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**Datasheet for the decision
of 27 July 2022**

Case Number: T 0938/20 - 3.3.05

Application Number: 06842403.5

Publication Number: 2086755

IPC: B32B15/00, C21D9/46

Language of the proceedings: EN

Title of invention:

COATED STEEL STRIPS, METHODS OF MAKING THE SAME, METHODS OF USING THE SAME, STAMPING BLANKS PREPARED FROM THE SAME, STAMPED PRODUCTS PREPARED FROM THE SAME, AND ARTICLES OF MANUFACTURE WHICH CONTAIN SUCH A STAMPED PRODUCT

Patent Proprietor:

ArcelorMittal

Opponents:

Salzgitter Flachstahl GmbH
Tata Steel IJmuiden B.V.
Volkswagen Aktiengesellschaft
ThyssenKrupp Steel Europe AG
Muhr und Bender KG

Headword:

Making coated steel strips/Arcelor Mittal

Relevant legal provisions:

RPBA 2020 Art. 13(1)

EPC Art. 123(2), 83, 54, 56

Keyword:

Amendment to appeal case - suitability of amendment to resolve issues raised (yes)

Amendments - allowable (yes)

Sufficiency of disclosure - (yes)

Novelty - (yes)

Inventive step - (yes)

Decisions cited:

T 1311/15

Catchword:



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Case Number: T 0938/20 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 27 July 2022

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
16 March 2020 concerning maintenance of the
European Patent No. 2086755 in amended form.**

Composition of the Board:

Chairman E. Bendl
Members: G. Glod
P. Guntz

Summary of Facts and Submissions

I. The appeals from the patent proprietor (appellant) and opponent 1 (the latter subsequently withdrawn) concern the opposition division's decision finding that European patent EP 2 086 755 B1 in amended form based on the then-auxiliary request 4 met the requirements of the EPC.

II. The following documents cited in the impugned decision are of relevance here:

D2: Merklein, M. and Lechler, J., *Journal of Materials Processing Technology*, 177 (July 2006), pages 452 to 455

D9b: Hein, P., Kefferstein, R., Dahan, Y., in *New Developments in Sheet Metal Forming*, edited by M. Liewald, 2006, pages 163 to 175

D10: US 6 296 805 B1

D15: TNO report 0100288444 *Analyses on hot-formed coated steel samples*

D21: http://www.usinorauto.com/v_anglaise/produits/fiches/a_usibor1.htm or .../
[a_usibor2.htm](#) or .../[a_usibor3.htm](#), 29.04.02

D22: Winkel, J., *Gaswärme International* (53) No. 7/2004, pages 402 to 405

D24: Altan, T., *Stamping Journal*, January 2007, two pages

D32: Vaissiere, L., Laurent, J.P., Reinhardt, A., *SAE Technical Paper Series*, 2002-01-2048, twelve pages, 2002

D56: EP 1 013 785 B1

- III. In the following, the patent proprietor is referred to as the appellant, while the other parties are opponents 1 to 5, respectively.
- IV. With the statement of grounds of appeal the appellant filed a main request and auxiliary requests 1 to 34. By letter of 12 October 2021, they filed auxiliary requests 35 to 139.
- V. In the communication pursuant to Article 15(1) RPBA, the board was of the preliminary opinion that the then-auxiliary request 105 was allowable.
- VI. Oral proceedings took place on 27 July 2022, with the appellant making auxiliary request 105 their main request and opponent 1 withdrawing their appeal.
- VII. The only claim of the now-main request is as follows:

*"1. A process for making a hot stamped coated steel sheet product,
comprising the successive steps of:
(A) providing a pre-coated strip obtained by hot dip pre-coating a steel strip having a first side and a second side with aluminium or aluminium alloy, the pre-coating thickness on at least one of said first side and said second side of said strip having a thickness of from 20 to 33 μm at every location on at least one of said first and second sides of said strip, the steel having the following composition by weight:*

0.10%<carbon<0.5%

0.5%<manganese<3%

0.1%<silicon<1%

0.01%<chromium<1%

titanium<0.2%

aluminum<0.1%

phosphorus<0.1%

sulfur<0.05%

0.0005%<boron<0.010%,

the remainder comprising iron and impurities inherent in processing, the pre-coating comprising from 8% to 11% silicon by weight, from 2% to 4% iron by weight, the remainder being aluminum and impurities inherent in processing;

(B) cutting said pre-coated steel strip to obtain a sheet;

