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Datasheet for the decision of 6 December 2019

Case Number: T 2800/18 - 3.2.08

Application Number: 09010884.6

Publication Number: 2116689

IPC: E06B3/663

Language of the proceedings: EN

Title of invention:
Spacer profile for a spacer frame for an insulating window unit and insulating window unit

Patent Proprietor:
Technoform Glass Insulation Holding GmbH

Opponent:
ROLLTECH A/S

Headword:

Relevant legal provisions:
EPC Art. 54, 56
RPBA Art. 12(4), 13(1), 13(3)

Keyword:

Novelty - (yes)
Inventive step - (yes)
Late-filed request - admitted (yes)
Late-filed evidence - admitted (no)
Late-filed document - admitted (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
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Office européen des brevets

Beschwerdekammern

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Case Number: T 2800/18 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 6 December 2019

Appellant: (Opponent)	ROLLTECH A/S W. Bruels Vej 20 9800 Hjørring (DK)
Representative:	Hoffmann Eitle Patent- und Rechtsanwälte PartmbB Arabellastraße 30 81925 München (DE)
Respondent: (Patent Proprietor)	Technoform Glass Insulation Holding GmbH Friedrichsplatz 8 34117 Kassel (DE)
Representative:	Kramer Barske Schmidtchen Patentanwälte PartG mbB European Patent Attorneys Landsberger Strasse 300 80687 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 14 September 2018 rejecting the opposition filed against European patent No. 2116689 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	M. Alvazzi Delfrate
Members:	A. Björklund
	Y. Podbielski

Summary of Facts and Submissions

I. The opponent filed an appeal against the decision of the opposition division to reject the opposition against the European Patent No. 2 116 689.

The opposition division considered that the subject-matter of the claims 11 and 12 as granted did not extend beyond the content of the earlier application as filed, and that the subject-matter of the claim 1 as granted was novel and involved an inventive step.

II. Oral proceedings before the Board took place on 6 December 2019.

III. At the end of the proceedings, the requests were as follows:

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

The respondent (patent proprietor) requested that the patent be maintained on the basis of the main request filed as auxiliary request 1 during the oral proceedings before the Board.

IV. Independent claim 1 of the main request reads as follows (feature designations added by the Board):

M1 "Spacer profile (50) for use as a spacer profile frame, which is suitable for mounting in and/or along the edge area of an insulating window unit for forming and maintaining an intervening space (53) between window panes (51, 52), the spacer profile (50) comprising:

M2a a profile body (10) made of synthetic material and defining one or more chambers (20) for accommodating hygroscopic material therein, and

M2b a metal film (30) enclosing the profile body (10) on three sides such that, in the bent and/or assembled state of the spacer profile (50), the non-enclosed inner side of the profile body is directed towards the intervening space (53) between the window panes (51, 52),

M2c wherein the not-enclosed inner side of the profile body (10) comprises openings (15) adapted to facilitate moisture exchange between hygroscopic material accommodated in the chamber(s) (20) and the intervening space (53) between the window panes (51, 52), characterized in that

M1a the spacer profile (50) is cold bendable,

M2b1 the metal film (30) has a first thickness d1 greater than or equal to 0.03 mm and less than or equal to 0.20 mm,

M3 the metal film (30) comprises a profile (31a-g, 32a-g) on each end that is directed towards the intervening space (53) between the window panes (51, 52),

M4 the profile having at least one edge or bend, and

M3a the profile (31a, b, d-g, 32a, b, d-g) is completely enclosed by the profile body (10)."

V. The following documents are referred to in the present decision:

D1: DE 196 02 455 A1
D2: EP 0 852 280 A1
D3: DE 298 14 768 U1
D4: US 5,890,289
D4': EP 0 785 336 A1
D6: EP 0 953 715 A2
HE3: US 6,266,940 B1
HE4: Numerical analysis of the structures of D4 and D6
HE5: WO 2004/081331 A1
HE6: Entwurf von DIN EN ISO 10077-1

VI. The appellant essentially argued the following, in so far as relevant to the decision:

Admittance of auxiliary request 1 filed on 4th October 2019 and HE3 to HE5

Auxiliary request 1 submitted on 4th October 2019 (from which the present main request differs solely in the deletion of dependent claims 7 and 8) could not be seen as a reaction to the communication of the Board, but only as a reaction to documents D2 and D3 which had already been addressed in the grounds of appeal. It was filed just two months before the oral proceedings, increased the complexity of the appeal proceedings and was detrimental to procedural economy of the proceedings. It should therefore not be admitted.

