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**Datasheet for the decision  
of 23 September 2019**

**Case Number:** T 0723/14 - 3.2.05

**Application Number:** 01901845.6

**Publication Number:** 1307342

**IPC:** B41F27/12

**Language of the proceedings:** EN

**Title of invention:**

Flexographic Printing Elements with Improved Air Bleed

**Patent Proprietor:**

3M Innovative Properties Company

**Opponents:**

Lohmann GmbH & Co. KG  
tesa SE  
BiesSse GmbH

**Relevant legal provisions:**

RPBA Art. 13(1)  
EPC 1973 Art. 54(1), 84, 56  
EPC Art. 123(2)

**Keyword:**

Novelty - main request (no)

Late-filed auxiliary requests - admitted (yes)

Claims - clarity (no)

Inventive step - (no)

Amendments - added subject-matter (yes)

**Decisions cited:**

G 0002/10, G 0003/14, T 0519/07, T 1682/15, T 0745/92



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Case Number: T 0723/14 - 3.2.05

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.05**  
**of 23 September 2019**

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**Decision under appeal:** Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
25 February 2014 concerning maintenance of the  
European Patent No. 1307342 in amended form.

**Composition of the Board:**

**Chairman** M. Poock  
**Members:** T. Vermeulen  
G. Weiss

## **Summary of Facts and Submissions**

- I. Each of the patent proprietor, the first opponent and the second opponent lodged an appeal against the interlocutory decision of the opposition division that European patent No. 1 307 342 (hereinafter: "the patent") as amended with the first auxiliary request submitted before the opposition division on 21 December 2012 met the requirements of the European Patent Convention.
- II. The opposition division had found that the subject-matter of claim 1 according to the main request, which was also submitted on 21 December 2012, was not new with respect to document D3.
- III. On 27 November 2017 a reasoned notice of intervention under Article 105 EPC was filed with proof that on 21 August 2017 the patent proprietor had instituted infringement proceedings against the intervener before the Regional Court of Düsseldorf in Germany.
- IV. Oral proceedings were held before the board of appeal on 23 September 2019.
- V. The appellant I (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the main request or the auxiliary requests 1 to 8, all filed before the opposition division on 21 December 2012, or the auxiliary requests 10 to 12 filed with letter of 23 December 2015 or the auxiliary requests 0, 1A or 3A filed with letter dated 23 August 2019 or the auxiliary request 2a or 9a submitted at the oral proceedings.

The appellants II and III (opponents 1 and 2) as well as the party as of right (intervener) requested that the decision under appeal be set aside and that the patent be revoked.

VI. The following documents are referred to in this decision:

D2	JP H04 331 152 A;
D2a Alternativ (short: D2A)	certified German translation of D2;
D3	US 5 268 228 A;
D4	US 5 476 712 A;
D6	WO 98/29516 A1;
A03	WO 95/32851 A1;
A04	3M - Flexographic Mounting Systems Selection Guide, 1999;
A05	3M - Flexomount Plate Mounting Systems, Technical Data, February 1996;
A06	WO 98/29231 A1;
A07	3M - Flexomount 10004 Double Coated Platemounting Tape, March 1996;
A08	Farben + Prägungen, Van Leer, 4P Folie;
Exhibit 2	Air bleed test results - 3M Corporate Analytical Technology Center;
Exhibit 3	Visual Acuity and Reaction Time in Navy Fighter Pilots, A. Morris and P.V. Hamilton, December 1986.

VII. Claim 1 according to the **main request** is identical to claim 1 of the patent as granted and reads:

"1. An adhesive tape for flexographic printing, comprising a first adhesive layer, a substrate on the first adhesive layer, and a second adhesive layer on an

opposite side of the substrate, wherein the substrate comprises a foam layer, and wherein at least one of the first and second adhesive layers comprises a regular pattern of permanent grooves and is substantially continuous."

Claim 1 according to **auxiliary request 0** was amended as highlighted below:

"...comprises a regular pattern of overlapping permanent grooves and is substantially continuous."

Claim 1 according to **auxiliary request 1** was amended by adding following features to claim 1 according to the main request:

- (i) "the adhesive tape being for application on a carrier or printing plate", and
- (ii) "wherein the grooves are retained during repositioning of the adhesive tape on the carrier or printing plate".

In claim 1 of **auxiliary request 1A** feature (ii) was further amended as follows:

"wherein the rheologic properties of the adhesive layer are such that the grooves are retained during repositioning of the adhesive tape on the carrier or printing plate".

Claim 1 of **auxiliary request 2** reads as claim 1 of auxiliary request 1 except that feature (ii) was replaced by following feature:

(ii') "wherein the permanency ensures that the adhesive tape will allow egress of trapped air after the adhesive tape is repositioned on the carrier or printing plate".

With respect to auxiliary request 2, claim 1 according to **auxiliary request 2a** has following amendment to feature (ii'):

"wherein the permanency ensures that the adhesive tape will allow egress of trapped air after the adhesive tape is repositioned on the carrier or printing plate as determined by the air bleed test in the specification".

Claim 1 according to **auxiliary request 3** differs from claim 1 according to auxiliary request 1 in that following feature was inserted before feature (ii):

(iii) "wherein the grooves have a depth of 4  $\mu\text{m}$  to 200  $\mu\text{m}$  and a width of 4  $\mu\text{m}$  to 200  $\mu\text{m}$ , and".

In claim 1 according to **auxiliary request 3A**, feature (iii) was further amended as follows:

(iii') "wherein the grooves have a depth of 4  $\mu\text{m}$  to 200  $\mu\text{m}$  and a width of 504  $\mu\text{m}$  to 200  $\mu\text{m}$ , and".

Claim 1 according to **auxiliary request 4** reads as claim 1 according to auxiliary request 2 but also includes feature (iii).

In **auxiliary request 5** claim 1 according to the main request has been amended as highlighted below:



"wherein the substrate comprises a foam layer having a density of 0.064 to 0.64 g/cm<sup>3</sup>, and wherein ...".

In **auxiliary request 6** claim 1 according to the main request has been amended as follows:

"wherein the substrate comprises a foam layer having a density of 0.096 to 0.288 g/cm<sup>3</sup>, and wherein ...".

With respect to claim 1 according to the main request, following features were added in claim 1 according to **auxiliary request 7**:

"a removable release liner on at least one of the first and second adhesive layers",

"wherein the release liner has an embossed pattern that creates the pattern of grooves in the at least one of the first and second adhesive layers by contacting".

Claim 1 according to **auxiliary request 8** differs from claim 1 according to auxiliary request 4 by the addition of:

"and wherein the first and second adhesive layers have a surface area of contact of at least 80%".

According to **auxiliary request 9a**, claim 1 is now directed to

"A carrier for a flexographic printing plate, wherein the carrier comprises a surface and",

comprising the adhesive tape of claim 1 according to auxiliary request 0 and further supplemented by the feature

"wherein the first adhesive layer of the adhesive tape is on the surface of the carrier".

Claim 1 according to **auxiliary request 10** corresponds to claim 1 according to auxiliary request 9a, without the "overlapping" amendment and with the further addition of feature (ii).

In **auxiliary request 11**, claim 1 is now directed to

"A printing device comprising"

the carrier of auxiliary request 9a, albeit without the "overlapping" amendment and supplemented by the feature:

"a printing plate on the second adhesive layer of the tape".

Claim 1 of **auxiliary request 12** reads as claim 1 of auxiliary request 11 with the addition of feature (ii).

VIII. Appellant I essentially argued as follows:

*Main request*

Repositioning the adhesive tape was key to the invention. Although repositioning was common and disclosed in the prior art, the invention was the first to properly address the issue and aim at allowing air egress also after repositioning. According to paragraph [0069] of the patent, the expression "permanent" meant

"for an effective period of time during intended use". It was evident to the person skilled in the art that the intended use "for flexographic printing" encompassed at least one repositioning of the adhesive tape on the carrier or printing plate. This was already emphasized in the introductory part of the patent description (see paragraph [0004]). In fact, the very problem underlying the invention dealt with maintaining print quality by repositioning the plate, during which air was often trapped at the interfaces between the printing plate or the carrier and the adhesive tape. This also followed from the sentence "Preferably ... numerous times" in paragraph [0069] of the patent. In real-life conditions, repositioning was normally carried out as a corrective measure immediately after positioning the tape. Irrespective how its shape evolved, a groove was retained as long as air egress was physically possible. Although in practice it was not always necessary to reposition the tape, the claimed product should at least be adapted to be repositioned with the ability to allow air egress after bonding pressure was applied.

