both the patent proprietor (appellant I) and the opponent (appellant II) lodged an appeal against the interlocutory decision of the opposition division finding that European patent No. 1 830 992 as amended in the form of auxiliary request 11 met the requirements of the European Patent Convention.
- II. The opposition had been filed against the patent as a whole on the basis of the grounds for opposition under Article 100(a) together with Article 54(1) EPC (lack of novelty) and Article 56 EPC (lack of inventive step), under Article 100(b) EPC and under Article 100(c) EPC.
- III. In the decision under appeal, the opposition division inter alia came to the conclusion that the subject-matter of claim 8 as granted and of claim 8 of auxiliary request 1 did not involve an inventive step, that auxiliary request 1a was not admitted, that the subject-matter of claim 1 of each of auxiliary requests 2 to 9 did not involve an inventive step, and that auxiliary request 10 was not admitted, but that the requirements of novelty and inventive step were met in respect of the claims of auxiliary request 11.
- IV. The following documents in particular were filed during the proceedings before the opposition division.

D7	US 5,632,602	E5	WO 00/34651 A1
E2	US 2004/0142176 A1	E6	WO 03/045689 A2
E3	WO 00/18555 A1	E7	US 2004/0137252 A1
E4	US 2004/0188883 A1		

- E16 "Viel Wind um GFK", KU-Kunststoffe, vol. 11, 2002, 119-124
- E17 J. Li, M. G. Hansen, "In-Line Monitoring of Multiple Additives in Polyethylene Melt Using Fiber-Optic Spectroscopy", Proceedings of ANTEC '99 Conference, 1999, ix-xxviii and 1937

V. Oral proceedings before the board were held on 6 March 2024.

VI. The parties' requests were as follows.

Appellant I (in the following "patent proprietor") requested

- that the decision under appeal be set aside and the patent be maintained as granted (main request), i.e. that the opposition be rejected, or, alternatively,
- that the patent be maintained as amended on the basis of the claims of one of auxiliary requests 1, 1a, 2 to 8 and 10 filed with its statement of grounds of appeal, further alternatively,
- that appellant II's appeal be dismissed, i.e. that the patent be maintained as amended in the form of auxiliary request 11, or further alternatively,
- that the decision under appeal be set aside and the patent be maintained as amended on the basis of the claims of one of auxiliary requests 12 and 13 filed with the reply to appellant II's statement of grounds of appeal.

Appellant II (in the following "opponent") requested that the decision under appeal be set aside and the patent be revoked.

VII. Independent claims 1 and 8 of the patent as granted have the following wording.

"1. A method of manufacturing fibre-reinforced parts for a wind power plant, such as e.g. a blade, wherein the method comprises laying out different layers comprising a layer of fibre material in the interior surface of an open mould, and wherein resin is applied for joining of the laid-out layers, characterised in that several layers of film are arranged outermost on the interior surface of the open mould and joined to form an outermost layer of said fibre-reinforced part."

"8. A fibre-reinforced part for a wind power plant such as eg a blade, wherein the part is built up by a first, outermost layer followed by layers of fibre material, which layers are joined to each other by use of resin, characterised in that the first outermost layer comprises several layers of film."

VIII. The wording of claim 1 of auxiliary request 1 is identical to that of claim 1 as granted. Claim 8 of auxiliary request 1 has the following wording (changes with respect to claim 8 as granted are indicated by underlining and striking through):

"8. A fibre-reinforced ~~part~~blade for a wind power plant ~~such as eg a blade~~, wherein the ~~part~~blade is built up by a first, outermost layer followed by layers of fibre material, which layers are joined to each other by use of resin, characterised in that the first outermost layer comprises several layers of film."

IX. The wording of claim 1 of auxiliary request 1a is identical to that of claim 1 as granted. Claim 8 of

auxiliary request 1a has the following amendment compared to claim 8 of auxiliary request 1:

", wherein the blade is obtained by a method according to any of claims 1-7".

- X. The wording of claim 1 of auxiliary requests 2 to 8 is identical to that of claim 1 as granted.
- XI. Independent claims 1 and 7 of auxiliary request 10 read as follows (changes with respect to claims 1 and 8 as granted, respectively, are indicated by underlining and striking through).

"1. A method of manufacturing fibre-reinforced parts for a wind power plant, such as e.g. a blade, wherein the method comprises laying out different layers comprising a layer of fibre material in the interior surface of an open mould, and wherein resin is applied for joining of the laid-out layers, characterised in that several layers of film are arranged outermost on the interior surface of the open mould and joined to form an outermost layer of said fibre-reinforced part, wherein films with different properties are arranged in different locations on the interior surface of the open mould."

"7. A fibre-reinforced ~~part~~ blade for a wind power plant ~~such as eg a blade~~, wherein the ~~part~~ blade is built up by a first, outermost layer followed by layers of fibre material, which layers are joined to each other by use of resin, characterised in that the first outermost layer comprises several layers of film, wherein the first outermost layer is constituted by several layers of film, where films with different

properties are arranged in different locations on the fibre-reinforced blade."

XII. The parties' submissions may be summarised as follows.

Main request (patent as granted)

- *Patent proprietor*

Document D7 related to a different purpose than the opposed patent, namely to producing a rotor blade without a core in a winding machine. The fibre bindings 24, 26, 28 of document D7 were wound onto a spar element 2 and end elements 8 outside the mould which was only used in a final step to cure the blade. The fibre windings were thus not laid out in the mould. And they did not result in distinct fibre layers. Also, only one thermoplastic film was applied in the mould. It was used to reduce surface roughness. Hence, the subject-matter of claim 1 as granted differed from the method of document D7 in that different layers comprising a layer of fibre material were laid out in the interior surface of an open mould, and in that several layers of film were arranged outermost on the interior surface of the open mould and joined to form an outermost layer of said fibre-reinforced part. The technical effect resulting from the use of a plurality of films was to achieve a stronger and more resilient protective layer and an improved geometry control. In addition, it allowed the removal a layer of film on the finished element. In combination with the other distinguishing features, the claimed method overcame the necessity of prior art gelcoats which led to health concerns and increased the risk of air pockets. The objective technical problem was thus to provide a manufacturing method for fibre-reinforced blade parts,

which was safer and more environmentally friendly, and which resulted in improved structural stability of the blade part.

The solution of claim 1 as granted involved an inventive step since it was not hinted at, or otherwise suggested by D7 in combination with document E7, which anyway did not relate to the manufacture of wind turbine blades. Already the purpose of providing a shiny appearance and the resistance to graffiti mentioned in paragraph [0002] of document E7 highlighted that this prior art teaching was not situated in the correct technical field. But even if the skilled person would have combined the method of document D7 with the teaching of document E7, they could not have possibly arrived at the subject-matter of claim 1 as granted. Firstly, the embodiment illustrated in Figure 3 of document E7 showed an adhesive layer, a PVDF layer and a thick temporary polyamide sheet placed at the bottom of a mould. A single glass mat was applied on top and then sprayed with a resin. It was mandatory in document E7 to place the adhesive layer between the PVDF and the thermoset to be coated. In contrast, document D7 explicitly emphasised that adhesive bonds should be avoided for safety concerns, see column 5, lines 47 to 50. Secondly, paragraphs [0041] and [0060] of document E7 suggested applying a gelcoat within the mould. But this was exactly what the present invention aimed to overcome. Consequently, the skilled person starting from document D7, even in combination with document E7, would not have been pointed towards the solution of foreseeing multiple films as the outermost layer of the blade part. For these reasons, the subject-matter of claim 1 as granted involved an inventive step.