(C) heating said aluminum- or aluminum alloy pre-coated steel sheet in a furnace preheated to a temperature and during a time defined by diagram ABCD of figure 7 if thickness of said sheet is greater than or equal to 0.7mm and less than or equal to 1.5mm, and by diagram EFGH of figure 7 if thickness of said sheet is greater than 1.5mm and less than or equal to 3mm, at a heating rate V_c between 20 and 700°C comprised between 4 and 12°C/s, to obtain a heated blank;

(D) performing exit of said heated blank from said furnace

(E) transferring said heated blank to a die, wherein the elapsed time between said heated blank exits said furnace and a further stamping commences, is not more than 10 seconds, and

(F) stamping said heated blank in said die with a deformation quantity higher than 10%, to thereby obtain a hot stamped steel sheet product, wherein the heated blank is cooled at a mean rate between the exit of said furnace, down to 400°C, of at least 50°C/s."

This gives the following feature analysis based on that used by the opposition division in its decision (point 19):

1.1	A process for making a hot stamped coated steel sheet product, comprising the successive steps of:
1.2	(A) providing a pre-coated strip obtained by hot dip pre-coating a steel strip having a first side and a second side with aluminium or aluminium alloy,
1.3	the pre-coating thickness on at least one of said first side and said second side of said strip having a thickness of from 20 to 33 μm at every location on at least one of said first and second sides of said strip;
1.3a	the steel having the following composition by weight: 0.10%<carbon<0.5%;0.5%<manganese<3%; 0.1%<silicon<1%; 0.01%<chromium<1%;titanium<0.2%;aluminum<0.1%; phosphorus<0.1%;sulfur<0.05%; 0.0005%<boron<0.010%, the remainder comprising iron and impurities inherent in processing,
1.3b	the pre-coating comprising from 8% to 11% silicon by weight, from 2% to 4% iron by weight, the remainder being aluminum and impurities inherent in processing;
1.4	(B) cutting said pre-coated steel strip to obtain a sheet;
1.5	(C) heating said aluminum- or aluminum alloy pre-coated steel sheet in a furnace preheated to a temperature and during a time defined by diagram ABCD of figure 7 if thickness of said sheet is greater than or equal to 0.7mm and less than or equal to 1.5mm, and

1.6	by diagram EFGH of figure 7 if thickness of said sheet is greater than 1.5mm and less than or equal to 3mm,
1.7	at a heating rate V_c between 20 and 700°C comprised between 4 and 12°C/s, to obtain a heated blank;
1.8	(D) performing exit of said heated blank from said furnace
1.9	(E) transferring said heated blank to a die, wherein the elapsed time between said heated blank exits said furnace and a further stamping commences, is not more than 10 seconds; and
1.10	(F) stamping said heated blank in said die with a deformation quantity higher than 10%, to thereby obtain a hot stamped steel sheet product,
1.11	wherein the heated product is cooled at a mean rate between the exit of said furnace, down to 400°C, of at least 50°C/s.

VIII. The opponents' arguments, in so far as relevant to the present decision, can be summarised as follows:

Admissibility of the now-main request

The request was filed very late and did not address a new issue, since the lack of enablement across the scope of the claims had already been raised in the notice of opposition and had not subsequently been withdrawn. The proprietor could have expected that the opponents would rely on all the arguments already presented during opposition proceedings. Therefore there was no reason to present so many new requests, including the present one, which included a feature from the description, at such a late stage of the proceedings. Such a large number of requests would

offload the responsibility for defining the subject-matter of a patent onto the EPO and the other parties. The board's preliminary opinion could not *ex post facto* justify the late filing by the proprietor. Furthermore, claim 1 was not convergent compared with claim 1 of the then-higher-ranked requests. Claim 1 also led to new problems under Article 123(2) EPC.

Article 123(2) EPC

The feature of the original application that the blank "is deformed by a quantity higher than 10%" did not directly and unambiguously disclose the feature of "stamping with a deformation quantity higher than 10%" present in the claim.

The feature relating to the mean rate between the exit of said furnace down to 400°C was only disclosed for a specific embodiment on page 17 of the application as filed and could not be combined with claim 4 as filed.

The composition of the pre-coating was not disclosed in the application as filed. Only the composition of the pre-coating bath was disclosed, which was not necessarily the same.

Article 83 EPC

The feature "deformation quantity" was not a term used in the art and the skilled person would not know how to measure it.