The correct test for determining novelty with respect to document D3 was whether the features of claim 1 were directly and unambiguously disclosed by the document. It was not sufficient to prove that permanent grooves were not excluded by the disclosure of the document. As document D3 was not concerned with flexographic printing but aimed at permanently bonding an adhesive tape to rigid surfaces while reducing the non-contacting areas, exactly the opposite of the patent was obtained. The grooves of document D3 were described to "largely disappear" and "largely fill in and disappear after bonding is complete", so that they did not qualify as permanent. It could therefore not be

expected that they persisted beyond a single positioning step. In the bonded state, the tape had substantially groove-free surfaces that did not allow the egress of air, because document D3 aimed at minimizing non-contact area between the adhesive and the bonded surfaces. Upon light contact of the two surfaces to be bonded, i.e. in a state where even document D3 might have still allowed a repositioning, the grooves were "barely perceptible or almost invisible" (column 2, lines 29-30). After bonding was complete the grooves were therefore invisible. From Exhibit 3 it followed that an acuity substantially below 1 arcminute had been reported, which meant that grooves having a width starting from 8  $\mu\text{m}$  would already be perceptible to the naked eye. Even if the grooves of document D3 were not completely filled in, they could be interrupted somewhere along the width of the adhesive layer to such an extent that the regular pattern of grooves had disappeared at an early stage during its operation. There was therefore no direct and unambiguous disclosure that sufficient grooves of substantial depth remained after being largely filled, in order to provide an uninterrupted pathway that allowed egress of air.

The adhesive tape of document D3 was used to permanently fasten two rigid surfaces in an automobile. Such an adhesive tape needed to be strong and non-releasable making it unsuitable and undesirable for flexographic printing. The test conditions mentioned in the Example 1 of document D3 made clear that disassembly and subsequent repositioning would not be possible when using non-waxed glass surfaces.

*Auxiliary Request 0*

*i) Admittance*

Auxiliary request 0 was a reaction to the conclusion of the board on the allowability of the main request, which came as a surprise to the patent proprietor. The amendment to claim 1 had a basis in the original description and served to delimit the subject-matter even more clearly from document D3.

*ii) Inventive step*

Document D3 would not be a good starting point for assessing the inventive step, because the intended uses of the prior art tape did not include flexographic printing. Nor would document D4 be a suitable candidate, as it failed to disclose any grooves or mention the problem of air egress. Also document D2 could not be the closest prior art as the differences with the claimed subject-matter were too many: foam was but one of plural materials disclosed for the substrate, the adhesive layers were not clearly continuous, the grooves were not permanent and did not overlap. Document D2 did not deal with repositioning an adhesive tape. Starting from an alleged embodiment of document D2 which already had both the foam substrate and the continuous adhesive would amount to cherry-picking and be based on hindsight. Even if the skilled person would regard document D2 as closest prior art, he would start from the example mentioned in paragraphs 16 and 17 of the translation D2A, where the grooves were arranged as stripes and the substrate was a polyester layer.

When reading the passage on page 18, line 17 of the original application in conjunction with Figure 2, it was clear that the term "overlapping" could only mean that the grooves intersect in a cross-hatched manner. The example of document D3, on the other hand, disclosed a pattern of grooves consisting of parallel scribe lines. Also documents D1 and D2 failed to disclose any overlapping grooves. The technical effect of the overlapping grooves lied in the multiple ways that were created to egress air and detour the air round an interrupted groove.

Without the knowledge of the invention of the patent, the skilled person would have had no incentive whatsoever to perform the various selections in document D2 needed to arrive at both a foam substrate and a continuous layer of adhesive. The combination of features claimed by claim 1 went far beyond a mere aggregation. Rather, they were functionally related to each other and lead to advantages over prior art tapes. Exhibit 2 showed that a tape having a patterned continuous adhesive layer as claimed and a foam substrate provided improved air bleed as compared to a comparative tape having a non-foam substrate instead.

There would also be no incentive for the skilled person to turn to document D6, which concerned liners for large image graphics and where an adhesive layer was only applied on one side of a substrate that did not comprise a foam layer. The skilled person would not apply a teaching from the field of large scale image films on the very specific tapes used for flexographic printing. Even if a combination with document D2 were made, document D6 failed to disclose or suggest an adhesive layer comprising a regular pattern of overlapping permanent grooves and being substantially

continuous. The question arose why the skilled person would have adopted the continuous layer of document D6 on the one hand but maintained the foam substrate not disclosed in document D6 on the other hand.

*Auxiliary Request 1*

The alleged unclarity was not introduced by the newly added feature (ii) in claim 1 of auxiliary request 1, but had been present in claim 1 as granted. The claimed subject-matter was always linked to air bleeding or to an egress of trapped air, as was clear from the definition of "regular pattern" in paragraph [0067] of the patent. Also, claim 1 always required the regular pattern of grooves to be permanent. Therefore, the objection of lack of clarity against features that were already in the granted claim should not be permissible.

The term "repositioning" was commonly known in the field of flexographic printing. It was a standard process reflecting a real-life situation. In paragraphs [0091] to [0096] of the patent, an air bleed test was referred at, which was designed to mimic the application of a printing plate to a flexographic mounting tape after the tape had been previously applied to a printing cylinder, and which defined the boundary conditions of the material of the carrier or the printing plate by specifying the test fixture to be a stainless steel substrate. Although this was not explicitly mentioned, it would be evident that, after repositioning, the tape would have to be applied to the same test fixture using the same conditions as during the first application because that was what also happened in real life. The skilled person would know which pressures and temperatures should be applied in such a standardised test. Moreover, the air bleed test

was also mentioned in the context of the permanency of the grooves in paragraphs [0067] to [0069]. "During" had to be interpreted in the sense that the grooves were still maintained at the end of the repositioning step.

As to the meaning of the term "retained", there was no reason for the skilled person to assume that the specific shape of the grooves would have a particular relevance and that the term should be interpreted otherwise than guaranteeing the function of the grooves, i.e. air bleed. Thus, the grooves had to be maintained either unchanged or they had to be filled by the adhesive material only to such an extent that air bleed was still possible. This could easily be verified by the skilled person through the air bleed test provided in the patent. Hence, the grooves were still present after repositioning so as to further allow the air egress.

In view thereof, the skilled person would construe the meaning of the added functional feature (ii) on the basis of the information provided in the patent, as fulfilling the air bleed test after repositioning. Functional features were allowable, so that claim 1 of the auxiliary request 1 complied with the requirements of Article 84 EPC.

#### *Auxiliary Request 1A*

The feature objected to in claim 1 of auxiliary request 1 was reformulated in a way that clarified that the permanency of the grooves in the adhesive layer was achieved by selecting the rheologic properties of the adhesive. "During repositioning" meant "after repositioning". The material of the adhesive layer did



not need to be included in the claim, as the claim should only give guidance. As soon as the air bleed test set out in the patent was fulfilled, the adhesive layer had the correct rheologic properties.

*Auxiliary Request 2*

The alleged unclarity was overcome by deleting the retaining condition and replacing it by the phrase "allowing egress of trapped air". Moreover, the amendment (ii') now clarified that the permanency lasted until after the tape was repositioned. The adhesive tape in question had to be repositioned. The air bleed test provided in the patent had to be read by the skilled person with a mind willing to understand. Essentially, it had to be tested whether or not egress of trapped air was allowed after repositioning. In real life, repositioning would typically take place directly after the first positioning, namely as soon as the user realised that repositioning was necessary for proper alignment. There was no need to add all information to the claim. The description provided the details.

*Auxiliary Request 2a*

Claim 1 of auxiliary request 2a solved the clarity issues raised in regard of auxiliary requests 1 and 2. By the reference to the air bleed test of the patent the standard conditions of the test were added. This had a basis in paragraphs [0067] and [0069], where the test described in paragraphs [0091] to [0096] was mentioned in conjunction with the intended use of repositioning. How the tape was removed during repositioning was entirely irrelevant and did not influence the grooves. The temperature of the test was

room temperature and the pressure applied during positioning was exercised by a standard rubber roller.