- *Opponent*

The method of claim 1 as granted only differed from the disclosure of document D7 in that the outermost layer was formed from several film layers which were joined together and arranged between the fibre-reinforced part and the mould. The arrangement of a single film layer between the fibre-reinforced part and the mould was already disclosed in document D7. As claim 1 did not specify how the different layers were laid out, it was not excluded that they were laid out together, as in document D7. According to paragraph [0009] of the patent, the technical effect of arranging several layers of film on top of each other was an increased thickness of the part. The objective technical problem was therefore to reinforce the fibre-reinforced part and increasing its resistance.

The skilled person would have realised that the structural resistance of a fibre-reinforced part improved with each additional layer no matter how stiff or thick the respective layer was. Document E7 precisely dealt with an improvement in the resistance of thermoplastic substrates and their combination with fibre-reinforced parts, see paragraph [0002]. In view of paragraphs [0019] to [0021], [0023] to [0035], [0037] and [0041], document E7 would have directly lead the skilled person to the claimed solution. The increased protection due to the multilayer structure was also discussed in paragraph [0114] of document E7. Film layer A consisted of two sub-layers, see paragraphs [0116] to [0118]. The comment in document D7 on avoiding adhesive bonds for safety concerns applied to the assembly as a whole. It was still possible that the different layers of film were joined by means of an adhesive. In fact, the patent itself suggested to use

adhesive in order to glue the layers of film together. Thus, the subject-matter of claim 1 as granted did not involve an inventive step.

Admittance of auxiliary requests 1a and 10

- *Patent proprietor*

The amendment of claim 8 of auxiliary request 1a was a legitimate reaction to an unexpected turn of events during the oral proceedings before the opposition division, namely the opponent's objection of lack of inventive step based on document E1 as closest prior art for the first time during those oral proceedings. The opposition division had therefore been wrong in not admitting auxiliary request 1a into the proceedings.

Also auxiliary request 10 was a legitimate response to an unexpected turn of events during the oral proceedings before the opposition division, namely its surprising agreement with a new line of argument presented by the opponent against claim 1 of auxiliary request 4 based on a combination of documents D7 and E1. Furthermore, it had to be considered that no new issues had been raised by the amendments of claim 1 of auxiliary request 10, since the same subject-matter had already been discussed and found novel and inventive in respect of claim 8 of auxiliary request 4.

Auxiliary requests 1a and 10 should therefore be admitted into the appeal proceedings.

Auxiliary requests 1, 1a, 2 to 8

- *Patent proprietor*

For the same reasons as argued in respect of the main request, auxiliary requests 1, 1a and 2 to 8 are allowable.

- *Opponent*

For the same reasons as argued in respect of the main request, auxiliary requests 1, 1a and 2 to 8 are not allowable.

Auxiliary request 10 - allowability of amendments

- *Patent proprietor*

Regarding the fourth method step of claim 1, it was self-evident that the layers of film formed the outermost layer of the fibre-reinforced part. This was already apparent from the wording of claim 1 of the application as filed, according to which the layers of film had to be arranged outermost on the interior surface of the open mould. Layers of film arranged in that manner were necessarily and inevitably "joined". Basis for the amendment could also be found throughout the description of the application as filed, for example, on page 3, lines 20 to 24, or in Figures 5 and 6. Any other interpretation of the original teaching would lead to the absurd notion that the outermost layers of film were loosely spaced from each other, leading to a clearly defective blade part. The application as filed explicitly taught that a surface of increased strength was obtained because of the

outermost layer being composed of several layers of film. It was not apparent how the opponent's observations were relevant to the subject-matter and to the technical field at hand, namely the manufacture of wind turbine blade parts. Also the argument of the peel-off films was hard to follow. It was unclear how an "active bond" between layers would be different from joining the layers. Importantly, the application as filed contained an explicit reference to the layers of film being joined, namely on page 9, lines 20 to 22. As the overall joining of the layers of film was not inextricably linked to the disclosed specific manners of joining, this did not result in an unallowable intermediate generalisation.

The additional feature of claim 1 of auxiliary request 10 regarding the arrangement of films with different properties was taken from claim 6 of the application as filed. The reference in claim 6 to "claims 1-5" would not be understood by the skilled person as referring to all of claims 1 to 5, but to any of claims 1 to 5. This view was supported by page 5, lines 1 to 2 of the application as filed, where an embodiment was disclosed without the additional features of claims 2 to 4 as filed. By separately objecting to claim 6 as granted in its notice of opposition, the opponent had actually shared such an understanding of the claim dependencies.

The replacement of "part" by "blade" in claim 7 of auxiliary request 10 was based on page 1, lines 4 to 5 of the application as filed. The indication on page 6, lines 30 to 31 of the application as filed that the blade comprised a fibre-reinforced part "as described above" would not lead the skilled person to conclude that this part had to fulfil each and every feature of the afore-described embodiments. Similarly, the

reference to "claims 8-11" in claim 12 of the application as filed would not be understood by the skilled person as referring to all of claims 8 to 11, but to any of claims 8 to 11. This was supported by the application as filed on page 6, lines 5 to 7, 17 to 18 and 25 to 26, according to which each of claims 9 to 11 of the application as filed related to an individual embodiment. Besides, the opponent's argument that the wording "fibre-reinforced part for a wind power plant such as e.g. a blade" had to be understood in the sense that the blade was an example of a wind power plant and not of the fibre-reinforced part was absurd.

The requirements of Article 123(2) EPC were therefore met.

- *Opponent*

In the proceedings before grant, claim 1 had been amended by adding the feature "*and joined to form an outermost layer of said fibre-reinforced part*". This amendment was an intermediate generalisation without basis in the application as filed. The assumption made by the opposition division that increased strength could not be obtained if the film layers were not bonded was technically incorrect. For example, it could result more difficult to cut with a knife through several layers of plastic film if the layers were not connected to each other. Furthermore, by sliding against each other, such film layers would exhibit less shear stresses, which led to a better load-bearing capacity. Also, a connection between the layers could hamper peeling off one of the layers. The passage on page 9, lines 20 to 22 of the application as filed did not provide a basis for the amendment. It related to two specific technical embodiments, namely rolling and

gluing. No other examples of joining the films were disclosed. It was thus not permitted to isolate the aspect "joined" from the context in which it was originally disclosed. Joining the layers of film to one another in any possible manner was not directly and unambiguously disclosed in the application as filed.