Documents HE3 and HE4 were filed with the grounds of appeal as a reaction to the appealed decision.

HE3 established lack of novelty of the independent and of dependent claims and was therefore relevant, in particular in view of the Proprietor's interpretation

of the claim according to which the synthetic profile body did not need to enclose the chamber.

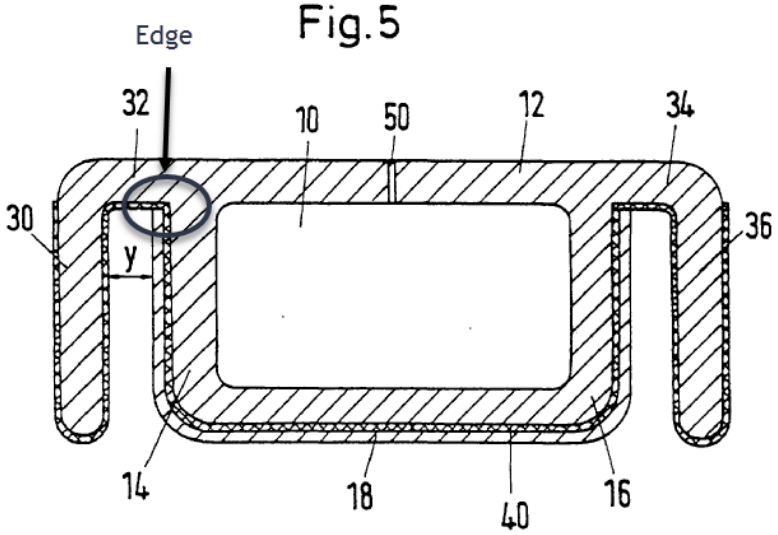
HE4 was relevant for showing that the metal parts of the spacer profiles of D4 and D6 made a similar contribution to the mechanical strength of these spacer profiles.

Document HE5 was filed after the grounds of appeal, but more than a month before the Respondent's time limit to reply thereto, and thus before the Respondent or Board had completed their reviews of the appeal grounds. It was not complicated and relevant to both novelty and inventive step.
Documents HE3 to HE5 should therefore be admitted into the proceedings.

Novelty in view of D3

Figure 5 of D3 (an annotated copy being reproduced hereafter) disclosed a spacer profile according to claim 1 of the main request. The metal film 40 comprised a profile on each end that was directed towards the intervening space between the window panes, and the profile was having at least one edge or bend according to feature M4. It was completely enclosed by the profile body as required by feature M3a.

Fig.5



As described in the third paragraph of page 10, the thickness of the metal film 40 could be 0.13 mm. In the first paragraph on page 12, it was disclosed that the profiles of D3 were cold bendable.

Consequently, the profile on Figure 5 showed all the features of claim 1 of the main request.

Inventive step starting from HE3

Figure 15 of HE3 disclosed a spacer profile having a profile body 300 and a metal film 16 enclosing the profile body on three sides. The metal film 16 had a profile 26 on the ends directed towards the intervening space and this profile was completely enclosed by the profile body 310, 314 according to features M3, M4 and M3a. The profile body 300 and the metal film 16 together formed two hollow chambers. Column 12, lines 48 to 52 taught that the inserts may contain desiccant material. Since it was desired to have as much desiccant as possible, the skilled person would understand this to mean that the hollow chambers between the metal film 16 and the profile body 300

could be filled with a granulate of desiccant (hygroscopic) material. When the profile body (called insert in HE3) had a length to be continuous through the corners of the bent spacer profile, as described in lines 53 to 61 of column 12, the desiccant granulate would remain in these chambers.

As described in column 13, lines 1 to 3, the spacer profile was folded around the window panes without any heating, and it was therefore cold-bendable. That the profile was provided with cut-outs to facilitate folding was not excluded by claim 1.

The subject-matter of claim 1 differed from this spacer profile in features M2c, according to which the profile body had openings to facilitate moisture exchange, and M2b1, according to which the metal film had a first thickness greater than or equal to 0.03 mm and less than or equal to 0.20 mm.

The technical problem of preventing wrinkle formation, which the respondent alleged was solved by the subject-matter of claim 1 depended on the tools used for bending and not upon the structure of the claimed spacer profile. Instead, the differing features solved the two partial problems of providing a functional way of drying the interior space of a window and of optimizing the thermal performance.