*Auxiliary Requests 3, 3A and 4*

The arguments presented with respect to claim 1 of auxiliary requests 1 and 2 applied analogously to claim 1 of auxiliary requests 3, 3A and 4.

*Auxiliary Requests 5 and 6*

The application as originally filed provided general support for the substrate *comprising* a foam layer, see for example original claim 30. Replacing "comprising" with "consisting" would be too strict. The reference to a foam layer was not specific to the embodiment of Figure 5. The description of the examples only started on page 25 of the original description. Even if it were assumed that the passage on page 22 of the original description referred to the foam layer 360 shown in Figure 5, the skilled person would certainly understand that the disclosed densities were similarly applicable to situations where the substrate comprised a polymeric film layer and a foam layer as in original claim 8, which also applied to Figure 5. As the cushioning effect caused by the foam layer was irrelevant of possible other layers, there was no functional or structural relationship between the foam density and the fact that the substrate layer only consisted of a foam layer. The same was true for the additional features of claims 2 and 3, which were generally supported by original claims 8 and 10.

*Auxiliary Request 7*

When starting from document D2, the technical effect of the further differing feature concerning the release liner lied in creating a very complex, precise and very fine pattern. There would be no incentive for the skilled person to turn to document D6, seen that the example in paragraph [0017] of document D2A disclosed an adhesive material formed by very wide strips. Further, document D6 described an adhesive tape without any foam substrate, with a single adhesive layer and with flat surfaces unsuitable for use in flexographic printing.

*Auxiliary Request 8*

Claim 1 according to auxiliary request 8 was clear for the same reasons as set out in view of claim 1 according to auxiliary request 2.

*Auxiliary Request 9a*

As Figure 4 of document D2 did not clearly show any continuous layer, the subject-matter of claim 1 now differed from document D2 by several features. When starting from the embodiment described in paragraphs [0016] and [0017] of document D2A, where the substrate is made of polyester, there would be no reason to replace the striped adhesive layer by a continuous layer. Any other conclusion would involve hindsight. The prior art document also did not disclose any overlapping grooves. Document D2 alone would therefore not lead to the claimed subject-matter in an obvious way. Document D6 would not be considered by the skilled person. It mentioned large, flat and uniform surfaces interrupted by rivets and seams, referred to PVC as a backing material in the Examples and was concerned with

esthetic considerations irrelevant for printing drums. The claimed subject-matter was therefore inventive.

*Auxiliary Requests 10, 11 and 12*

Claim 1 of auxiliary request 10 was basically a combination of claims 1 and 13 of auxiliary request 1. Claim 1 of auxiliary request 11 was basically a combination of claims 1, 13 and 15 of the main request. Similarly, claim 1 of auxiliary request 12 was a combination of claims 1, 13 and 15 of auxiliary request 1.

Claim 1 according to auxiliary requests 10 and 12 was clear for the same reasons as set out in view of claim 1 according to auxiliary request 1.

The problem-solution approach presented against the subject-matter of claim 1 according to auxiliary request 11 was somewhat artificial. No reason was given why the skilled person should start from the embodiment of Figure 4 of document D2. Foam was only one of a list of suitable materials in paragraph [0012] of document D2. Instead, it would be prudent to start from the preferred embodiment described in paragraphs [0017] and [0018], which presented the adhesive in the form of stripes and utilised polyester film as a substrate. Even if the skilled person would recognise that a continuous adhesive layer would be beneficial for the adhesion of the tape, there was certainly no reason to replace the polyester film by a foam layer, as the former already provided an excellent cushioning effect, and to aim at permanent grooves in the meaning of the patent. The subject-matter of claim 1 according to auxiliary request 11 therefore involved an inventive step.

IX. The arguments of appellant II can be summarised as follows:

*Main request*

Limiting the meaning of a term used in a claim by information taken from the description was not allowable. The interpretation of the term "permanent" in the sense that it required at least one repositioning of the adhesive tape was not evident for the skilled person. The description of the patent also encompassed cases in which no repositioning took place and grooves were permanent in the sense that they allowed the egress of air during the application procedure. Much would depend on the test used to measure the grooves. From Table 1 of the patent it was clear that different pressures would result in different air bleed values, which would affect the permanency of the grooves. Permanent should be construed as "substantially permanent". The effective period of intended use cited in paragraph [0069] of the patent was vague and could relate to a relatively short time interval during the actual use of the tape. The use of "preferably" in some sentences of paragraph [0069] meant that the degree of permanence was usually smaller than indicated in these sentences.

The intended use "for flexographic printing" was not suitable for delimiting the claimed subject-matter from the prior art. The mere absence of an explicit mention of an intended use from a prior art document could not result in the novelty of a claim over the disclosure of that document.

Document D3 disclosed all features of claim 1 according to the main request. The grooves followed a regular

pattern, in the meaning given in paragraph [0067] of the patent, and they were formed in a continuous adhesive layer as was clear from the figures. The fact that the grooves of document D3 "largely disappear" meant that they did not disappear completely. Even if the grooves filled in after bonding was completed, they must be considered "substantially permanent" in the sense of the patent. As long as the bonding was not completed, the prior art grooves remained at least partially open so that the adhesive tape of document D3 could be repositioned without air being trapped at the interfaces. The adhesive tape of document D3 had the same structure as the subject-matter of claim 1 and was not limited to the automobile industry. Any difference in composition or materials was speculative and could not be derived from the prior art document or from the patent. Both in the automobile industry and in the field of flexographic printing different applications existed that required adhesives with varying mechanical properties.

*Auxiliary Request 0*

*i) Admittance*

The auxiliary request should not be admitted because it was filed at a very late stage, because the amendment to claim 1 was taken from the description and because the subject-matter of the claim was *prima facie* not allowable.

*ii) Inventive step*

The expression "groove pattern" in column 3, line 50 of document D3 implied that the grooves were arranged along a mesh, i.e. they were overlapping. If the board

would consider the overlapping grooves to be a difference vis-à-vis document D3, it would be obvious, when starting from that document or from document D4, to avoid air entrapment by designing a cross pattern as was known from document D6.

Also when starting from document D2 the claimed subject-matter would be obvious. The grooves disclosed by document D2 were permanent in the same manner as the grooves of the patent. There could be no doubt that the skilled person would combine the disclosure of Figure 4 with the passage of paragraph [0012] listing the materials for the substrate. The combination of a foamed layer with a substantially continuous adhesive layer was therefore directly and unambiguously disclosed by document D2, even if, as in the patent, no specific advantage was given in respect of the foamed substrate. Hence, no selection from two or more lists was necessary in the present case and no hindsight was used. Furthermore, the use of foamed substrates was well-known in the art of adhesive tapes at the priority date of the patent, see for example column 1, lines 24-44 of document D4.

The advantage alleged by the test results of Exhibit 2 should not be considered here, as the patent itself remained silent on any advantage of using a foamed layer for the substrate.

The skilled person would be incited to consider document D6 in order to improve the air flow at the surface interface of document D2. Document D6 was even mentioned in the patent description. It taught that the adhesive layer was continuous and that the permanency of the grooves could be increased by adapting the rheology of the adhesive. The prior art document was

not limited to large scale films comprising images, as was evident from the general wording of claims 1, 10 and 15. The principle explained in the document could be applied more generally to any adhesive interface where air entrapment could occur. Whether or not document D6 disclosed a foamed layer was irrelevant in view of the established practice of the problem-solution approach.

*Auxiliary Request 1*

The amended functional feature (ii) was not included in the granted claims but only in the description of the patent. As the provisions of Article 84 EPC applied to the claims, the first instance could not examine an unclarity only manifested in the description. As a consequence, an objection under Article 84 EPC could be raised against claim 1 of auxiliary request 1.

Functional features were only allowable if they unambiguously defined the claimed subject-matter such that the protection conferred by the patent could be determined and a comparison could be made with the state of the art. This was not the case here. The feature (ii) was not clear and was not supported by the description. It concerned an unusual parameter and attempted to define the invention through a result to be achieved. No test method existed that could reliably conclude whether or not the condition was fulfilled, i.e. whether or not air could still egress after repositioning. In particular, the boundary conditions were unknown. In view of the temperature dependence of the rheologic properties of the adhesive layer, which influenced the alleged "permanence" of the grooves, the feature could not be understood without indicating the temperature. Apart from the fact that



claims should be clear without reference to the description, the test mentioned in the patent did not provide any help in that respect. From Table 1 in the patent followed that the air bleed results differed according to the pressure applied. Repositioning was not a standardised procedure, but was carried out and influenced by persons.