Claim 1 of auxiliary request 10 had an additional feature derived from claim 6 of the application as filed. This dependent claim, however, defined a method according to all claims 1 to 5, i.e. including the additional features of claims 2 to 5. Even when relying on page 5, lines 1 to 2 of the application as filed, there was no explicit or implicit disclosure for combining only claims 1 and 6 of the application as filed. As a consequence, also this amendment was without basis in the application as filed.

Claim 7 of auxiliary request 10 was amended to the effect that "*a fibre-reinforced part for a wind power plant*" was replaced by "*a fibre-reinforced blade for a wind power plant*". The optional feature "*such as eg blade*" of claim 8 of the application as filed had to be read as applying to the wind power plant, not to the fibre-reinforced part. Otherwise claim 12 would not have made any sense. This was also clear from page 8, lines 10 to 12 of the application as filed. On page 1, lines 4 to 5 of the application as filed no basis could be found for replacing the fibre-reinforced part by a fibre-reinforced blade. Instead, the only relevant disclosure seemed to be on page 6, lines 30 to 31 of the general description, which referred to the fibre-reinforced part "*as described above*". Still, several other features mentioned in the description starting at page 5, line 20 had not been included in claim 7 of auxiliary request 10. It was correct that also claim 1

of the application as filed could provide basis for the change from a part to a blade. But that claim referred back to all of claims 8 to 11, the additional features of which had not been included in claim 7 of auxiliary request 10. Therefore, the amendment also led to the protection of embodiments that were not disclosed in the application as filed. Claim 7 of auxiliary request 10 thus represented an unallowable intermediate generalisation.

For the above reasons, the requirements of Article 123(2) EPC were not met.

Auxiliary request 10 - sufficiency of disclosure

- Patent proprietor

The opponent did not demonstrate that the skilled person, using common general knowledge, was unable to put the invention into practice be it in the form of experimental data or otherwise. Contrary to the allegations made by the opponent, the patent contained examples of useful materials, such as thermoplastic or thermo-hardening materials (see claim 2 and paragraphs [0007], [0009], [0010], [0022]) and suggested ways for processing and joining such materials, such as resin infusion, gluing, heating (see paragraphs [0009], [0022], [0027], [0028]). The skilled person would therefore not face any problems when re-working the teaching of the patent in suit. The requirements of Article 83 EPC were met for all claims of auxiliary request 10.

- *Opponent*

The patent lacked information on how, if at all, the layers of film were joined to the layer of fibre material, in the sense of claim 1 of auxiliary request 10, in a way that allowed the layers of film to be part of the finished product. It did not explain how a bond between the film layers and the cured fibre material was formed. As layers of film were typically impermeable to resin, it was not possible to join the layers of film to the fibre-reinforced part by means of the resin applied to join the individual layers of fibre material to each other (see paragraph [0027] of the patent). It was unreasonable for the skilled person to be expected to determine suitable material combinations that could make the claimed invention work. In addition, the skilled person would have to set up a research programme in order to determine by way of trial and error under which circumstances a fibre-reinforced part could be manufactured with the layers of film as the outermost layer. The same objection applied to the product claims 7 to 9 of auxiliary request 10.

Regarding dependent claim 6 of auxiliary request 10, there were serious doubts substantiated by verifiable facts that the skilled person would struggle to arrange a layer of film on the fibre-reinforced part following its removal from the mould. The outermost layer of the part already consisted of multiple layers of film. No example was given in the patent how a layer of film could be applied on this outermost layer. In this respect, it was noted that paragraph [0030] of the patent was in conflict with claim 1 of auxiliary request 10, because it stated that the film layers

could be added both before and after the moulding process.

Therefore, the requirements of Article 83 EPC were not fulfilled.

Auxiliary request 10 - novelty

- Patent proprietor

There was no disclosure in document E5 of several layers of fibre material, nor did the opponent offer any evidence to that effect. The passages of document E5 cited by the opponent related to a liquid-repellent coating applied onto the surface of a blade containing glass fibres. However, it was possible to use large bulk blocks of fibres instead of fibre layers. In addition, the second paragraph of page 4 of document E5 indicated that the foil forming the outermost surface was glued to the rotor blade; it was not joined by resin as required by the claim wording. Furthermore, document E5 did not disclose that the outermost layer comprised several layers of film. The optional coating of a shark skin foil did not unambiguously result in an outermost layer comprising several layers of film. The lotus layer and the shark skin foil were not disclosed in combination. Regarding the embodiment of Figure 3 of document E5, it was not apparent that the surface had an outermost layer comprising several layers of film. The fifth paragraph of page 5 of document E5 did not clearly disclose that more than one scale or foil was used. Possibly, all ribs were arranged on one foil at different distances from each other. Moreover, the combined disclosure of a lotus film and a shark skin foil would amount to a selection from multiple lists. Contrary to the allegation of the opponent, the

passages on page 6 of document E5 explicitly taught away from using an erosion protection film due to the tedious application process and the possible detachment during operation. Instead, a paint or varnish was recommended. For the above reasons, the subject-matter of claim 7 of auxiliary request 10 was novel over document E5.

- *Opponent*

Document E5 disclosed a fibre-reinforced blade for a wind turbine with all features of claim 7 of auxiliary request 10. The prior art rotor blade 10 was composed of a first, outermost layer 6 followed by layers of fibre material bonded together by resin, see the third paragraph of page 2 and the last paragraph of page 3. It was implicit that a rotor blade could not technically consist of a single glass fibre layer, there must be several such layers. Document E5 disclosed that the outermost layer comprised several layers. For example, a lotus film was mentioned in the fifth paragraph of page 2, which could be applied only on certain parts of the surface, see the third paragraph of page 3. As an alternative or in addition thereto, a shark skin foil could be applied in the form of scales with ribs or channels placed at a certain distance from each other, see the third paragraph of page 4 and the second paragraph of page 5. The distance between the ribs could vary in accordance with the rotation speed, see the fifth paragraph of page 5. Also the dependence of claim 6 on claim 2 of document E5 implied that a lotus film and a shark skin foil could be applied in different surface areas. Furthermore, in the third paragraph of page 6 of document E5, it was described that, as an alternative or in addition to the measures described above, an erosion protection varnish

or an erosion protection film could be applied. There were no multiple lists, only two or three alternatives. Document E5 thus clearly disclosed all the features of claim 7, the subject-matter of which lacked novelty.

Auxiliary request 10 - inventive step

- *Patent proprietor*

The opponent was of the view that the inventive step of the subject-matter of claim 7 of auxiliary request 10 could be objected to with partial technical problems and multiple combinations of documents. However, the distinguishing features of claim 7 resulted in the combined technical effect of providing a wind turbine blade with an improved surface geometry and functionality, and structural stability, which could be obtained in a safer and more environmentally friendly way than known blades. The skilled person, starting from document D7 and faced with the problem of achieving that effect, would not have been prompted to provide an outermost layer of the blade part comprising multiple films. Instead, the entire purpose of document D7 went in the opposite direction, namely having as few parts and layers as possible and favouring a monolithic design. In addition, none of documents E2 to E5 taught the feature of films with different properties arranged in different locations on the blade.