As described in paragraph [0039] of the contested patent, profile bodies having openings to facilitate moisture exchange were a known and equivalent alternative to profile bodies made of diffusion permissible materials. Therefore, if using a denser material than foam for the profile body 300 in Figure 15 of HE3, as suggested in column 12, lines 51 to 52,

it would have been obvious for the skilled person to foresee openings for the gas exchange, as was known from e.g. the profiles of D3.

As stated in paragraph [0009] of the contested patent, or on pages 28 to 29 of HE6, it was also common knowledge that the metal film should be as thin as possible in order to minimize the thermal transfer. Making the metal film in HE3 in the claimed range of thicknesses was therefore obvious to the skilled person.

The skilled person would therefore arrive at the subject-matter of claim 1 without any inventive activity.

Inventive step starting from D6

Figure 1 of D6, in combination with paragraph [0040], disclosed a spacer profile which showed features M1, M2a to M2b, M1a and M2b1 of claim 1. These citations taught that the profile body should have a recess to accommodate the metal film. According to paragraph [0012] the profile was cold bendable. As described in paragraph [0034], the metal film was firmly bonded ("stoffschlüssig verbunden") to the profile body, and this meant that the spacer profile was made by coextrusion.

The subject-matter of claim 1 differed from this spacer profile in features M3, M4 and M3a.

The technical problem of reducing wrinkle formation, which the respondent alleged was solved by the subject-matter of claim 1 depended on the tools used for bending and not upon the structure of the claimed

spacer profile. It was therefore not solved by the differing features. Rather, as described in paragraph [0023] of the contested patent, these features added significant strength to the structural integrity of the bent spacer frame. The problem to be solved was therefore to improve the mechanical behaviour during bending.

The skilled person would find the solution to the problem posed in D4. As described in lines 1 to 6 of column 6, the metal film and the profile body of the spacer profile of D4 were also coextruded. Lines 7 to 8 and 45 to 50 taught that the bent profiles 130A, 132A at the ends of the metal film 120A shown in Figure 1 aided in affixing the plastic and metal parts, and thus improved the structural properties of the spacer profile. The effect of firm bonding due to profiles of the metal film was also described in paragraph [0043] of the contested patent. D4 therefore disclosed all the technical effects which were inherent in the claimed profile.

It was true that D4, column 7, lines 21 to 28 described it as advantageous that the metal film did not contact the windows panes. But D4 also described in column 7, lines 3 to 5 that the plastic top 110A could be shaved to a desired dimension, and the gap between the metal film and the window panes would thus be reduced. Moreover, also in the spacer profile of D6, the outermost dimension was provided by the plastic top. There was therefore no inherent incompatibility between the spacer profiles of D4 and D6. In any case, there was always a sealant present between a spacer profile and the window panes.

The skilled person would therefore not have been discouraged from transferring the teachings of D4 to the spacer profile of D6, but it would have been obvious for the skilled person to provide the metal film of the spacer profile in Figure 1 of D6 with bent legs as taught in D4. This would result in a spacer profile similar to the embodiment in Figure 4 of the contested patent.

The skilled person would thus arrive at the subject-matter of claim 1 without any inventive activity.

The same arguments applied also in view of D4', which essentially had the same content as D4, but in column 13, lines 33 to 40 additionally described that the thickness of the metal film was in the claimed range.

VII. The respondent essentially argued the following, in so far as relevant to the decision:

Admittance of auxiliary request 1 filed on 4th October 2019 and HE3 to HE5

Auxiliary request 1 on 4th October 2019 was filed two months before the oral proceedings in response to the communication of the Board. The preliminary view expressed therein was very different from the views of the opposition division. It was an attempt to file a request which could overcome all objections and was based upon a combination of granted claims. It should therefore be admitted into the proceedings.

Documents HE3 to HE5 should not be admitted into the proceedings.

The decision of the opposition division did not significantly change the case, and HE3 could therefore have been filed within the opposition period. More importantly, it was not highly relevant to the outcome of the proceedings.

HE4 was neither a reaction to a surprising reasoning in the appealed decision, nor prima facie highly relevant to the outcome of the proceedings.

HE5 was not even filed with the grounds of appeal. It was also not prima facie highly relevant to the outcome of the proceedings.