Furthermore, it was not clear to which degree the grooves should be preserved in order to still be considered "retained".

*Auxiliary Request 1A*

Claim 1 lacked clarity. It was not clear which rheologic properties were meant and how these were selected.

*Auxiliary Request 2*

Claim 1 lacked clarity, irrespective of the use of the prepositions "during" or "after". The description failed to provide clear criteria for judging the desired feature (ii'). The test in the patent was not usable because Table 1 showed that different results were arrived at depending on how the test was carried out. The amended feature (ii') was a result to be achieved, that was not supported by the description.

*Auxiliary Requests 3, 3A and 4*

The clarity objections made in respect of auxiliary requests 1 and 2 were not overcome by the amendments of auxiliary requests 3, 3A and 4.

*Auxiliary Requests 5 and 6*

The requirements of Article 123(2) EPC were not met in view of the added density range of the foam layer. In the description of Figure 5 of the original application, which provided the only basis for the limit values of the density, the substrate 360 was referred to as a foam layer. No further layers were comprised by the substrate. In contrast, according to claim 1 of auxiliary requests 5 and 6, the substrate was claimed to *comprise* a foam layer in order to include the embodiments shown in Figures 6A to 6D and further developed in dependent claims 2 and 3. There was however no basis in the original description for those embodiments in combination with a foam layer with the given density range.

*Auxiliary Request 7*

A method of creating air guiding grooves in adhesive layers by means of an embossed liner was already known from the prior art according to document D6.

*Auxiliary Request 8*

The arguments presented in view of claim 1 according to auxiliary request 4 resp. auxiliary request 2 also applied here.

*Auxiliary Request 9a*

The combination of documents D2 and D6 led to the subject-matter of claim 1 according to auxiliary request 0 in an obvious manner. There would be no reason to deviate from this reasoning in respect of claim 1 of auxiliary request 9a, the more so since the

only change was the carrier, which was also known from document D2. Foam was used long before the priority date of the patent as a material for substrates of adhesive tapes in printing applications.

*Auxiliary Requests 10, 11 and 12*

Auxiliary requests 10-12 were only filed after the statement setting out the grounds of appeal and were therefore late. No arguments were provided by appellant I in view of these further requests. Therefore it was requested not to admit the late-filed auxiliary requests into the appeal proceedings.

Feature (ii) was not clear, so that claim 1 according to auxiliary requests 10 and 12 did not fulfill the requirements of Article 84 EPC.

The subject-matter of claim 1 according to auxiliary request 11 did not involve an inventive step for the same reasons as presented in view of auxiliary request 9a. Carriers and printing devices for flexographic printing were on the market before the priority date of the patent. A sleeve on which the adhesive tape was applied for fixing printing plates could be considered to be a carrier in the sense of the claim.

- X. The arguments of appellant III can be summarised as follows:

*Main request*

A definition of the term "permanent" was given in paragraph [0069] of the patent. Only this definition applied in the present case. The subsequent explanation relating to the repositioning was characterised as

"preferably" and therefore clearly concerned a preferred embodiment. Also the expressions "For example, it may become necessary" and "any necessary repositioning" in paragraph [0004] of the patent qualified the repositioning as a merely optional measure. From the tests carried out in the examples of the patent it followed that the intended use was to remove air from the interfaces of the adhesive tape. If repositioning were so crucial to the invention, it would have been mentioned in the examples.

The goal of document D3 was not to remove the grooves but to bleed air from the contacting surfaces. As the grooves of document D3 allowed air egress during an effective period of time, they must be permanent in the meaning of the patent. Grooves that "largely disappear" could not have completely disappeared. Both in document D3 and in the patent acrylic pressure-sensitive adhesives with similar thicknesses were used. Therefore it was not clear why the prior art tape would not be suitable for flexographic printing. Novelty was therefore not given.

*Auxiliary Request 0*

Closest prior art would be document D2 resp. D2A, which related to a similar technical problem as the patent, namely to avoid air entrapment at adhesive interfaces. In the embodiment of Figure 4 a continuous adhesive layer with grooves was disclosed in combination with a substrate that, according to the description, could be made from a foamed material. The only required selection from a list was therefore the material of the substrate. At the priority date of the patent, foamed substrates were common for adhesive tapes. The difference between the claimed subject-matter and

document D2 would only be constituted by the overlapping grooves, for which no technical effect was given in the patent.

No inventive merit was required by the skilled person to adapt the adhesive tape of document D2 according to the teaching of document D6, which described structural topographies of adhesive surfaces that allowed fluid egress upon application. The size of flexographic printing plates was often comparable to the size as image graphics, they also had smooth and flat surfaces and were both applied manually. The objective technical problem did not relate to the material of the substrate at all, so that there was no incentive to change this aspect.

The test results of Exhibit 2 were irrelevant as the combination of a continuous adhesive layer with a foamed substrate was already known from document D2.

*Auxiliary Request 1*

The new functional feature narrowed the meaning of the term "permanent", which was construed in the main request in line with the definition given in paragraph [0069] of the patent, in that it included a repositioning step. This constituted an amendment with respect to the granted claims, taken from the description, which could therefore be examined under Article 84 EPC.

The question should be raised in how far the term "retained" applied to the dimensions of the grooves. As an adhesive material would always be subject to some viscous flow, it must be assumed that the grooves reduced in size during use. Should that be the case,

how much air bleed from the reduced grooves would be sufficient to comply with the condition after repositioning? In the section of the patent concerning the air bleed test and the examples no mention could be found of any repositioning.

*Auxiliary Request 1A*

Claim 1 lacked clarity.

*Auxiliary Request 2*

The added feature (ii') left open how often the adhesive tape could be repositioned while still allowing air egress. Were the grooves supposed to maintain their full ability to egress the air or was a minimal air discharge sufficient to fall within the claim wording? No criterion could be derived from the description of the patent, that established when the air bleed test had failed or not. How did the permanency ensure the desired effect? As a consequence, claim 1 was not clear.

*Auxiliary Request 2a*

There was no basis for the amendment, in particular for the link between the repositioning and the air bleed test. Paragraph [0067] of the patent only mentioned the regular pattern. The term "permanent" was only added in paragraph [0069], in which no reference to the test was made.

*Auxiliary Requests 3, 3A and 4*

Claim 1 according to auxiliary requests 3, 3A and 4 also included those features against which a clarity

objection was raised in view of auxiliary requests 1 and 2.

*Auxiliary Requests 5 and 6*

The contrast between "the substrate layer 360 may also be a foam layer" in the original description of Figure 5, on which the amendment was based, and the wording "the substrate comprises a foam layer" of claim 1 according to auxiliary requests 5 and 6 resulted in added subject-matter.

*Auxiliary Request 7*

As the additional features of embossing a topography in an adhesive layer by means of a microembossed liner was already known from document D6, the subject-matter of claim 1 according to auxiliary request 7 was not inventive.

*Auxiliary Request 8*

The clarity objections against claim 1 according to auxiliary request 2 also apply in view of claim 1 according to auxiliary request 8.

*Auxiliary Request 9a*

Document D2 already disclosed a carrier in combination with an adhesive tape. Thus, the inventive step argumentation in respect of claim 1 according to auxiliary request 0 also applied here.

*Auxiliary Requests 10, 11 and 12*

Feature (ii) of claim 1 according to auxiliary requests 10 and 12 was not sufficiently clear, as laid out in respect of auxiliary request 1.

It was trivial that an adhesive tape adapted to adhere printing plates in flexographic printing was actually used in this way and a printing plate was fixed thereby to a carrier. Therefore no inventive step could be involved. Furthermore, document D2A already disclosed a printing plate fixed onto a printing cylinder by means of an adhesive tape, a surface of the tape being in contact with the surface of the cylinder.

