Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 20 February 2025

Case Number: T 0846/23 - 3.2.06

Application Number: 17736672.1

Publication Number: 3487802

IPC: B66B7/06, D07B1/16

Language of the proceedings: EN

Title of invention:
AN EVELATOR TENSION MEMBER WITH A HARD THERMOPLASTIC POLYURETHANE ELASTOMER JACKET

Patent Proprietor:
Bekaert Advanced Cords Aalter NV

Opponent:
Otis Elevator Company

Headword:

Relevant legal provisions:
EPC Art. 100(b), 83, 111(2)
RPBA Art. 11 (2007)

This datasheet is not part of the Decisior
It can be changed at any time and without notic

Keyword:
Grounds for opposition - insufficiency of disclosure (yes)
Sufficiency of disclosure - undue burden (yes) - main request (no) - auxiliary requests (no)
Remittal - special reasons for remittal (no)

Decisions cited:

Catchword:

This datasheet is not part of the Decisior
It can be changed at any time and without notic

Europäisches Patentamt
European Patent Office
Office européen des brevets

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

Case Number: T 0846/23 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 20 February 2025

Appellant: (Patent Proprietor)	Bekaert Advanced Cords Aalter NV Léon Bekaertlaan 5 9880 Aalter (BE)
Representative:	Seynhaeve, Geert Filiep NV Bekaert SA IPD - PC6030 Bekaertstraat 2 8550 Zwevegem (BE)
Appellant: (Opponent)	Otis Elevator Company Intellectual Property Department One Carrier Place Farmington, Connecticut 06032 (US)
Representative:	Winter, Brandl - Partnerschaft mbB Alois-Steinecker-Straße 22 85354 Freising (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 23 February 2023 concerning maintenance of the European Patent No. 3487802 in amended form.**

Composition of the Board:

Chairman	M. Harrison
Members:	P. Cipriano
	W. Ungler

Summary of Facts and Submissions

I. In its interlocutory decision the opposition division found that, account being taken of the amendments made by the patent proprietor during the opposition proceedings, European patent No. 3 487 802 met the requirements of the EPC.

II. Appeals were filed by the patent proprietor and the opponent respectively. As they are both appellants, they will be referred to as 'patent proprietor' and 'opponent' respectively in the following.

III. The patent proprietor requested in its statement setting out the grounds of appeal filed on 4 July 2023, that the decision under appeal be set aside and the patent be maintained according to a main request or, auxiliarily, that the patent be maintained according to one of auxiliary requests 1 to 6 and 3bis. All the requests were filed with the grounds of appeal.

IV. The opponent (appellant) requested that the decision under appeal be set aside and the European patent be revoked.

V. The following document is of relevance for this decision:
Declaration by Mr. Vermeersch entitled "Affidavit by Mr. Vincent VERMEERSCH"

VI. With letter dated 29 January 2024, the proprietor filed auxiliary request 7.

VII. The Board issued a summons to oral proceedings in person on 10 May 2024 and a subsequent communication,

in which it indicated *inter alia* that the order of the requests was not entirely clear to the Board, that the patent did not provide the skilled person with sufficient information on how to select a thermoplastic polyurethane elastomer having the properties defined in claim 1, and that auxiliary requests requests 1, 2, 3bis, 4, 5 and 6 did not seem to overcome the objections of insufficiency of disclosure against the main request.

VIII. With letter dated 13 January 2025 the patent proprietor requested that the oral proceedings be held by video conference.

IX. With letter dated 31 January 2025 the patent proprietor filed auxiliary request 8 and an affidavit by Mr. Vermeersch. The patent proprietor also requested that the requests be taken in the following order: main request followed by auxiliary requests 5, 6, 3bis (or 3), 8, 7 and 4. Further, the patent proprietor withdrew its request regarding the violation of the right to be heard and maintained the auxiliary requests 1 and 2.

X. The patent proprietor was informed on 5 February 2025 that the oral proceedings would take place in person as summoned.

XI. With letter dated 14 February 2025 the patent proprietor stated that no representative of the patent proprietor would be present at the oral proceedings.