The subject-matter of claim 1 was not enabled over the whole scope since not all the heating rates as claimed would allow the desired properties to be obtained for

all the steels and compositions falling within the scope of claim 1.

Article 54 EPC

D9b disclosed all the features of the claim. Although D9b did not explicitly mention the composition of the pre-coating, it was evident from figure D4, which was almost the same as figure 1 of the patent, that the same structure was obtained during the heat treatment as in the patent in suit. Therefore the pre-coating was implicitly the same as that claimed.

Article 56 EPC

D9b was the closest prior art. Even if the heating times in combination with the sheet thickness (features 1.5 to 1.7), the transfer time (feature 1.9) and the composition of the pre-coating (feature 1.3b) were accepted as differentiating technical features, the subject-matter of claim 1 was still an obvious alternative when considering the teaching of D10 in particular. There was no evidence that an improvement in weldability was obtained over the prior art, considering that the weldability range given for example 2 was the same as that shown in the table on page 5 of D21 for Usibor (1.4 kA). Moreover, example 2 of the patent could not be considered as a comparative test with respect to D9b.

- IX. The appellant's arguments, as far as relevant to the present decision, are reflected in the reasoning below.
- X. The appellant requested that the patent be maintained on the basis of the new main request, submitted as auxiliary request 105 on 12 October 2021, or, in the

alternative, on the basis of any of auxiliary requests 1 (former main request) to 105 (former auxiliary request 104) or 106 to 139, as submitted with the statement of grounds of appeal and by letter dated 12 October 2021, respectively.

Opponents 1 to 3 and 5 requested that the appellant's appeal be dismissed.

Opponent 4 did not file any submissions during appeal proceedings.

Reasons for the Decision

1. Article 117 EPC: witness

Opponent 5 had requested in their reply to the appeal that Mr Tenié be heard as witness. In the communication pursuant to Article 15(1) RPBA 2020, the board had indicated that it could not see why such a request should be granted. The indication that Mr Tenié should be heard to confirm the technical content of certain documents in the context of novelty was considered rather to concern submissions as a technical expert than the hearing of a witness to corroborate certain facts previously substantiated by the party (Case Law of the Boards of Appeal of the EPO, 9th edition, 2019, III G 2.2.1 und 2.2.2).

It was explained that opponent 5 still had the option of announcing Mr Tenié as an accompanying person for the scheduled oral proceedings, which it finally did, and Mr Tenié did attend the oral proceedings. The request that the witness be heard was therefore irrelevant.

2. Article 111(1) EPC: remittal

Opponent 3 in their reply to the appeal had requested remittal to the opposition division in the event that D9b was found not to anticipate novelty of claim 1 of the granted patent. Since the granted patent was ultimately not discussed any further during oral proceedings, this request did not take effect.

3. Article 13(1) RPBA 2020

The present request was submitted on 12 October 2021, i.e. shortly before notification of the summons to oral proceedings was deemed to have been delivered (Rule 126 EPC). Therefore Article 13(1) RPBA 2020 applies.

According to said article, any amendment to a party's appeal case after it has filed its grounds of appeal or reply is subject to the party's justification for its amendment and may be admitted only at the discretion of the board. Article 12, paragraphs 4 to 6 shall apply *mutatis mutandis*. The party shall provide reasons for submitting the amendment at this stage of the appeal proceedings. The board shall exercise its discretion in view of, *inter alia*, the current state of the proceedings, the suitability of the amendment to resolve the issues which were admissibly raised by another party in the appeal proceedings or which were raised by the board, whether the amendment is detrimental to procedural economy, and, in the case of an amendment to a patent application or patent, whether the party has demonstrated that any such amendment, *prima facie*, overcomes the issues raised by another party in the appeal proceedings or by the board and does not give rise to new objections.

The request is a reply to an objection raised under Article 83 EPC by opponent 2 in their reply to the appeal concerning enablement over the whole scope. This objection was not part of the impugned decision, but was admissibly raised within the meaning of Article 12(4) RPBA 2020 in opponent 2's notice of opposition. However, it had apparently not been discussed during the oral proceedings before the opposition division, although said objection would equally apply to the then-auxiliary request 4 (see point 9 of the minutes of the oral proceedings before the opposition division). Therefore in the case in hand it cannot be clearly established whether the objection was indeed maintained as required by Article 12(4) RPBA 2020. In view of this, the board considers that it can be accepted that the objection was re-introduced with opponent 2's reply to the appeal. Although it took some time for the appellant to react, the request is considered a fair reaction to opponent 2's objection independently of the fact that many other requests had been filed. The request could have been filed before the opposition division, but, taking into account the total number of objections raised by the opponents in opposition proceedings, it appears that there is no clear indication that it should have been filed in addition to the numerous requests filed before the opposition division, since the opposition division apparently did not consider this objection critical for the requirements of Article 83 EPC. Therefore there is no reason not to admit it when considering Article 12(6) RPBA 2020.