XI. The arguments of the party as of right can be summarised as follows:

*Main request*

The feature "a regular pattern of permanent grooves" was extremely generic and did not set any particular limitation. The description of the patent, in particular paragraphs [0067] to [0069], must be read in order to construe the feature. However, the description was very broad, covering any kind of adhesive. As asserted by the opposition division, document D3 deprived claim 1 of the requirement of novelty. In the patent, the width of the grooves could be as small as 4  $\mu\text{m}$ , which meant that they were not always visible. If need be, also the adhesive tape of document D3 would have to be repositioned by the operator.



*Auxiliary Request 0*

Regarding the technical effect of the amendment on the grooves, the patent only mentioned that they might or might not be overlapping. The closest prior art would be either one of documents D3, A04, A05 or A07, from which the skilled person, faced with the problem of avoiding air entrapment, would arrive at the claimed subject-matter by turning to its common general knowledge. Documents A08 and A06 disclosed overlapping grooves. Document A06 was very similar to document D6, and disclosed a liner with a plurality of projections extending in the form of a permanent pattern, which determined the formation of corresponding recesses in the surface of the adhesive layer in contact therewith. These recesses formed microchannels suitable for allowing the bleeding of the trapped air. The teaching disclosed in document A06 was so clear and explicit to be considered as common general knowledge in the field of adhesives.

*Auxiliary Request 1*

The functional feature (ii) was not an actual limiting characteristic but rather a use destination for a possible use of the claimed adhesive tape. It was vague and indefinite and did not provide any information what to do to attain the claimed effect. No information was provided that would allow to ascertain when and if a tape behaved in line with the "retained" feature and which force had to be applied onto the adhesive surface before checking that the grooves were maintained during the repositioning.

*Auxiliary Request 1A*

The science of rheology was complex and embraced many aspects. The skilled person had to carry out a large number of tests in order to determine the rheologic properties of an adhesive material, that would result in the desired effect. What was claimed was an adhesive tape suitable to solve a problem without setting out how the problem was actually supposed to be solved. Therefore, the claim was not clear.

*Auxiliary Request 2*

The added feature (ii') of claim 1 concerned a mere advantage. No actual technical feature was added. Therefore, claim 1 was not clear.

*Auxiliary Request 2a*

A basis in the original application was missing for the amendment. Already the reference to the "specification" instead of the "application" did not comply with Article 123(2) EPC. Claim 1 referred to the real case of repositioning an adhesive tape on a carrier or printing plate, on the one hand, whereas the air bleed test of the description attempted to mimic the real application and referred to relatively small tape samples, on the other hand.

*Auxiliary Requests 3, 3A, 4*

The arguments given in respect of auxiliary requests 1 and 2 applied mutatis mutandis to auxiliary requests 3, 3A and 4.

*Auxiliary Request 7*

The teaching of document D6, in particular of Figure 1, and the similar document A06 had to be considered when assessing the inventive step of claim 1 according to auxiliary request 7.

*Auxiliary Request 9a*

The absence of a carrier would result in the adhesive tape sticking to itself, which would not make any technical sense. There was always some kind of carrier to wind or roll the tape on. Paragraph [0002] of the patent illustrated that a carrier was not necessarily a printing drum. The subject-matter was not inventive having regard the combination of documents D2 and D6. The wording of the sentence starting on line 15 of page 3 of document D6 clarified that its field of application was broader than just large format graphics.

*Auxiliary Requests 10, 11 and 12*

For flexographic printing the skilled person would of course require a printing plate and a carrier. These additional features could not involve any inventive step.

## Reasons for the Decision

### 1. Main request

#### 1.1 Interpretational issues

Claim 1 requires that "at least one of the first and second adhesive layers comprises a regular pattern of permanent grooves and is substantially continuous".

- (a) The common general meaning of the expression "regular pattern" is an arrangement of lines or shapes, especially a design in which the same shape is repeated at regular intervals over a surface.
- (b) What is meant by "substantially continuous" in connection with adhesive layers is not so straightforward. In paragraph [0077] of the patent an adhesive layer is said to be substantially continuous when it "is applied to a backing such that there are no adhesive free zones where the backing is left exposed". This appears to be a plausible interpretation. An adhesive layer can only be designated as substantially continuous when it covers the entire surface of the portion of the substrate it is applied on.
- (c) Something is qualified as "permanent" if it lasts indefinitely without change. This does, however, not make any technical sense for a groove in the context of adhesives, where the adhesive material typically undergoes creep deformation. According to paragraph [0069] of the patent, the permanent grooves of the invention must be construed as *substantially* permanent grooves, which means that

"the topographic features in a surface of the adhesive are retained for an effective period of time during intended use". The adhesive tape of the patent is intended to be used for flexographic printing, to mount a printing plate on a carrier (cf. paragraphs [0001] and [0004]). Hence, the grooves need to last for an effective period of time while the printing plate is mounted on the carrier. This allows any air that is trapped during application of the tape to egress. How much time actually passes between the fabrication of the grooves and the end of the "effective period of time during intended use" is not clear from the patent. The adjective "permanent" can therefore only be understood as "lasting for a certain amount of time" as opposed to "closing immediately".

The argument of appellant I that the intended use encompasses at least one repositioning of the adhesive tape on the carrier or printing plate does not convince the board. The language used in paragraphs [0004], [0069] and [0080] of the patent ("For example", "any necessary", "preferably", "even if", "This permanency") leaves no doubt that repositioning is not key to the invention. Further, it is underscored that none of the examples given in the patent to describe the invention include any mention or hint of a repositioning step.

## 1.2 Novelty

The novelty objection made in point 24 of the impugned decision is refuted by appellant I, who sees two differences between the subject-matter of claim 1 and the adhesive tape of document D3: the grooves of the

prior art tape are not permanent and the tape is not suitable for flexographic printing.

According to column 2, lines 25-27 and claim 16 of document D3, the "grooves in the tape are fine enough so that, once the two surfaces to be bonded are in position, the grooves largely disappear". This not only implies that the grooves last during a certain, effective period of time while the adhesive tape is being positioned (the intended use), it also means that the grooves do not disappear entirely after bonding is complete. Also the comment in lines 27-30 of column 2 entails this conclusion: if the grooves are "barely perceptible or almost invisible" once the two surfaces to be bonded are in position, the grooves must still be physically present. The board further remarks that the visibility of the grooves is not necessarily a good yardstick for judging their state of permanency. Even the eyes of a fighter pilot mentioned by appellant I with reference to Exhibit 3 would not see the grooves at the lower side of the range of paragraph [0072] of the patent (the 0.40 acuity for high contrast targets in Figure 3-A of Exhibit 3 would yield a minimum size of 11  $\mu\text{m}$ , i.e. substantially larger than 4  $\mu\text{m}$ ). As a consequence, the grooves in the adhesive layers of the tape disclosed in document D3 are permanent in the sense of claim 1.

The board concurs with appellant I that the adhesive tape of D3 is not intended to fasten a flexographic plate onto a printing drum. Still, it is not apparent which physical or material limitations are implied by the purposive expression "for flexographic printing", without which the adhesive tape could not be used for that purpose. The application area of document D3 is not confined to the automotive industry but extends to

"other industries" and "other applications" (cf. column 1, line 8 and column 2, lines 43-44). The argument that an adhesive tape used to fasten automotive components is not suitable for use between a flexible plate and a printing drum can therefore not be decisive in this case. The similarity between the adhesive tape of the example described in document D3 and the adhesive tape described in the patent is apparent from a comparison between the materials and dimensions given in column 4, lines 7 to 9 of document D3 on the one hand ("a coating of about 0.05mm thick of an acrylic pressure-sensitive adhesive") and those given in the patent on the other hand (cf. [0063] and [0066]: "Preferred removable pressure sensitive adhesives include the acrylic pressure sensitive adhesives", "most preferably about 15 to about 75µm thick"). It is therefore not conspicuous why the prior art tape would not be suitable for flexographic printing.

1.3 For the reasons given above, the subject-matter of claim 1 according to the main request is not new in regard of document D3 (Article 54 (1) and (2) EPC 1973).

## 2. Auxiliary Request 0

### 2.1 Admittance

Auxiliary request 0 was filed after oral proceedings had been arranged and, hence, falls under the ambit of Article 13 of the Rules of Procedure of the Boards of Appeal (RPBA, Supplementary Publication 1 to the Official Journal of the EPO 1/2019, 40 ff).

Compared to claim 1 of the main request the only amendment consists in the addition of the adjective

"overlapping". This amendment appears to be taken from page 18 of the description as originally filed and limits the claimed subject-matter in that a regular pattern of grooves without any overlap is excluded.