XII. Oral proceedings were held before the Board in the absence of the patent proprietor.

At the close of the oral proceedings the requests remained unchanged, as follows:

The appellant (patent proprietor) requested in writing that:
- the decision under appeal be set aside and the patent be maintained as granted (main request),
- auxiliarily that the patent be maintained on the basis of one of auxiliary requests 5 and 6 filed on 4 July 2023,
- further auxiliarily that the opponent's appeal be dismissed,
- further auxiliarily that the patent be maintained on the basis of auxiliary request 3 filed on 4 July 2023, or
- on the basis of auxiliary request 8 filed on 31 January 2025, or
- on the basis of auxiliary request 7 filed on 29 January 2024, or
- on the basis of one of auxiliary requests 4, 1 or 2 filed on 4 July 2023.

Furthermore, it was also requested for various reasons that the case be remitted to the opposition division.

The appellant (opponent) requested that the decision under appeal be set aside and the patent be revoked.

XIII. Claim 1 of the main request reads as follows:
"An elevator tension member (100, 200) comprising one or more steel cords (106) and a jacket (110, 210) encasing said steel cords (106), wherein said jacket (110, 210) comprises a thermoplastic polyurethane elastomer, said thermoplastic polyurethane elastomer having a hard crystalline phase and a soft phase, characterised in that the glass transition temperature of said hard crystalline phase (T_{gHS}) is higher than 90°C."

XIV. Claim 1 of auxiliary request 5 differs from claim 1 of the main request in that the following feature was appended at the end of the claim:
"said glass transition temperature of said hard crystalline phase (T_{gHS}) being determined by Differential Scanning Calorimetry (DSC) on second heating, after erasing the thermal history of the sample and after all water is evaporated."

XV. Claim 1 of auxiliary request 6 differs from claim 1 of the main request in that the following feature was appended at the end of the claim:
"said glass transition temperature of said hard crystalline phase (T_{gHS}) being determined by Differential Scanning Calorimetry (DSC) at a cooling or heating rate set to 20°C per minute, on second heating, after erasing the thermal history of the sample and after all water is evaporated."

XVI. Claim 1 of auxiliary request 3 differs from claim 1 of the main request in that the following feature was appended at the end of the claim:
"and wherein the bending stiffness of the elevator tension member (100, 200) is at least five times the total bending stiffness of the bare one or more steel cord."

XVII. Claim 1 of auxiliary request 3bis differs from claim 1 of auxiliary request 3 in that the feature "the glass transition temperature of said hard crystalline phase (T_{gHS}) is higher than 90°C" is part of the preamble.

XVIII. Claim 1 of auxiliary request 8 differs from claim 1 of the main request in that the following features were appended at the end of the claim:

"said glass transition temperature of said hard crystalline phase (T_{gHS}) being determined by Differential Scanning Calorimetry (DSC) on second heating, after erasing the thermal history of the sample and after all water is evaporated and wherein the bending stiffness of the elevator tension member (100, 200) is at least five times the total bending stiffness of the bare one or more steel cord."

XIX. Claim 1 of auxiliary request 7 differs from claim 1 of the main request in that the following features were appended at the end of the claim:
"and wherein the bending stiffness of the elevator tension member (100, 200) is at least five times the total bending stiffness of the bare one or more steel cord, said bending stiffness being determined on a horizontal support between two frictionless fulcrums 50 times the diameter of the steel cord apart."

XX. Claim 1 of auxiliary request 4 differs from claim 1 of the main request in that the following features were appended at the end of the claim:
"wherein the diameter of each of said steel cords (106) is lower than or equal to 8 mm and larger than or equal to 1 mm and wherein the bending stiffness of the elevator tension member (100, 200) is at least five times the total bending stiffness of the bare one or more steel cord."

XXI. Claim 1 of auxiliary request 1 reads as follows:
"An elevator tension member (100, 200) comprising one or more steel cords (106) and a jacket (110, 210) encasing said steel cords (106), wherein said jacket (110, 210) comprises a thermoplastic polyurethane elastomer, said thermoplastic polyurethane elastomer having a hard crystalline phase and a soft phase,

wherein said thermoplastic polyurethane elastomer further has a crystallisation temperature (T_c), said crystallisation temperature (T_c) being measured during cooling from the melt
characterised in that
the glass transition temperature of said hard crystalline phase (T_{gHS}) is higher than 90°C and the sum of said glass transition temperature of said hard crystalline phase (TgHs) and said crystallisation temperature (T_c) is higher than 200°C."

XXII. Claim 1 of auxiliary request 2 differs from claim 1 of auxiliary request 1 in the characterizing portion reads as follows:
"characterised in that the glass transition temperature of said hard crystalline phase (TgHs) is higher than 90°C and said crystallisation temperature (T_c) is at least 20°C higher than glass transition temperature of said hard crystalline phase (TgHs)."