Novelty in view of D3

Feature M3 required that the end of the metal film which was closest to the intervening space had a profile. The profile therefore included the absolute end point of the metal film. What the appellant had identified as an edge of a profile in Figure 5 was not at the end of the metal film 40. Feature M3, and consequently also feature M4 was therefore not disclosed in D3.

Should the part of the metal film identified by the appellant be seen as an edge of the profile, it could only be part of the profile which would then also include the rest of the metal film up to its absolute end point. As seen in Figure 5 and described on page 17, lines 1 to 7 of D3, only the part of the metal film 40 which the appellant identified as an edge was enclosed by the profile body, but the rest of the profile of the metal film, including its end, was not. Feature M3a was therefore not disclosed.

It followed that the spacer profile in Figure 5 of D3 did not show features M3, M4 and M3a of claim 1 of the main request.

Inventive step starting from HE3

The spacer profile disclosed in Figure 15 of HE3 did not have any chamber for a desiccant or hygroscopic material. As shown in Figure 17, there were gaps 73 in the metal profile 16 which were open towards the interior space of the window, and the inserts 60 which the appellant regarded as profile bodies in the sense of feature M2a, did not extend all the way to the corners of the metal profile. Therefore, if the hollow spaces of the similarly built up spacer profile in Figure 15 would have been filled with a desiccant granulate, it would fall out through the ends of the inserts and into the interior space of the window via the gaps of the metal profile. This was true also when the insert had a length to be continuous through the corners, since it was then cut together with the metal profile before bending, as described in lines 1 to 3 of column 13.

The skilled person would therefore not understand the text passage in column 12, lines 48 to 51 to describe a desiccant granulate inside a hollow space between the insert and the metal profile, but rather that the foam insert itself could contain the desiccant material as in the insert in Figure 2, described in column 6, lines 46 to 52, or that it could be coated onto the inner surface of the insert as shown in Figure 4, described in column 6, lines 57 to 59. Consequently, the skilled person would have no reason to provide the insert 300, which the appellant regarded as a profile body, of the

spacer profile in Figure 15 with openings for moisture exchange.

Furthermore, the profile of HE3 it its assembled state was not cold-bendable. The inserts were not bent, but they ended before the corners where the metal profile 16 was bent, or they were cut together with the metal profile. This was completely different from the spacer profile of the contested patent, where the complete spacer profile was cold-bendable. The spacer profile in Figure 15 of HE3 could therefore not even serve as a starting point for arriving at the subject-matter of claim 1.

Inventive step starting from D6

The subject-matter of claim 1 differed from the spacer profile disclosed in D6 in features M3, M4 and M3a.

Paragraph [0013] of the contested patent described the problems of wrinkle formation in the bends of the profile disclosed in D6. Figure 12 and paragraph [0059] disclosed the reduction of wrinkling of the embodiments of the contested patent compared to a spacer profile similar to that in Figure 1 of D6. Consequently, as described in paragraph [0015], the problem to be solved by the spacer profile of claim 1 was to reduce wrinkle formation. These wrinkles were diffusion channels for gas between the space between the window panes and the environment.

Neither D6 nor D4/D4' mentioned the problem of wrinkling in the bends. The skilled person would therefore have no reason to transfer the bends 130A, 132A of the metal channel of the spacer profile of D4/ D4' (see Figure 1A) to the metal film of the spacer

profile in Figure 1 of D6. Furthermore, the teachings in D6 and D4/D4' were incompatible and the skilled person would not combine them. D6 taught that the side surfaces of the spacer profile should be flush to the window panes with a minimum of sealing to reduce diffusion, whereas D4/D4' taught that the metal should not contact the window panes and hence that the gap filled with sealant should be bigger.

Reasons for the Decision

1. Admittance of documents HE3 to HE5

The appellant filed document HE4 with the grounds of appeal in order to show that the metal parts of the spacer profiles of D4 and D6 had similar influence on the mechanical properties of the respective profiles.

However, the appealed decision of the opposition division did not address differing mechanical properties of the metal parts of the spacer profiles of D4 and D6. In points 3.3.1.3.4 to 3.3.1.3.6 of its decision, the opposition division states that neither of these documents mentioned the problem of reduction of wrinkle formation by bending. In points 3.3.2.2 it is further stated that the affixing of the metal parts of the spacer profiles in D4 and D6 was very different. In D6 the metal film was laminated surface-to-surface with the plastic profile body and in D4 the metal and plastic profiles were affixed only along two single lines. The skilled person would therefore not transfer any teaching regarding the affixing of the metal part to the plastic profile body from D4 to the spacer profile of D6.