In the judgment of the board, the auxiliary request does not raise issues which the board and the other parties could not have reasonably be expected to deal with without adjournment of the oral proceedings, in particular since the request was submitted well in advance of the oral proceedings.

For these reasons, the board exercises its discretion under Article 13(1) RPBA to admit auxiliary request 0 into the appeal proceedings.

## 2.2 Inventive Step

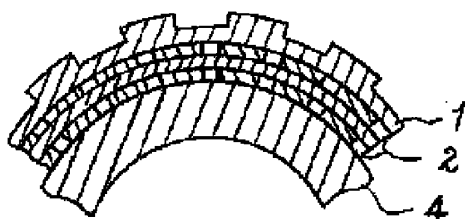
### 2.2.1 Starting point

Document D2 is an appropriate starting point for assessing the inventive step of the claimed subject-matter. The document is mentioned in paragraph [0007] of what is the introductory part of the patent description, belongs to the same technical field and is directed to a similar purpose as the claimed invention. This follows from the certified German translation D2A according to which the Japanese document, unlike document D3, concerns the attachment of flexographic printing plates onto a carrier drum by means of a double-sided adhesive tape with the goal to avoid the entrapment of air at the interface between the contacting surfaces (paragraphs [0001] and [0003] of document D2A).



To that end, the exposed surface of each of the adhesive layers arranged at the opposite sides of the tape substrate has an uneven structure that provides evacuation paths for trapped air (paragraph [0006] of document D2A). This is also acknowledged in paragraph [0007] of the contested patent. Figure 1, reproduced below, illustrates a cross-section of the printing device formed by a printing plate 1 adhered to a carrier 4 through a multilayered adhesive tape 2. In Figure 4 of Document D2 an example of the adhesive tape 2 used in the printing device is shown (paragraph [0008]: "Ferner ist in den Abbildungen 3 und 4 die Fixierfolie veranschaulicht").

【图1】



【图4】

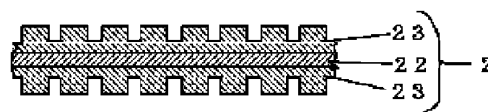


Figure 4 depicts the uneven structure of the exposed outer surfaces of the adhesive layers 22, which cover the entire surface of the substrate 22 and are therefore substantially continuous. The cross-hatching in both cross-sectional views implies that the depressions formed in between the boxcar protrusions extend in the dimension perpendicular to the respective section planes and form grooves that serve as evacuation paths for air trapped during the attachment phase (paragraph [0013] of document D2A: "Emissionspfad für das eingeschlossenes Gas"). Although the cross-sectional views do not give away the third dimension of the uneven structures, the regularity of the boxcar protrusions and the mention of a "Muster" in paragraphs [0013], [0014] and [0017] of document D2A imply that the grooves follow a regular pattern.

The details of the printing device shown in Figure 1 above indicate that the grooves in the outer layer of the tape 2 do not close once the printing plate is attached to the carrier. As their function consists in evacuating the air trapped between the attachment surfaces, they must last for a certain amount of time and are therefore, following the interpretation given in point 1.1, substantially permanent.

#### 2.2.2 Objective technical problem

The subject-matter of claim 1 according to auxiliary request 0 differs from the embodiment shown in Figure 4 of document D2 in that the substrate comprises a foam layer and in that the grooves are overlapping. The latter feature is construed in the sense presenting itself from paragraph [0068] and from Figure 2 of the patent: the grooves must form intersecting sets of parallel lines.

In paragraph [0083] of the patent an increase in resiliency and compliance is mentioned in connection with foam layers. The first partial problem is therefore to improve the resiliency of adhesive tape.

No particular advantage of the overlapping arrangement can be inferred from the patent. On the contrary, paragraph [0068] unfolds that the grooves may be overlapping or non-overlapping. Appellant I put forward that overlapping grooves create multiple ways to egress the air and provide a detour round an interrupted groove. This technical effect appears plausible to the board. The second partial problem is therefore to further improve the egress of air at the adhesive interface.

### 2.2.3 Obviousness

In an attempt to solve the first partial problem, the skilled person will consider the entire content of the starting point D2/D2A, where different suitable materials for the substrate are listed in paragraph [0012]. Of those, mainly woven fabrics and foamed sheets would be promising when it comes to increasing the resiliency of the tape. Moreover, as for example document D4 discloses in column 1, lines 27-29, it was well-known in the state of the art in the years up to the priority date of the patent to use foam as a material for the substrate of double-sided adhesive tapes. The person skilled in the art would be prompted by these considerations to opt for a foam material for the substrate 22 in Figure 4 of document D2 with the aim to increase the resiliency of the adhesive tape 2.

In this context, the board is not persuaded that the test results of Exhibit 2, submitted by appellant I to demonstrate that the foamed substrate and the continuous adhesive layer are functionally related to each other and lead to advantages over prior art tapes, demonstrated that the alleged synergetic effect had its exclusive origin in the combination of these two features (cf. T 519/07, Reasons 7.4.2 and T 1682/15, Reasons 7.3). The board also observes that the fabrication process of the samples tested in Exhibit 2 differs from that presented in the patent (cf. second paragraph on page 1 of Exhibit 2: "except that...and no layer..."; seventh paragraph on page 1: "except"; first paragraph on page 2: "replaced with the same liner") and that the conditions of the air bleed test are not identical (cf. third paragraph on page 2: "with the following exceptions"). Furthermore, the foam backing material is compared with a vinyl backing material

instead of with the polyester mentioned in paragraph [0017] of document D2. Hence, the probative value of the test evidence is found to be insufficient.

In order to further improve the egress of air, the skilled person will be encouraged to look at the structure of exposed adhesive surfaces in prior art adhesive tapes. In this respect, document D2A merely teaches that the uneven structure can be chosen in an arbitrary manner, for example striped or dotted (cf. paragraph [0013]). The skilled person will therefore continue searching in the technical field of adhesive tapes for satisfactory solutions to the posed problem and will come across document D6. In the judgment of the board, this document is a promising candidate for combining with document D2A because it also deals with the problem of entrapped air and because it focuses on the topography of the exposed adhesive surface. Figure 3 of document D6 discloses a detail of the exposed surface of an adhesive layer 30 prepared by its contact with a carefully machined liner 20. The microchannels or grooves 37 in the exposed surface are formed by pressing the embossed ridges of the liner 20 thereon. The grooves are interconnected and form a regular mesh pattern that controls the egress of air in different directions along the interface plane (cf. page 4, line 22 to page 5, line 9; claims 8 and 14). The skilled person will be prompted to adopt this solution and design the grooves shown in Figures 1 and 4 of document D2 along a similar, intersecting pattern.

By solving both partial problems in the above manner the skilled person will arrive at the claimed subject-matter without exercising an inventive step.

2.2.4 In point 31.1 of the impugned decision the opposition division argued that the skilled person would not have consulted the technical field of document D6 in order to address the problem of fixing a flexographic printing plate to its carrier. Appellant I adheres to this argumentation and additionally remarks that the skilled person would not be incited to adopt the continuous layer of document D6 without also changing the foam substrate in line with the teaching of document D6.

The issue of air egress at adhesive interfaces is encountered in various fields involving adhesive tapes to attach two objects to each other. The board is not convinced that the skilled person looking for a solution that solves the second partial problem will limit the search to the field of positioning flexographic printing plates. Of course, the practical differences existing between adhering a large format graphic to a wall and attaching a flexographic printing plate to a carrier are acknowledged. Yet, according to the problem-solution approach, the correct test to be applied when combining two pieces of prior art is whether, on an objective assessment, it would have been obvious for the skilled person seeking to solve the problem underlying the claimed invention to do so (cf. T 745/92, Reasons 1.4). The person skilled in the art is not dissuaded from consulting documents in different technical fields. On the contrary, the objective assessment of the skilled person actually entails an incentive to draw on prior art documents also in neighbouring fields, which in this case means other technical fields in which adhesive tapes are deployed.