Document E2 did not disclose a fibre-reinforced blade for a wind power plant, let alone a blade with the claimed properties. It related to articles for outdoor vehicles and automobiles. Paragraph [0067] and claim 28 of document E2 only mentioned "wind turbine blades and housings" in a long list of possible applications for the multilayer article. Fibre-reinforced parts, or even

fibres, were not mentioned. According to paragraph [0064] of document E2, the substrate was an injectable composition. Furthermore, document E2 was silent on an outermost layer comprising several layers of film with different properties arranged in different locations on the fibre-reinforced blade. In contrast, the coating layer, second layer and polyurethane adhesive layer were arranged on top of each other in document E2. Also, sticking the patch of document E2 on either sides of a substrate would not amount to the arrangement of films with different properties in different locations.

Document E3 did not disclose wind turbine blade parts or methods of manufacturing fibre-reinforced parts for a wind power plant. It also failed to disclose an outermost layer constituted by several layers of films with different properties. The passage on page 23, line 30 of document E3 merely referred to the release film of Example 2 having different layers "from top to bottom", see also page 21, line 33. Also in the passages on page 12, lines 15 to 17 and 17 to 20, no disclosure of this feature could be found. In fact, only the first release layer of the release film was in contact with the article. The underlying article surface could alternatively be made of copper foil or other materials.

Also document E4 did not relate to wind turbine blade parts. An outermost layer constituted by several layers of film with different properties in different locations was not disclosed. Paragraph [0069] of document E4 only generally indicated that for a three-dimensionally shaped part a surface film could consist of several individual sections of film or be cut in such a manner that when placed into the mould, it covered the part surface. However, no different

properties were mentioned here, let alone different properties of different film sections. The same applied to paragraph [0067]. Documents E16 and E17 mentioned by the opponent in this context were not admitted by the opposition division and should thus not be admitted into the appeal proceedings either.

Regarding document E5, the skilled person would not have combined it with document D7. It was key to document D7 that the surface was smooth, see column 5, lines 42 to 46 and column 7, line 64. Document E5, in contrast, sought to produce a wind rotor blade with a rough outermost surface, see the third paragraph of page 2. Moreover, the skilled person would not have arranged a shark skin layer with protrusions against the surface of a mould. Document E5 further disclosed that, alternatively or in additionally to the noise reducing features, part of the blade might be painted with an erosion resistant lacquer. An erosion resistant foil was disclosed to cause various problems with detachment and maintenance, see the third paragraph of page 6 of document E5. A first outermost layer constituted by several layers of film with different properties arranged in different locations on the fibre-reinforced blade was thus not disclosed.

For the above reasons, the solution of claim 7 of auxiliary request 10 was not known from any of documents E2 to E5. Even when combining any of these documents with the closest prior art D7, this could not have resulted in the claimed subject-matter, which therefore involved an inventive step. The same applied to claim 1 of auxiliary request 10.

- *Opponent*

Closest prior art was document D7. The subject-matter of claim 7 of auxiliary request 10 differed from the rotor blade of document D7 in that, on the one hand, the outermost layer comprised several film layers, wherein the first outermost layer was constituted by several layers of film, and, on the other hand, films with different properties were arranged in different locations on the fibre-reinforced blade. It followed from paragraphs [0003], [0004] and [0009] of the patent that the technical effect of the first distinguishing feature was to avoid the drawbacks of using gelcoats, for example the presence of air pockets. The technical effect of the second distinguishing feature was that the variability in the surface design of the rotor blade was increased. There was no synergy between these distinguishing features. The first partial problem was thus to improve the surface properties of a fibre-reinforced part. Starting from document D7, the solution to this problem was obvious for the same reasons as set out in respect of claim 1 as granted. The second partial problem was to optimise the variability of the surface structure for different load requirements and in particular to allow a local adaptation of the surface of the blade. The person skilled in the art would have found a hint to solve this problem in each of documents E2, E3, E4 or E5, as follows.

Document E2 related to the manufacture of components from fibre composites with a surface layer consisting of several film layers (see paragraph [0064]), whereby the components might be wind rotor blades (cf. paragraph [0067] and claim 28). It followed from

paragraphs [0055] and [0057] of document E2 that at least one glass fibre layer was used for manufacturing the components. Document E2 also proposed to apply different films with different properties to the substrate layer. It referred to an in-mould decoration process. The skilled person was taught that various films were inserted into an open mould and then bonded to a fibre composite component by means of resin injection. The films could be arranged at different positions on the component surface, overlapping each other or even spaced apart from each other. This inevitably resulted in films with different properties (see also paragraph [0065] of document E2).

The fibre-reinforced component disclosed by document E3 was suitable for use in a wind turbine. Anyway, the solution to the objective technical problem was not limited to the specific field of rotor blade manufacturing. The outermost layer of the component was formed by the release layer of Example 2, see page 23, line 31, and followed by several fibre layers, see page 23, line 26 ff. That the outermost layer consisted of several film layers with different properties was clear from page 23, line 30 of document E3. Claim 1 merely required that at some point in time a multilayered outermost layer between the mould and the component must be present. Reference was also made to page 7, line 30 to page 8, line 25 and to page 12, lines 15 to 17 of document E3.

Also document E4 would have been consulted by the skilled person since it disclosed a method for manufacturing a three-dimensional fibre-reinforced component. That such a manufacturing process was common also followed from document E16. According to paragraph [0067] of document E4, it was suggested to use prepregs

together with thermoplastic film layers with different properties. Examples of those properties were an improved surface quality, an improved UV and corrosion resistance or different optical properties. Paragraphs [0078] and [0079] of document E4 generally showed that several prepregs could be used for manufacturing the component in a mould. Consequently, several layers of fibre material were bonded together by a resin. Furthermore, paragraph [0069] described that different film sections or pre-cut blanks of a film could be used as a surface coating in a mould. They had different properties due to their individual shape and because they were required to cover the part surface. Also paragraph [0067] of document E4 was referred to. Document E17 was further proof of common general knowledge.

The skilled person would have been specifically instructed by the teaching of document E5 to apply film layers with a wide variety of properties to different parts of the surface of a rotor blade. One possibility was a lotus film layer, another was a shark skin layer. Reference was made in particular to Figure 3 and to the third paragraph of page 2, the fourth paragraph of page 3, the first and third paragraphs of page 4, the second and fifth paragraphs of page 5 and to the third paragraph of page 6. Moreover, document E5 would not have encouraged the skilled person to apply an erosion protection lacquer instead of an erosion protection film.

The subject-matter of claim 7 of auxiliary request 10 was thus not based on an inventive step. The same arguments also applied to claim 1 of auxiliary request 10.

Auxiliary request 10 - support by the description

- *Patent proprietor*

The passage in paragraph [0030] of the patent did not contradict the claims of auxiliary request 10. It concerned the description of the fabricated part of Figure 5. Independent product claim 7 of auxiliary request 10 allowed different ways to manufacture the product. The claimed blade did not have to be manufactured by the method of claim 1. Therefore, there was no need to adapt the description to the claims of auxiliary request 10.