HE4 does therefore not address these decisive points of the decision and its filing cannot be considered as a reaction to the decision. In case the appellant, then opponent, would have wanted to present arguments concerning the similarity of the contribution of the respective metal parts to the mechanical properties of the spacer profiles of D4 and D6, document HE4 should have been presented already in the opposition proceedings. The Board therefore decided not to admit document HE4 into the proceedings under Article 12(4) RPBA 2007.

Document HE3 was filed with the grounds of appeal. The filing therof is seen as a legitimate reaction to the outcome of the opposition proceedings. The Board therefore decided to admit document HE3 under Article 12(4) RPBA 2007.

Document HE5 was filed after the grounds of appeal, but before the Respondent's reply thereto. The relevant content of the document is not complex, and seemed of prima facie relevance to the proceedings. It was filed at an early stage of the proceedings, and its admittance was therefore not detrimental to the procedural economy. The Board therefore decided to admit document HE5 under Article 13(1) RPBA 2007.

2. Main request - Admittance into the proceedings

The appellant requested that auxiliary request 1 filed with the submissions of 4th October 2019 not be admitted into the proceedings under Article 13(1) and (3) RPBA 2007.

Compared to the previous auxiliary request 1 filed with the reply to the grounds of appeal, the features of

granted claim 3 have been added. The changes made to the request are thus not complex. Furthermore, since claim 1 of this request is based upon a combination of granted claims, its admittance into the proceedings would not confront the appellant or the Board with matter it could not reasonably be expected to discuss.

The Board saw the filing of this request as an appropriate response to its preliminary opinion that the subject-matter of claim 1 of the main request seemed to lack novelty, and therefore decided to admit the auxiliary request of 4th October 2019 into the proceedings under Article 13(1) RPBA 2007.

The present main request corresponds to said auxiliary request 1 filed with the respondent's submissions of 4th October 2019, apart from the deletion of dependent claims 7 and 8 in response to an objection raised by the appellant under Article 100(c) EPC. Hence, for the reasons explained above, the Board saw also no ground against the admittance of the present main request into the proceedings.

3. Main request - Novelty

3.1 In view of D3

Feature M3 defines that the metal film comprises a profile on each end that is directed towards the intervening space between the window panes. The word "end" normally means the part of an object which includes its extremity. The skilled person would therefore understand feature M3 to require that the profile includes the respective end points (or actually edges) of the metal film.

Therefore, if following the appellant's opinion and regarding the part of the metal film 40 which they designated as an edge of the profile (according to feature M4) of the spacer profile in Figure 5, the part of the metal film which extend further from this "edge" - along the plastic parts 30 and 36 respectively - towards and including the end point of the metal film must also be seen as part of the profile. This part of the profile is however not enclosed by the profile body as required by feature M3a.

Consequently, the subject-matter of claim 1 differs from the spacer profile disclosed on Figure 5 of D3 at least in feature M3a. It is therefore new.

3.2 In view of other documents

The further documents D1, D2, D4/D4', D10, HE3 and HE5 which the appellant contended were prejudicial to the novelty of claim 1 of the patent as granted (previous and replaced main request) are less relevant than document D3.

The spacer profiles disclosed D1 (see Figure), D2 (see Figure), D10 (see Figure 4) and HE5 (Figure 11) do at least not show feature M3a.

The cited spacer profiles disclosed in D4, and equally D4' (see the respective Figure 1A), do at least not show feature M2a.

The cited spacer profile disclosed in HE3 (Figure 15) profile does at least not show feature M2c.

4. Main request - Inventive step

4.1 Starting from HE3

4.1.1 It is undisputed that the subject-matter of claim 1 differs from the spacer profile disclosed in Figure 15 of HE3 at least in the features M2c and M2b1.

4.1.2 According to the appellant, column 12, lines 48 to 52 of HE3 taught the skilled person that the hollow spaces between the metal profile 16 and the insert 300, which was a profile body in the sense of claim 1, could be filled with a granulate of desiccant (i.e. hygroscopic) material. Column 12, lines 62 to 65 described that the insert could be continuous through the corners, and there would therefore be no gaps through which the granulate could fall out from the hollow space. Permeable materials and impermeable materials with openings were two known and equal alternatives for profile bodies. When making the insert 300 (profile body) of a dense material instead of a permeable foam as suggested in lines 51 to 52 of column 12, it would therefore have been obvious for the skilled person to provide it with openings to facilitate a moisture exchange. The skilled person would therefore have arrived at a spacer profile having feature M2c without any inventive activity.