Considering a prior art document such as D6 in its entirety does not mean that other features, even if

they do not immediately relate to the problem posed or offer a solution thereto, necessarily need to be transposed together with the problem-solving teaching of that document to the subject-matter disclosed in the starting document. This would be artificial and go against the gist of the problem-solution approach. In that sense, the board does not see any reason why the skilled person would supplement the solution offered by document D6 to the second partial problem by a further feature relating to the material of the substrate layer, which, incidentally, does not seem to receive any importance in the disclosure of document D6, and adapt the adhesive tape of document D2 correspondingly.

2.2.5 In view thereof, claim 1 according to auxiliary request 0 does not involve an inventive step (Article 56 EPC 1973).

### 3. Auxiliary Request 1

3.1 In the decision G 3/14 (OJ EPO 2015, A102) it was decided that the claims of a patent as amended may be examined for compliance with the requirements of Article 84 EPC 1973 only when, and then only to the extent that the amendment introduces non-compliance with Article 84 EPC 1973.

The added feature

(ii) *"wherein the grooves are retained during repositioning of the adhesive tape on the carrier or printing plate"*

was not part of the granted claim but was taken from the description and introduced in claim 1 of auxiliary request 1 during the opposition proceedings. The word

"repositioning" is new to the claim and is not implied by or inherent to any of the other claim features. In particular, the meaning attributed by the board to the term "permanent" in the context of the main request, namely "lasting for a certain amount of time" as opposed to "closing immediately" (see point 1.1 above), is not synonymous with the restriction that the grooves are retained during repositioning. In fact, the feature (ii) narrows the amount of time the grooves are supposed to last and therefore limits the meaning of the term "permanent", causing the subject-matter of the claim to shift.

As a consequence, the amendment (ii) may be examined for compliance with the requirements of Article 84 EPC 1973.

3.2 In point 26 of the impugned decision, the opposition division found that the term "retained" was clear in the light of the patent as a whole and that there was no (other) way to define the feature (ii) without unduly restricting the scope of protection.

The board agrees with appellant I that the use-character of the construction "are retained during repositioning" does not mean that this feature should be *a priori* disqualified under Article 84 EPC 1973. However, in order for a device-type claim having a use feature to be clear, there should be no doubt which limitations the use imposes on the claimed device.

The board finds that the meaning of the phrase "the grooves are retained" is ambiguous. Appellant I takes the position that this condition merely implies that the *function* of the grooves to egress trapped air is guaranteed. Yet it could also mean that the *shape* of

the grooves must remain unchanged, i.e. that the material of the adhesive layer does not flow into the grooves and reduce their size.

The board is further not convinced that the skilled person would be able to derive a clear technical meaning from the time expression "during repositioning of the adhesive tape on the carrier or printing plate" and the effect it has on the phrase "the grooves are retained". Repositioning may be a recurrent measure when fixing a printing plate on a carrier, there is no standardised process setting out established rules and boundary conditions for carrying out the repositioning step. The test described in paragraphs [0091] to [0096] of the patent aims at measuring the air bleed through an adhesive tape sample, but does not mention or seem to be related to repositioning. In the absence of data such as ambient temperature, humidity, or the exact value of the (re)positioning force or pressure, there is no telling how the grooves of an adhesive tape will evolve during a repositioning step. Whereas a moderate force applied on an adhesive tape against a carrier may preserve the grooves in the adhesive layer during and after several repositioning attempts, the same grooves may wear off immediately as soon as the repositioning force is drastically increased. The behaviour of the grooves will also be influenced by the material and the surface condition of the carrier and the printing plate, components which do not form part of the claimed subject-matter. Different conditions may therefore have a detrimental effect on the grooves of an otherwise perfectly suitable adhesive tape.

In conclusion, it does not follow from the claim wording how the grooves of the adhesive tape have to be configured in order to achieve feature (ii), so that



the matter for which protection is sought is not clearly defined. Claim 1 according to auxiliary request 1 therefore fails to comply with Article 84 EPC 1973.

4. Auxiliary Request 1A

In claim 1 of auxiliary request 1a appellant I has attempted to surmount the clarity objection against feature (ii) by introducing the further amendment "*the rheologic properties of the adhesive layer are such that*".

The board concurs with the party as of right that rheology is a complex branch of physics. Under the umbrella of rheological properties would normally fall miscellaneous parameters and moduli that characterise the flow of non-Newtonian fluids and the plastic flow of solids and that govern the specific way in which the deformation or flow behaviours of these materials occur. Apart from a single reference in paragraph [0069] of the patent, the description does not mention the term "rheological properties", let alone that information is provided which rheological properties are to be selected to achieve the desired effect of feature (ii). Consequently, the amendment does not clarify how the grooves must be configured in order to be retained during repositioning of the adhesive tape on the carrier or printing plate.

Apart therefrom, the arguments made in regard of the lacking boundary conditions also apply here (cf. point 3.2 above). In the absence of any information precisising the circumstances under which the adhesive tape is repositioned, the matter for which protection is sought is not clearly defined.

Hence, claim 1 according to auxiliary request 1A lacks clarity (Article 84 EPC 1973).

5. Auxiliary Request 2

In the amended feature (ii') of auxiliary request 2 the permanency of the grooves is linked to the egress of trapped air after the adhesive tape is repositioned on the carrier or printing plate.

The board is not persuaded that the definition of the permanency of the grooves by reference to their capacity to allow egress of air therefrom after the adhesive tape is repositioned has a clear meaning to the skilled person. Even a reader having a mind willing to understand the claim, who consults the description of the patent and takes account of the air bleed test described therein, cannot figure out under which conditions a pattern of grooves resp. an adhesive tape having an adhesive layer with such a pattern would achieve that desired effect after an unspecified repositioning step.

Not only the technical requirements in respect of the material of the adhesive layer and the dimensions of the grooves are missing from the claim, no mention is made of the point in time at which the adhesive tape is repositioned, of the boundary conditions before, during and after the repositioning step or of the surface characteristics of the individual carrier or printing plate. Yet all these factors will effectively determine the lifespan of the grooves and thus whether or not trapped air is allowed to egress therefrom at a predetermined moment in time.

As the amendment (ii') does not clearly define how the grooves should be configured in order to comply with the permanency requirement, the matter for which protection is sought is not clearly defined.

Claim 1 according to auxiliary request 2 therefore lacks clarity (Article 84 EPC 1973).

6. Auxiliary Request 2A

By adding a reference to "the air bleed test in the specification" in feature (ii'), appellant I envisaged to overcome the clarity objections against claim 1 of auxiliary request 2.

In the description of the examples on pages 25 and 26 of the original application, the particulars of what appears to be an in-house test that measures air bleed from a sample of a microstructured adhesive tape are explained. Neither the permanency of the grooves beyond a simple positioning step nor a possible repositioning are mentioned or can be inferred from this description.

In the remaining description of the original application, the air bleed test is only mentioned twice, namely in the context of the detailed description of Figures 1A and 1B in the first paragraph on page 18. The regular pattern of grooves is described therein as providing "some measurable air bleed using the test". However, this passage of the description deals with the (first) positioning of the adhesive tape on the carrier and the printing plate, respectively. Only in the third paragraph on the page 18 the concept of "permanency" is introduced in conjunction with possible repositioning steps, yet without any reference

to the air bleed test and without implying that the air bleed of repositioned grooves is measured analogously.

Therefore, the original application does not provide any basis for linking the permanency of the grooves or the repositioning of the adhesive tape to the air bleed test.

In conclusion, the requirements of Article 123(2) EPC are not met.

7. Auxiliary Requests 3, 3A and 4

The lack of clarity raised in regard of claim 1 according to auxiliary requests 1 and 2 (cf. points 3 and 5 above) carries over to claim 1 according to auxiliary requests 3, 3A and 4, respectively. None of the additional features (iii) or (iii') defining the depth and the width of the grooves can overcome the clarity objections against features (ii) and (ii'), respectively.

Therefore, Article 84 EPC 1973 is not complied with for auxiliary requests 3, 3A and 4.

8. Auxiliary Requests 5 and 6

8.1 With respect to claim 1 according to the main request, claim 1 according to auxiliary requests 5 and 6 have been amended by adding lower and upper limits for the density of the foam layer.

The concrete values of these limits can only be found in the third paragraph of page 22 of the original description, in the context of the detailed description of the embodiment of Figure 5. The adhesive tape of

this embodiment has a substrate limited to a single layer made of foam material (cf. page 22, line 17: "The substrate layer 360 may also be a foam layer", in which the "also" refers to the alternative on page 22, line 7: "the substrate 360 is a polymeric film"). The original claim wording "the substrate *comprises* a foam layer", which also embraced embodiments with multi-layered substrates, is therefore not originally disclosed in combination with the specific density ranges.