- *Opponent*

Compared to the claims as granted, the claims of auxiliary request 10 were amended by adding the feature that the films had different properties in different locations. Therefore, there was an inconsistency between the fifth sentence of paragraph [0030] and the set of claims of auxiliary request 10 in terms of the order of the steps of method claim 1. This had not been an issue before the opposition division because it held a set of claims of an auxiliary request allowable which did not have any method claims.

Reasons for the Decision

Applicable law

1. The European patent application on which the opposed patent is based was filed on 22 December 2005. In accordance with the decision of the Administrative Council of 28 June 2001 on the transitional provisions under Article 7 of the Act revising the EPC of

29 November 2000 (Article 1(1) in Special edition No. 4, 219, OJ EPO 2007), Articles 54(1) and (2), 56, 83, 84, 100 EPC 1973 and Article 123(2) EPC apply in the present case.

2. The present proceedings are governed by the Rules of Procedure of the Boards of Appeal (RPBA) as in force since 1 January 2024 (see OJ EPO 2024, A15).

Main request (patent as granted)

Interpretation of claim 1

3. Claim 1 as granted defines a method of manufacturing fibre-reinforced parts for a wind power plant. The method is determined by four steps: laying out different layers in a mould, applying resin for joining the layers, arranging several layers of film outermost in the mould and joining the layers of film.
4. On a natural reading of the claim, the first and the third steps are closely related: the "several layers of film" are also "different layers" laid out in the interior surface of an open mould. Given that the several layers of film are to be arranged "outermost", they must be placed in the mould before any of the other different layers, including the layer of fibre material. Whether the other different layers, including the layer of fibre material, are laid out together or sequentially on top of the layers of film is left open by the claim wording.
5. Nor does claim 1 as granted specify whether the fourth step of joining the layers of film to form an outermost

layer of the fibre-reinforced part is the result of the application of resin for joining the laid-out layers of the second step, or if the layers of film are joined to each other and/or to the further layer(s) by alternative means.

6. Furthermore, it follows both from the broad wording of claim 1 and from the whole of the patent as granted that the layers of film need not be arranged in a superposed manner. In this respect, particular reference is made to dependent claim 6 as granted and to the embodiments of Figures 4 and 6.

Inventive step of the subject-matter of claim 1 (Article 100(a) and Article 56 EPC 1973)

7. Document D7 concerns rotor blades made of fibre-reinforced synthetic resins, in particular for wind turbines, and to a method for making such blades (column 1, lines 7 to 9).
8. Figures 2 to 5 and 9 to 11 of document D7 illustrate the initial stages of the rotor blade manufacture: a binding 24 of unidirectional fibres is wound over a spar element 2 and two end elements 8, 10, a cross-binding 26 is applied over the binding 24 on the spar element 2 and two front and rear profile elements 4 and 6, and another cross-binding 28 is wound around the bound core to form the skin of the rotor blade (column 5, lines 1 to 35 of document D7). This rotor blade blank is then lowered into the bottom component 88 of a two-component mould 86 defining the profile of the finished blade. Due to the resin impregnation of the different fibres the blade is cured in the mould (column 7, lines 35 to 55 of document D7). In order to obtain a reduced surface roughness, document D7

foresees a coating on the rotor blade surface. This is done by lining the mould with a pre-formed thermoplastic film, which is then securely joined to the resin during the curing process.

9. The only difference between the subject-matter of claim 1 as granted and the method known from document D7 lies in the third step, namely the arrangement of several layers of film outermost on the interior surface of the open mould. The patent proprietor saw a further difference in that the prior art method did not lay out different layers comprising a layer of fibre material in the interior surface of the open mould, as required by the first step of the claimed method. For the reasons which follow, the board does not accept this argument. As a result of the initial manufacturing stages described above, both the top surface and the lower surface of the rotor blade blank shown in Figure 5 of document D7 must comprise at least three layers of differently wound resin-impregnated fibre bindings. Throughout the description and the claims of document D7, these fibre bindings are consistently referred to as 'fibre layers'. When placing the rotor blade blank of Figure 5 of document D7 onto the bottom component 88 of mould 86, the fibre layers on the lower surface of the blank are therefore laid out in the interior surface of an open mould. Since the wording of claim 1 as granted does not prescribe how the different layers are to be laid out (see point 4. above), the first step of claim 1 as granted is thus disclosed by document D7. The board remarks that the thermoplastic film laid out first in the open mould of document D7 also counts as a layer in the sense of the first method step (see also point 4. above).

10. Following paragraph [0009] of the patent in suit, the arrangement of several layers of film on the interior surface of the open mould results in an element surface of increased strength which wears more slowly. Nevertheless, this technical effect is confined to the embodiment of Figure 3 where the layers of film are superposed (hence the mention of "increased thickness" in paragraph [0009]). Such a superposed arrangement is not included in claim 1 as granted, which is also aimed at the embodiment of Figures 4 and 6 where films with different properties are arranged in different locations on the interior surface of the mould (see point 6. above). The technical effect of the distinguishing feature is thus broader than that disclosed in paragraph [0009] of the patent. In the board's view, arranging several layers of film instead of just one layer of film improves the surface properties of the fibre-reinforced part. Hence, the objective technical problem is considered to improve the surface properties of a fibre-reinforced part.
11. Document E7 concerns the use of a multilayer film for coating articles made of a thermoset material (see claim 1 of document E7). An increase in weathering resistance, radiation resistance and chemical resistance of the thermoset substrate is mentioned in paragraph [0002] of document E7. In view thereof, the board is convinced that the skilled person, starting from document D7 and faced with the objective technical problem, would have consulted document E7, even if wind turbine rotor blades are not explicitly mentioned in document E7.
12. Figure 3 of document E7 shows a multilayer film consisting of an adhesive layer ("Tie"), a polyvinylidene fluoride (PVDF) layer and a polyamide

(PA) layer arranged outermost on the interior surface of a mould. The PA layer is temporary and serves to protect the PVDF layer during handling (see paragraphs [0041] and [0115] of document E7). The thermoset material - in the example of Figure 3 glass fibre in combination with UPE resin is used - is then placed on top of the multilayer film in order to produce a substrate coated with the multilayer film (see paragraphs [0041] and [0122] to [0124] of document E7).