XXIII. The arguments of the proprietor may be summarised as follows:

Main request - Article 100(b) EPC

The patent taught how a thermoplastic polyurethane elastomer TPE (hereinafter referred to as TPE) as defined in claim 1 should be selected, and this was sufficient to enable the skilled person to carry out the invention. The Shore D hardness enabled the skilled person to narrow down the selection of TPEs from the wide variety of existing TPEs.

As evidenced by the declaration of Mr. Vermeersch, hardness could be used to narrow down the selection of TPEs (14 material samples were received and 13 of them

were tested in the patent) when looking for TPEs with a glass transition temperature of said hard crystalline phase (T_{gHS}) higher than 90°C. Out of the 13 TPEs tested, 8 were identified as having a TgHS above 90°C as shown in the Table on page 9 of the patent.

This did not place an undue burden on the skilled person trying to carry out the invention.

Auxiliary requests - Article 83 EPC

The amendments to claim 1 of auxiliary request 8 overcame the objections under Article 100(b) EPC made against the main request.

XXIV. The arguments of the opponent may be summarised as follows:

Main request - Article 100(b) EPC

The patent does not provide sufficient information to identify a TPE as defined in claim 1. The patent did not disclose a way to allow a skilled person to narrow down the selection of TPEs from the wide variety of TPEs that are available or can be produced.

In the Examples, see paragraph [0056], the patent states that the inventors evaluated a large number of commercially available, i.e. known, TPEs. However, nowhere in the patent was any information provided regarding the composition of the tested TPEs or which TPEs have a T_{gHS} higher than 90°C.

The commercial names were also not given in the patent. It was therefore impossible for third parties to repeat

and verify the proprietor's experiments, and similarly impossible to achieve the claimed product.

The only way a person skilled in the art could identify a TPE of the type used in the invention was to pick one almost at random and see if it happened to have the required properties.

Auxiliary requests - Article 83 EPC

None of the amendments made to claim 1 of the auxiliary requests overcame the objection made against the main request.

Reasons for the Decision

1. Request for oral proceedings by videoconference

1.1 The proprietor requested that oral proceedings be held by videoconference with letter dated 13 January 2025. No reasons were given for this request.

1.2 However, the Board did not change the format of the oral proceedings from that as summoned, which thus remained in-person on the EPO premises. The proprietor was informed on 5 February 2025 that the oral proceedings would take place in person as summoned.

1.3 According to Article 15a(1) RPBA, the Board may decide to hold oral proceedings pursuant to Article 116 EPC by videoconference if the Board considers it appropriate to do so, either upon request by a party or of its own motion.

1.4 In the present case, the Board did not accede to this request since the proprietor did not provide any reasons to change the format of the oral proceedings and the Board did not see a videoconference to be appropriate for the issues to be discussed.

2. Oral proceedings in the absence of a party

2.1 Since the patent proprietor was duly summoned to the oral proceedings, the proceedings could continue without it according to Rule 115(2) EPC. Furthermore, under Article 15(3) RPBA, the Board was not obliged to postpone a procedural step, including its decision, simply because the patent proprietor was not present at the oral proceedings.

2.2 The patent proprietor was treated as relying only on its written case.

3. Main request - Article 100(b) EPC

3.1 The ground for opposition under Article 100(b) EPC is prejudicial to the maintenance of the patent.

3.2 The patent does not provide sufficient information in order to identify a TPE as defined in claim 1. It has not been disputed that the patent does not disclose a chemical composition or even a commercial name of any individual TPE with a T_{gHS} higher than 90°C. It should be noted therefore that none of the tests and results presented in the patent (e.g. see table on page 9) can consequently be verified.

3.3 The patent proprietor argues that the patent teaches how TPE should be selected and that this is sufficient

to enable the skilled person to carry out the invention.

The Board is not persuaded by this argument. The patent discloses a test method to verify which materials have a T_{gHS} as defined in claim 1, but it does not disclose any way to allow the skilled person to narrow down the selection of TPEs from the wide variety of TPEs that are available or which can be produced (e.g. a causal link relationship between T_{gHS} and another parameter/ property of the material or its components).

The number of possible combinations of hard segments, soft segments and chain extender materials forming a TPE is very large as explained and acknowledged in paragraphs paragraphs [0021],[0022], [0023] and [0024] of the patent. As argued in the oral proceedings before the Board, namely taking the given parameter variants of the three basic components in paragraph [0021], over a million possibilities resulted. Further variations of these were also possible.