Likewise, the further polymeric film layer added by claims 2 and 3 in both auxiliary requests is not disclosed in the original application in conjunction with the density ranges. The detailed description of the embodiment of Figures 6A to 6C, to which these claims refer, does not give any details of the foam layer 470 and fails to make a link with the foam material mentioned on page 22.

- 8.2 The board concurs with appellant I that the application as originally filed provides general support for the substrate *comprising* a foam layer and that the reference to a foam layer is not specific to the embodiment of Figure 5.

Yet the only basis for the specific density ranges is a paragraph which, by virtue of its relative position in the detailed description between the respective references to Figure 5 and Figure 6A and because of the reference signs "360, 362, 364" used in the paragraph, must be associated to the embodiment of Figure 5.

There is a case for arguing that a skilled person in the framework of an inventive step argumentation would reasonably conclude that the characteristic properties

of a material disclosed in the context of one embodiment of a patent document could be similarly applicable to the same material disclosed in other embodiments. However, an amendment can only be made within the limits of what a skilled person would derive *directly* and *unambiguously*, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of these documents as filed (cf. decision G 2/10, OJ EPO 2012, 376). Notwithstanding a possible lack of functional or structural relationship between the foam density and the fact that the substrate consisted only of a foam layer, the amendment does not follow directly and without ambiguity from the original application.

- 8.3 Consequently, the amendments in claim 1 according to auxiliary requests 5 and 6 contains subject-matter which extends beyond the content of the application as filed (Article 123(2) EPC).

9. Auxiliary Request 7

In claim 1 of auxiliary request 7, a removable release liner was added to the adhesive tape, wherein the embossed pattern of the liner "*creates the pattern of grooves in the at least one of the first and second adhesive layers by contacting*".

With reference to the inventive step argumentation made with regard to claim 1 according to auxiliary request 0 (cf. point 2.2.1 above), document D2 is also here considered the most appropriate starting point.

Further to the difference that the substrate comprises a foam layer, the subject-matter of claim 1 according to auxiliary request 7 also differs from document D2 by

a removable release liner on at least one of the first and second adhesive layers, wherein the release liner has an embossed pattern that creates the pattern of grooves in the at least one of the first and second adhesive layers by contacting. Apart from a general remark in paragraph [0013] and an unspecified mention of a mask in paragraph [0017], document D2 remains silent on the manufacture of the pattern of grooves.

As reasoned with respect to auxiliary request 0, the first partial problem would be to improve the resiliency of the adhesive tape. The skilled person would solve this problem by opting for a foamed substrate disclosed by document D2 in its entirety, without exercising an inventive step.

According to paragraph [0074] of the patent, the technique of creating grooves in the adhesive layer through contact with an embossed release liner is one of several alternative methods. No particular advantage of using the embossed release liner is mentioned. The second partial problem is therefore to provide an alternative manufacture of a pattern of grooves in an adhesive layer.

In order to solve the second partial problem, the person skilled in the art will be encouraged to consult document D6, for the reasons given in point 2.2.3 above. The prior art document teaches the manufacture of grooves in the adhesive layer of an adhesive tape by virtue of microreplication, in which a microembossed pattern contacts the exposed surface of the adhesive layer (page 5, second paragraph; claim 1). The microreplication can be achieved by making contact either with an embossed tool or with an embossed removable release liner (page 5, fourth paragraph). The

embodiment shown in the figures of document D6 as well as the vast majority of the examples mentioned in the description use a release liner with embossed pattern to microreplicate the topography onto the adhesive layer (see also claims 5 and 15 of document D6). The skilled person is therefore prompted to adopt this solution and to manufacture the regular pattern of permanent grooves known from Figure 4 of document D2 in a similar manner.

In view of the above, the subject-matter of claim 1 is obvious having regard to the state of the art so that claim 1 according to auxiliary request 7 does not involve an inventive step (Article 56 EPC 1973).

10. Auxiliary Request 8

For the reasons given in point 5 above, claim 1 according to auxiliary request 8, which also comprises feature (ii'), lacks clarity (Article 84 EPC 1973).

11. Auxiliary Request 9a

In point 2.2 above, it was reasoned that the subject-matter of claim 1 according to auxiliary request 0 did not involve an inventive step having regard to the state of the art known from document D2 in combination with document D6.

Figure 1 of document D2 illustrates a cross-section of the prior art printing device, wherein the first, lower adhesive layer of the adhesive tape 2 contacts the surface of the carrier 4 (see also paragraph [0008]).

As a consequence, the subject-matter of claim 1 according to auxiliary request 9a differs from document



D2 by the same two features as identified in respect of auxiliary request 0, i.e. the foam layer and the overlapping grooves. This means that the same inventive step reasoning applies also here, so that the conclusion must be the same.

Claim 1 according to auxiliary request 9a does therefore not involve an inventive step (Article 56 EPC 1973).

## 12. Auxiliary Requests 10-12

### 12.1 Admittance

Appellant II requested not to admit auxiliary requests 10 to 12 because they were filed late but could have been filed before, and because no arguments were presented in support of the allowability of these requests.

According to Article 13(1) RPBA, any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy.

Claim 1 according to auxiliary requests 10 and 12 appears to be a combination of claims 1 and 13 ("carrier"), and of claims 1, 13 and 15 ("printing device"), respectively, according to the main request, with the addition of feature (ii). Claim 1 according to auxiliary request 11 corresponds to claim 1 according to auxiliary request 12, but without feature (ii).

The board acknowledges that these auxiliary requests could have easily been filed with the grounds of appeal. Still, account must be taken of the fact that they appear to combine claims that were already in the granted patent (claims 1, 14 and 16, respectively). By limiting the claimed subject-matter to "A carrier ... comprising an adhesive tape" and to "A printing device comprising a carrier ... comprising an adhesive tape", respectively, the auxiliary requests appear to be legitimate attempts to move away from the disclosure of document D3, which was found to be particularly relevant against claim 1 according to the main request. Feature (ii) was already discussed in the context of the first auxiliary request.

It is thus not unreasonable for the other parties to be expected to deal with the further set of auxiliary requests, whose feature combinations were presented before, albeit in different claims.

Hence, the board exercises its discretion to admit auxiliary requests 10, 11 and 12 into the proceedings (Article 13(1) RPBA).

## 12.2 Article 84 EPC 1973

Appellants II and III have raised objections against Article 84 EPC 1973 in respect of the claims according to the auxiliary requests 10 to 12. The board shares these views. The lack of clarity invoked by the feature (ii) was already assessed in regard of auxiliary request 1 (cf. point 3 above) and has not been overcome by the adding a carrier and a printing plate to the claimed subject-matter.

Claim 1 according to auxiliary requests 10 and 12 does therefore not comply with Article 84 EPC 1973.

12.3 Article 56 EPC 1973

Figure 1 of document D2 shows a printing device comprising a carrier 4 onto which a printing plate 1 is fixed by means of an adhesive tape 2 (see also paragraph [0009] of translation D2A). The first, lower adhesive layer of the adhesive tape 2 lies on the surface of the carrier 4. The printing plate 1 is attached on the second, upper adhesive layer of the adhesive tape 2.

For the same reasons as already given in point 2.2.1 above in respect of auxiliary request 0, the subject-matter of claim 1 according to auxiliary request 11 only differs from document D2 in that the substrate comprises a foam layer.

The objective technical problem is therefore to improve the resiliency of the adhesive tape.

As is set out in respect of the first partial problem with respect to auxiliary requests 0 and 9a (cf. points 2.2.3 and 11 above), the person skilled in the art would be prompted to solve this problem by making the substrate 22 disclosed in Figure 4 of document D2, which shows the details of an adhesive tape used in the printing device of Figure 1, of a foam layer.

Claim 1 according to auxiliary request 11 does not involve an inventive step (Article 56 EPC 1973).

## Order

### For these reasons it is decided that:

1. The appeal of appellant I is dismissed.
2. The decision under appeal is set aside.
3. The patent is revoked.

The Registrar:

The Chairman:



N. Schneider

M. Poock

Decision electronically authenticated