13. The disclosure of document E7 would thus have taught the skilled person that the surface properties of a fibre-reinforced part can be improved by providing a coating consisting of several film layers on the outer surface of the part in the same way as required by the third and fourth steps of claim 1 as granted. Applying this teaching to the method known from document D7 would thus have resulted in the subject-matter of claim 1 as granted.
14. The board does not share the patent proprietor's concerns with regard to the thickness of the temporary PA layer of document E7. But even without the PA layer, which is optional according to paragraph [0115] of document E7, remaining PVDF and tie layers still constitute an arrangement of several layers of film in the sense of claim 1 as granted. Moreover, the opponent has convincingly argued with reference to paragraphs [0116] to [0118] of document E7 that the PVDF layer consists of two sub-layers so that already the PVDF layer without the tie layer can be regarded as an arrangement of two layers of film.
15. As regards the patent proprietor's argument in respect of the comment in column 5, lines 47 to 50 of document D7, the board disagrees that this passage highlights

that adhesive bonds must be avoided for safety reasons. Rather, it is a statement to the effect that an exemplary rotor blade described above in column 5 of document D7 has no adhesive bonds "critical to its safety, such as are normally present in blades of conventional construction". This must be understood against the background of the prior art discussion in column 1 of document D7 as an absence of adhesive bonds at the interface between large parts, such as rotor blade shells or foam plastic filling pieces, that would compromise the safety of the entire fibre-reinforced part. The statement would, however, not have deterred the skilled person from using an adhesive layer for coating film layers to the outer surface of a fibre-reinforced part, as is done in document E7.

16. In a further line of argument, the patent proprietor argued that the mention of gelcoats in document E7 spoke against considering its teaching, since the patent in suit sought to obviate the use of gelcoats. The board notes that the wording used in paragraphs [0041] and [0060] of document E7 reflects the optional nature of providing a gelcoat between the tie layer and the thermoset substrate. The mere mention of gelcoats in these paragraphs would not have discouraged the skilled person to combine documents D7 and E7.
17. In sum, the patent proprietor has not convincingly shown that the subject-matter of claim 1 as granted involves an inventive step. The ground for opposition pursuant to Article 100(a) EPC 1973 together with Article 56 EPC 1973 therefore prejudices the maintenance of the patent as granted.

Auxiliary request 1

18. The wording of claim 1 of the patent proprietor's auxiliary request 1 is identical to that of claim 1 as granted. For the same reasons as set out above, the requirements of Article 56 EPC 1973 are not met. Hence, auxiliary request 1 is not allowable.

Admittance of auxiliary requests 1a and 10

19. The claims of auxiliary requests 1a and 10 filed with the patent proprietor's statement of grounds of appeal have identical wording as those of auxiliary requests 1a and 10, respectively, filed but not admitted during the oral proceedings held on 9 December 2019 before the opposition division. The opponent did not have any objection against the admittance of auxiliary requests 1a and 10.
20. Pursuant to Article 12(6), first sentence, RPBA, the board shall not admit requests, facts, objections or evidence which were not admitted in the proceedings leading to the decision under appeal, unless the decision not to admit them suffered from an error in the use of discretion or unless the circumstances of the appeal case justify their admittance.
21. Under the circumstances of the case in hand, the board decided to admit auxiliary request 1a into the appeal proceedings. The introduction of a reference to the method claims into the independent product claim 8 of auxiliary request 1a can be regarded as an attempt by the patent proprietor to further limit the claimed

product and thus to overcome the inventive step objections the opponent had raised - and the opposition division had found convincing - against claim 8 as granted and claim 8 of auxiliary request 1 (see points 1.4.2 and 2.2 of the reasons for the decision under appeal).

22. As regards auxiliary request 10, it includes an additional feature in the independent method claim 1 that is very similar to the additional feature of claim 8 of auxiliary request 4. It was this independent product claim that was considered allowable by the opposition division and was maintained as claim 1 of auxiliary request 11 by the patent proprietor in the proceedings before the opposition division (see points 4.2, 4.3 and 6 of the reasons for the decision under appeal). In view thereof, the amendment to claim 1 of auxiliary request 10 is considered to be a legitimate reaction by the patent proprietor to the decision under appeal in an attempt to save the method claims of its patent, albeit in a more limited form.

23. Furthermore, the opponent did not have any objection against the admittance of auxiliary requests 1a and 10.

In light of the above, the board decided, in exercise of its discretion under Article 12(6), first sentence, RPBA, to admit auxiliary requests 1a and 10 into the appeal proceedings.

Auxiliary requests 1a and 2 to 8

24. The wording of claim 1 of each of the patent proprietor's auxiliary requests 1a and 2 to 8 is

identical to that of claim 1 as granted. For the same reasons as set out above in respect of the main request, the requirements of Article 56 EPC 1973 are not met. Hence, auxiliary requests 1a and 2 to 8 are not allowable.

Auxiliary request 10

Allowability of amendments (Article 123(2) EPC)

(a) Claim 1 - "joined"

25. The first issue under dispute is whether the fourth method step

"and joined to form an outermost layer of said fibre-reinforced part",

which had been added to claim 1 of the application as filed during proceedings before grant, resulted in an extension beyond the application as filed.

26. In the board's view, the passages on page 3, lines 20 to 24, on page 5, line 28 to page 6, line 3, and on page 9, lines 20 to 22 of the application as filed have particular relevance in this respect.

The first passage is part of the general description of the method of claim 1. It explains that the result of the third method step is *"an element surface of increased strength which wears more slowly"*. Through the mention of *"the increased thickness of the combined outermost layer"*, the passage infers that the film layers are arranged on top of each other as in the

embodiment of Figure 3. At the same time, it implies that the method produces fibre-reinforced parts in which the several layers of film and any further layers including the layer of fibre material must be joined to each other. It is not apparent how the layers of film could build the outermost layer and, ultimately, form the surface of the manufactured part without any junction or connection, however weak it is. The board concurs with the patent proprietor that, at least in the technical field of wind turbine rotor blades, the opponent's argument referring to loosely arranged layers of film is devoid of technical sense.

The second passage concerns the general description of the fibre-reinforced part of claim 8. From the wording of this claim, it is evident that not only the layers of fibre material but also the first, outermost layer, which in the words of the characterising part "*comprises several layers of film*", are joined to each other by use of resin. The fact that "*one or more film layers can be removed*", as disclosed in the sentence bridging pages 5 and 6 of the application as filed, does not change this understanding of how the fibre-reinforced part is manufactured. Quite to the contrary, removing a layer of film from a fibre-reinforced part formed in a mould implies that there must have been a junction or connection between this layer and the other layers remaining in the fibre-reinforced part.

The third passage discloses two possible ways of joining the individual layers of film to each other prior to their arrangement in the open mould: by rolling or by gluing. The board concurs with the patent proprietor that this passage does not stand in conflict with the requirement that the film layers are joined

together with the other laid-out layers to form the fibre-reinforced part.

27. In sum, the feature *"and joined to form an outermost layer of said fibre-reinforced part"* in claim 1 of auxiliary request 10 is directly and unambiguously derivable from the application as filed when considered as a whole.

(b) Claim 1 - "different properties"

28. A second issue under dispute is whether the additional feature of claim 1 of auxiliary request 10

"wherein films with different properties are arranged in different locations on the interior surface of the open mould"

has basis in the application as filed.