Even though the patent mentions some possible manufacturers in paragraph [0056], a supplier would not be able to readily provide this information on the parameter as the parameter T_{gHS} is not a parameter that is mentioned in data sheets of elastomers, let alone routinely.

3.4 Therefore, a selection is not possible without having to randomly test TPEs and see which ones might have a glass transition temperature of the hard crystalline phase higher than 90°C. Without any further teaching on what basis suitable TPEs could be selected, the skilled person is only able to establish through random selection and multiple trial and error experiments

whether the claimed device has been achieved. This amounts to an undue burden for the skilled person.

3.5 The proprietor argued that the patent taught that the parameter Shore D hardness enabled the skilled person to narrow down the selection of TPEs from the wide variety of existing TPEs. According to the proprietor, paragraph [0033] of the patent taught that TPEs having a T_{gHS} above 90°C were significantly harder than those considered usable at the filing date of the patent. The skilled person would therefore make a pre-selection of such TPEs when looking for TPEs with a glass transition temperature of said hard crystalline phase (T_{gHS}) higher than 90°C. As could be seen from the Table on page 9 of the patent, 8 of the 13 TPEs tested were identified as having a T_{gHS} above 90°C. This could, allegedly, hardly be considered an undue burden for the skilled person trying to arrive at the present invention.

These arguments are, however, not persuasive. The patent does not teach the skilled person to make a pre-selection of TPEs having a specific hardness when looking for TPEs with a T_{gHS} higher than 90°C.

As mentioned above, the number of possible combinations of hard segments, soft segments and chain extender materials forming a TPE is vast. Whilst paragraph [0023] of the patent discloses that the proportion of hard segments of a TPE is proportional to its hardness (among other properties), the following paragraphs [0026] to [0032] then describe several different criteria for selecting TPEs. For example, paragraph [0026] discloses the criterion that the T_{gHS} be higher than 90°C, paragraph [0030] discloses the criterion that the crystallisation temperature T_c be at least

20°C higher than T_{gHS}, and paragraph [0032] discloses the criterion that the sum of T_c and T_{gHS} be higher than 200°C or even higher.

In the following paragraph [0033] it is then stated that the TPEs selected with one of the above criteria "turn out" to have a Shore D hardness between 40 and 90. This means that in the method disclosed in the patent the TPEs were selected according to the above properties and then found to have a high hardness and not the other way around.

Further, the table on page 9 discloses 8 of 13 TPEs having a T_{gHS} higher than 90°C according to the invention but three of the eight do not have a known Shore D hardness. In fact, the Shore D hardness for 6 of the 13 different TPE samples listed in the Table on page 9 of the patent is not disclosed in the patent at all.

Paragraph [0033] discloses that TPEs with a T_{gHS} higher than 90°C have a certain hardness and not the opposite, i.e. that TPEs with a certain hardness have a T_{gHS} higher than 90°C. For example, TPE 11 and TPE 13 of the Table on page 9 demonstrate this by having a Shore D hardness of 42 and 54 respectively (in the range considered in paragraph [0033] to fall within the invention) but a T_{gHS} of only 60°C and 25°C. On the other hand, TPE 4 has a Shore D hardness of 42 (the same as TPE 11) but a T_{gHS} of 108°C (i.e. in the range defined in claim 1).

Therefore, the patent does not teach, even implicitly, that pre-selecting TPEs according to the hardness would restrict the number of possible TPEs to be tested for the parameter T_{gHS}.

3.6 The ground for opposition under Article 100(b) EPC is thus prejudicial to maintenance of the patent as granted. The main request is consequently not allowable.

4. Admittance of the affidavit by Mr. Vermeersch

4.1 In support of its arguments, the proprietor filed an affidavit by Mr. Vermeersch with letter of 31 January 2025 in reply to the preliminary opinion of the Board. The opponent requested that the affidavit not be admitted into the proceedings.

4.2 According to Article 13(2) RPBA, any amendment to a party's appeal case made after notification of a communication under Article 15, paragraph 1, shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

4.3 The proprietor did not present any reasons as to why there were exceptional circumstances in the present case, nor can the Board see any. The objection regarding the identification of a suitable TPE discussed above was already raised before the opposition division, dealt with in the section 9.3.1 of the contested decision and maintained by the opponent in section 10.3 of its grounds of appeal. The fact that the preliminary opinion of the Board did not agree with the findings of the opposition division does not constitute exceptional circumstances (as has been well established in the case law of the Boards of Appeal).