4.1.3 The Board notes that neither the respondent's assertion that the inserts with a length to be continuous through the corners would have been cut before bending and therefore also would have had gaps through which granulate could enter into the interior space of the window, nor the appellant's assertion that the insert would be continuous also after bending have any explicit foundation in the disclosure of HE3.

4.1.4 In any case, there is neither an explicit nor an implicit teaching in HE3, that the hollow space between the insert and the metal profile could be filled with desiccant granulate. The wording "each of the inserts may contain desiccant material" in lines 48 to 49 of column 12 refers to the insert itself and not to the combination of the metal profile, or spacer as it is called in HE3, and the insert. This passage therefore teaches the skilled person that the insert itself contains desiccant material and not that any chambers formed between the metal profile (spacer) and the inserts are filled with granulate desiccant. An example of an insert containing desiccant material is shown in the embodiment in Figure 2, where the desiccant material is used as a filler of the insert material itself as described in column 6, lines 46 to 52. The skilled person would also have found a teaching in lines 48 to 51 of column 12 that a desiccant could be disposed along an inner or outer surface of the insert.

Since the passages cited by the appellant do not suggest that a desiccant in the form of a granulate should be filled into the hollow space formed between the metal profile and the insert, the skilled person would not have had any reason to provide the insert 300 in Figure 15 with openings adapted to facilitate moisture exchange according to feature M2c of claim 1. In case the skilled person should have desired to make this insert of a dense material while providing a desiccant material, the teaching of HE3 is rather that the desiccant material should be disposed along the inner surface of the insert similar to the embodiment in Figure 4.

4.1.5 Starting from the spacer profile in Figure 15 of HE3, it would therefore not have been obvious for the

skilled person to arrive at a spacer profile having a profile body with openings according to feature M2c.

For this reason, the subject-matter of claim 1 involves an inventive step starting from the spacer profile of HE3.

4.2 Starting from D6

It is undisputed that the subject-matter of claim 1 differs from the spacer profile disclosed in Figure 1 of D6 in conjunction with paragraphs [0012] and [0040] in the features M3, M4 and M3a.

4.2.1 According to the case law of the Boards of Appeal (Case Law of the Boards of Appeal of the European Patent Office, 9th Edition, 2019, I.D.4.3.2), the objective definition of the problem to be solved should normally start from the problem described in the contested patent. Only if examination shows that the problem disclosed was not solved, or if inappropriate prior art was used to define the problem, is it necessary to investigate which other problem objectively exists.

In the appellant's view, the claimed spacer profile does not solve the problem of reducing the problem of wrinkle formation set out in paragraph [0015] of the contested patent. The amount and possible reduction of wrinkle formation would depend upon the tools used for bending the spacer profiles rather than upon the structure of the claimed spacer profile.

However, Figure 12 of the contested patent in conjunction with paragraph [0059] discloses a comparison of the wrinkle formation during bending of the embodiments of the claimed spacer profile having a

profile according to features M3, M4, and in most cases M3a, in comparison with a spacer profile without such a profile. In the absence of any substantive evidence or comparative tests from the appellant showing the test results in the contested patent to be incorrect, the Board sees no reason to doubt their validity.

Therefore, the problem to be solved by the differing features M3, M4 and M3a is seen as reducing wrinkle formation [during bending], as defined in paragraph [0015] of the contested patent.

4.2.2 As pointed out by the respondent, neither D6 nor D4/D4' address the problem of avoiding wrinkle formation during bending.

Consequently, the skilled person would have no reason to transfer the bent legs (e.g. 130A, 132A) of the metal part of D4/D4' to the metal film of the spacer profile of D6.

Starting from the spacer profile in Figure 1 of D6, the skilled person would thus not have arrived at a spacer profile according to claim 1 without involvement of inventive skill.

The subject-matter of claim 1 therefore involves an inventive step starting from the spacer profile of D6.

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 1-7 of the main request filed as auxiliary request 1 during the oral proceedings before the Board
- Description: columns 1, 2, 7, 8, 11 and 12 of the patent specification and columns 3, 4, 5, 6, 9 and 10 filed during the oral proceedings before the Board,
- Figures 1-12 of the patent specification.

The Registrar: The Chairman:

C. Moser M. Alvazzi Delfrate

Decision electronically authenticated