29. The board is in agreement with the patent proprietor that claim 6 of the application as filed, from which the additional feature was taken, refers to any of the preceding claims 1 to 5. Interpreting the dependency "claims 1-5" in claim 6 as a reference to a combination of all claims 1 to 5 and, thus, implying that the disputed amendment was isolated from a combination of further features that are not included in claim 1 of auxiliary request 10, does not fit with the exclusive dependency on claim 4 that can be found in claim 5 of the application as filed. Furthermore, this view on the matter is supported by the passage on page 5, lines 1 to 2 of the application as filed, according to which the additional feature of claim 1 of auxiliary request 10 is part of an embodiment which is not necessarily

limited by the features of claims 2 to 5 of the application as filed.

(c) Claim 7 - "fibre-reinforced blade"

30. Independent product claim 8 of the application as filed concerns a "*fibre-reinforced part for a wind power plant such as eg a blade*". In the independent product claim of auxiliary request 10, which was re-numbered to claim 7, this wording has been changed to a "*fibre-reinforced blade for a wind power plant*". The opponent contests this amendment, essentially arguing that the optional feature "*such as eg a blade*" in claim 8 of the application as filed referred to the wind power plant, not to the fibre-reinforced part.

31. The board concurs with the patent proprietor that the opponent's interpretation of claim 8 of the application as filed does not follow from the wording of any of the claims and does not have basis in the description of the application as filed either. In fact, the claim wording only makes technical sense when the deleted optional feature "*such as eg a blade*" refers to the part itself, not to the wind power plant. In addition, it follows directly and unambiguously from page 1, line 12, page 6, lines 26 to 28 and page 7, lines 21 to 23 of the application as filed that a blade for a wind power plant is a specific example of the fibre-reinforced part of the original claims.

(d) Conclusion

32. The requirements of Article 123(2) EPC are fulfilled.

Sufficiency of disclosure (Article 83 EPC 1973)

33. A first objection by the opponent concerns the way in which the layers of film are joined to the fibre material in accordance with what is claimed in independent method claim 1 and independent product claim 7 of auxiliary request 10. It is alleged that the layers of film were impermeable to resin so that the resin applied to join the individual layers of fibre material to each other would not serve to join the layers of film to the fibre-reinforced part.

34. The opponent has not submitted any evidence for its allegation that layers of film are typically impermeable to resin. This would depend on the composition of such layers. In the context of manufacturing fibre-reinforced parts for a wind power plant, the materials of any layers of film used in the mould would be selected for their compatibility with the other layers, in particular with the fibre layers, and the thermosetting resin used to cure the fibre layers. Furthermore, the opponent has not disputed that, as far back as 2004 (when the application from which the patent in suit claims priority was filed), it was well-known to the person skilled in the art of composites to use adhesive-based or tacky surface films in connection with lay-up methods.

35. In view of the above, there would be no need for the skilled person to set up a research programme or to adopt a trial-and-error approach in order to determine under which circumstances a fibre-reinforced part could be manufactured with the layers of film joined to form the outermost layer. The board is therefore persuaded that the patent in suit discloses the invention defined

in claims 1 and 7 of auxiliary request 10 in a manner sufficiently clear and complete for it to be carried out by a skilled person.

36. Also the opponent's objection with regard to claim 6 of auxiliary request 10 is not convincing. The board fails to see any serious doubts substantiated by verifiable facts that the person skilled in the art would manage to arrange a layer of film on a fibre-reinforced part manufactured by means of the method of claim 1 of auxiliary request 10. The fact that the outermost layer of the part already consists of multiple layers of film does not prevent the skilled person from applying an additional film elsewhere "eg on locations that are very exposed to wear or where other effects of the film are desirable" (see paragraph [0015] of the patent).
37. The requirements of Article 83 EPC 1973 are therefore fulfilled.

Novelty (Article 54(1) and (2) EPC 1973)

38. Document E5 concerns a rotor blade for a wind turbine. With the aim to reduce the noise produced by the rotation of the blade, it is proposed to apply a liquid-repellent coating on at least part of the outer surface of the rotor blade (claim 1 of document E5). The fifth paragraph of page 2 of document E5 indicates that the coating may take the form of a film, the surface structure of which forms a liquid-repellent layer. The film can be glued to the surface of the rotor blade (see the second paragraph of page 4).
39. Unlike the subject-matter of claim 7 of auxiliary request 10, however, the rotor blade of document E5 does not have films with different properties arranged

in different locations on the fibre-reinforced blade. Even if the fourth paragraph of page 4 can be read as meaning that the shark skin is applied in addition to the previously described solution ("in Ergänzung zu der vorbeschriebenen Lösung"), it follows from the wording of claims 1 and 6 of document E5 that the shark skin is not intended as an additional layer to, for example, a first layer of "Lotusan" (see the third paragraph of page 3) but that it is a specific way of realising the protruding structures of the liquid-repellent coating. The same applies to the additional measure ("ergänzende Maßnahme") of the erosion protection lacquer described in the third paragraph of page 6 as an alternative to unfavourable erosion protection films. Actually, the only disclosure in document E5 of a rotor blade containing two layers of film arranged in different locations on the outer surface is the description of Figure 3 in the second paragraph of page 5. Accordingly, scale-like patches 12 are applied in a staggered manner to the surface of the rotor blade, each carrying ribs 11 with a predetermined height. However, it is not apparent that these patches are films with different properties. In contrast, the drawing of Figure 3 implies that the ribs of different patches are seamlessly connected to one another. Also the suggestion in the fifth paragraph of page 5 of document E5 that the distance between the ribs could vary in accordance with the rotation speed is not a direct and unambiguous disclosure of a shark skin layer comprising films with different properties arranged in different locations on the fibre-reinforced blade.

40. For the reasons set out above, the subject-matter of claim 7 of auxiliary request 10 is new over the disclosure of document E5 (Article 54(1) and (2) EPC

1973). The opponent did not raise any novelty objection against claim 1 of auxiliary request 10.

Inventive step (Article 56 EPC 1973)

41. As set out in points 8. and 9. above, the rotor blade known from document D7 is manufactured by laying out a first outermost layer formed by a thermoplastic film in a mould, followed by several layers of fibre material, which layers are then joined to each other by means of resin. However, the outermost layer does not comprise or is not constituted by several layers of film. Nor are films with different properties arranged in different locations on the fibre-reinforced blade.

42. In the board's view, the distinguishing features of claim 7 of auxiliary request 10 have to be considered in combination. The films with different properties in different locations on the blade must be part of those films that form the outermost layer. This follows from the disclosure of paragraphs [0014] and [0017] of the patent that the arrangement of the films results in "a surface where the surface properties vary" and it is confirmed by the wording of claim 1 of auxiliary request 10 ("films with different properties are arranged in different locations on the interior surface of the open mould"). Compared to the rotor blade of document D7, which has an outermost layer constituted of only one film, the technical effect of the distinguishing features, and hence the objective technical problem, is thus how to provide the surface with varying surface properties.

43. The opponent argues that the person skilled in the art would have combined the rotor blade of document D7 with each of documents E2, E3, E4 or E5 in order to solve

the objective technical problem(s) and, in so doing, would have arrived at the subject-matter of claim 7 of auxiliary request 10.