4.4 The Board therefore exercised its discretion under Article 13(2) RPBA not to take the affidavit of Mr. Vermeersch into account.

5. Auxiliary requests - Article 83 EPC

5.1 The proprietor filed 8 auxiliary requests during the appeal proceedings. Each of these requests contains an amended claim 1 with features added from the description.

5.2 The Board already stated in items 6.1, 8.1, 9.2 and 10.1 of its preliminary opinion that the amendments made in claim 1 of auxiliary requests 5, 6, 1, 2, 3bis and 4 did not appear to overcome the issue of sufficiency of disclosure discussed above for the main request (see also item 4.2 and sub-items 4.2.1 to 4.2.4 of the preliminary opinion).

5.3 The patent proprietor did not present any further arguments in writing as to why the amendments to these auxiliary requests overcame this issue. Therefore, the Board has no reason to change its opinion, which is hereby confirmed. Claim 1 of auxiliary requests 5, 6, 1, 2, 3bis, 4 and 7 does not fulfil the requirement of Article 83 EPC.

5.4 Leaving the question of admittance of auxiliary requests 3, 7 and 8 aside, none of these anyway fulfils the requirement of Article 83 EPC.

5.4.1 Claim 1 of auxiliary request 3 differs from claim 1 of auxiliary request 3bis only in that the feature "the glass transition temperature of said hard crystalline phase (T_{gHS}) is higher than 90°C" is part of the preamble of claim 1. Moving a feature to the preamble

of a claim is not an amendment suitable to overcome the problem of sufficiency of disclosure discussed above for the main request. Claim 1 of auxiliary request 3 therefore does not fulfil the requirement under Article 83 EPC for the same reasons given above.

5.4.2 The subject-matter of claim 1 of auxiliary request 7 differs from claim 1 of auxiliary request 3bis in that the feature "said bending stiffness being determined on a horizontal support between two frictionless fulcrums 50 times the diameter of the steel cord apart" has been added.

The proprietor only argued in section C.1.1. of its letter dated 29 January 2024 that this amendment would overcome a clarity and a sufficiency objection regarding the measurement of the bending stiffness. The proprietor has never argued that this amendment overcame the objection under Article 83 EPC discussed above for the main request and the Board also does not see how the definition of the distance between the two fulcrums in a bending stiffness test would be related to the selection of the TPEs to be used.

Claim 1 of auxiliary request 7 therefore also does not fulfil the requirement of Article 83 EPC.

5.4.3 The subject-matter of claim 1 of auxiliary request 8 differs from claim 1 of auxiliary requests 3bis in that the feature said "glass transition temperature of said hard crystalline phase (TgHS) being determined by Differential Scanning Calorimetry (DSC) on second heating, after erasing the thermal history of the sample and after all water is evaporated" has been added.

The patent proprietor stated on page 16, third complete paragraph, of its letter dated 31 January 2025 that this amendment overcame the objections regarding sufficiency of disclosure, but it did not specify how this amendment would overcome any of the objections made for the main request under Article 100(b) EPC.

The patent proprietor did not attend the oral proceedings in order to further develop its arguments and the Board finds that an amendment defining the specific method to determine the TgHS would not help the skilled person in the art to carry out the pre-selection of the TPEs, which is done before any specific testing to determine the TgHS takes place.

5.5 Claim 1 of auxiliary request 8 therefore does not fulfil the requirements of Article 83 EPC.

5.6 Since claim 1 of all auxiliary requests 5, 6, 1, 2, 3bis, 3, 4, 7 and 8 fails to fulfil the requirements of Article 83 EPC, these requests are not allowable,

6. Request for remittal

6.1 The proprietor made several requests for remittal of the case to the first instance in its written submissions during the appeal proceedings.

6.2 According to Article 111(1) EPC, the Board may either exercise any power within the competence of the department which was responsible for the decision appealed or remit the case to that department for further prosecution. In addition, Article 11 RPBA 2020 further stipulates that the Board shall not remit a case to the department whose decision was appealed for

further prosecution, unless special reasons present themselves for doing so.

6.3 In this case, the Board could see no reason for doing so, because the same issue pervaded all requests. In the absence of a claim request that could be further prosecuted by the opposition division as foreseen in Article 111(2) EPC, the Board does not see any reason to remit the case to the opposition division.

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. Grundner M. Harrison

Decision electronically authenticated