- 43.1 Regarding document E2, the board remarks that its aim is to develop a method for protecting articles from weathering, in particular long term colour instability (see paragraphs [0003], [0007] and [0008] of document E2). To this end, the substrate layer of the article, typically a thermoset fibre-reinforced material, is coated with several layers (coating layer, second layer, adhesive layer, see claim 1 of document E2). According to paragraph [0065] of document E2, the various layer components are characterised by "the usual beneficial properties". Mentioned are *inter alia* "improved initial gloss", "improved initial color", "improved resistance to ultraviolet radiation", "improved impact strength" and "resistance to organic solvents". Nothing is stated, however, about the arrangement of these layers in different locations on the substrate, let alone that the beneficial properties of the layers would differ in accordance with their location on the substrate.
- 43.2 Document E3 does not make any mention of rotor blades or wind power plants. But even if, *arguendo*, the skilled person had combined the teachings of documents D7 and E3, this would not have resulted in a fibre-reinforced blade in the sense of claim 7 of auxiliary request 10, for the following reasons. The passages cited by the opponent on pages 7 and 8 of document E3 refer to a release film consisting of a release layer and a surface enhancement layer. The surface enhancement layer provides qualities to the film which the release layer lacks. Figure 1 of document E3 illustrates that the fibre-reinforced part is made in

an autoclave using a vacuum bagging apparatus. Accordingly, composite material 8 is placed between two release films 9 and 11, one of which is released once the resin material is cured so that it does not form part of the (final) fibre-reinforced part. Contrary to what is alleged by the opponent, an arrangement of different films with different properties in different locations cannot be derived from any of the passages on page 12, lines 15 to 20 and of page 23, line 26 ff of document E3.

43.3 Also document E4 does not explicitly refer to rotor blades or wind power plants. Instead, automobile parts are mentioned in paragraph [0047]. The opponent argues with reference to paragraphs [0067], [0069], [0078] and [0079] of document E4 that thermoplastic film layers or film sections with different properties were applied to a series of prepregs in order to produce the fibre-reinforced part. In paragraph [0067], however, only one film layer is mentioned, albeit with different properties or "enhancements". It does not follow from this paragraph that the different "enhancements" are applied all at once on the surface of the fibre-reinforced part. With regard to paragraph [0069], it indeed implies that the outermost layer of the fibre-reinforced part comprises several layers of (pre-cut) film which are arranged in different areas or on different locations so as to cover the entire surface of the fibre-reinforced part. Yet it is not disclosed that the individual film sections are made of different materials with different properties. The disclosure may very well be limited to the arrangement of cuts from the same thermoplastic surface film layer.

43.4 At this junction the board notes that it has no doubt - nor was it disputed by the parties - that the

manufacture of three-dimensional fibre-reinforced components in the field of wind turbine plants was common general knowledge at the priority date of the patent. Nor does the board see any reason to question the opponent's argument that, at that point in time, additives used to modify the properties of polymers in final products were known to be expensive. The board did therefore not see any need to decide on the admittance of documents E16 and E17, which were filed by the opponent as evidence of this common general knowledge in the context of the inventive step objection in respect of a combination of documents D7 and E4.

- 43.5 The opponent also takes the view that document E5 would have instructed the skilled person to solve the objective technical problem by applying film layers with different properties in different locations of a rotor blade. The board disagrees. Firstly, the patent proprietor has convincingly argued that the aim of document E5 - to provide a surface with a rough microstructure instead of a greatest possible smoothness ("Anstatt [...] eine größtmögliche Glätte [...] wird genau das Gegenteil gemacht, nämlich eine in der Mikrostruktur rauhe Oberfläche", see the third paragraph of page 2) - clashes with the gist of the disclosure of document D7 (see column 5, lines 42 to 46 and column 7, line 64). This speaks against combining the teachings of documents D7 and E5. But even if these documents had been combined, as set out in point 39. above, document E5 fails to disclose two layers of film with different properties that are arranged in different locations of a rotor blade. Rather, the shark skin layer of document E5 constitutes one specific way of realising the liquid-repellent layer required by claim 1 of document E5. The lotus layer and the erosion

protection lacquer constitute an alternative coating. Also, the embodiment in the fifth paragraph of page 5 of document E5 would not have incited the skilled person to patch film layers with different properties in different locations on the blade.

44. In sum, the board concludes that the subject-matter of claim 7 of auxiliary request 10 involves an inventive step (Article 56 EPC 1973). The same applies to claim 1 of auxiliary request 10, which has a similar wording, for the same reasons.

Support by the description (Article 84 EPC 1973)

45. The issue under dispute is whether or not the detailed description of Figure 5 in paragraph [0030] of the patent had to be amended in order to provide support for the claims of auxiliary request 10 under Article 84 EPC 1973.
46. The Enlarged Board of Appeal in decision G 3/14 (OJ EPO 2015, 102) ruled that, in considering whether, for the purposes of Article 101(3) EPC, a patent as amended meets the requirements of the EPC, the claims of the patent may be examined for compliance with the requirements of Article 84 EPC only when, and then only to the extent that, the amendment introduces non-compliance with Article 84 EPC (see G 3/14, Reasons 81). The subject-matter to be examined under Article 84 EPC must thus have some direct nexus with the amendment (see G 3/14, Reasons 16 and 17).
47. In the present case, claim 1 of auxiliary request 10 has been amended compared to claim 1 as granted by the addition of the feature that films with different properties are arranged in different locations on the

interior surface of the open mould. Pursuant to decision G 3/14, objections under Article 84 EPC 1973 would thus be admissible insofar as they arise out of the addition of that feature. The same applies to the similar amendment of the independent product claim 7 of auxiliary request 10, namely that films with different properties are arranged in different locations on the fibre-reinforced blade.

48. Paragraph [0030] of the patent indicates that "*the fibre-reinforced parts are moulded without layers of film most distally and that they are subsequently added after the moulding procedure*" and that the layers of film "*can be applied both prior to and after assembly processes*". These passages concern the moment in time at which the layers of film are applied. The board fails to see a direct nexus between these passages and the amendment of claim 7 of auxiliary request 10, which concerns the composition of the outermost layer of fabricated blade. It is also not apparent how the amendment made to claim 1 of auxiliary request 10 could have caused a lack of support by these passages. If at all, such a lack of support must have existed in the patent as granted, because claim 1 as granted already imposed the limitation that several layers of film are arranged outermost on the interior surface of the open mould, i.e. they are applied during the moulding procedure.
49. In view of the above considerations, the board judges that the examination of the mentioned passages of paragraph [0030] of the patent for compliance with the requirements of Article 84 EPC 1973 is not possible in view of decision G 3/14.

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:
 - Claims: claims 1 to 9 of auxiliary request 10 filed with the patent proprietor's statement of grounds of appeal,
 - Description:
 - paragraphs [0001] to [0021] and [0023] to [0032] of the patent specification,
 - paragraph [0022] filed during the oral proceedings before the opposition division on 1 April 2021,
 - Drawings: sheets 1/1 and 2/2 of the patent specification.

The Registrar:

The Chairman:



N. Schneider

P. Lanz

Decision electronically authenticated