The request is not detrimental to procedural economy, but to the contrary in the case at hand helped to streamline the proceedings and led to an allowable

request as set out below. In that respect the board notes that "giving rise to new objections" is understood to mean that the appellant has to show that *prima facie* no valid new objection is recognisable (see Supplementary publication 2, Official Journal 2020, RPBA 2020, Table setting out the amendments to the RPBA and the explanatory remarks). It is not understood to mean that any new objection raised by the opponents - whether justified or not - renders the request inadmissible. In the present case it means in particular with respect to Article 123(2) EPC that a basis for the amendment should be easily recognisable.

As to the question of convergence of the (former) requests, the board accepts that in the case at issue, where an extremely large number of objections of different kinds were raised against all the requests on file, convergence was particularly difficult to achieve and under the given circumstances should not be used as the only criterion for denying admissibility of this request. It may be noted in this context that a series of requests that are drafted in defence against a single objection are expected to converge, but equality of arms would be infringed if the opponent was free to raise a multitude of diverging objections, whereas the patentee was restricted to only one line of defence against all of these.

In view of all these considerations, the board exercises its discretion to admit the request into the proceedings.

4. Article 123(2) EPC

The objections by the opponents relate to features 1.3b, 1.10 and 1.11.

4.1 feature 1.3b:

The application as filed discloses a typical metal bath composition for an Al-Si coating containing from 8% to 11% silicon, from 2% to 4% iron, the remainder being aluminum or aluminum alloy, and impurities inherent in processing. In addition, it is indicated that a typical composition of Al-Si **coating** is Al-9.3%Si-2.8%Fe and that invention coatings are not limited to these compositions (page 12, lines 3 to 7). The skilled person - an experienced metallurgist - will understand from this passage that the coating composition and the metal bath composition are considered identical in the application underlying the patent. This is also in line with claim 21, which relates to the pre-coating composition of the product, but can only find support in the description in the cited passage relating to the metal bath composition. Therefore feature 1.3b is considered to be directly and unambiguously derivable from page 12, lines 3 to 7 of the application as filed. Consequently, the fact that some diffusion of Fe may take place, so the metal bath composition may not necessarily be absolutely identical to the pre-coating composition, is irrelevant in the specific context of the application underlying the patent.

4.2 feature 1.10:

Claim 4 of the application as filed forms the basis for this part of claim 1, as established by the opposition division (point 21.1). It discloses that "said heated blank is deformed by a quantity higher than 10% during said stamping". The skilled person will understand from this that the deformation quantity is higher than 10% during the stamping. The board also has no doubt that

stamping is done in the die, so in said die the deformation quantity has to be higher than 10% in order to obtain a deformation that is higher than 10%. The wording in feature 1.10 is considered to be an acceptable rephrasing of the wording in claim 4 as filed.

4.3 feature 1.11

Claim 4 as filed discloses that "the said heated product is cooled at a rate of at least 50°C/s". When turning to the description the skilled person will learn from page 17, lines 23 and 24 that the cooling rate is defined as the "mean rate between the exit of the heated blank from the furnace, down to 400°C". This feature is now present in claim 1. The skilled person reading the passage on page 17, lines 10 to 24 would not understand it as a very specific embodiment, but rather as an explanation about what needs to be done to obtain a fully martensitic structure. The skilled person would not associate the general statement about the cooling rate with a specific embodiment, but read it as a general definition of the cooling rate leading to the desired properties. Feature 1.11 is directly and unambiguously derivable from claim 4 as filed in combination with page 17, lines 23 and 24 from the application as filed.

The requirements of Article 123(2) EPC are met.

5. Article 83 EPC

The requirements of Article 83 EPC are met for the following reasons:

- 5.1 The main point of debate concerns feature 1.10 and whether the skilled person knows how to put it into practice. In addition, opponent 2 considered that claim 1 was not enabled over the whole scope. This objection had already been raised during opposition proceedings (see point 24 of opponent 2's notice of opposition filed on 28 August 2018) and, as indicated above (point 3), there is no clear indication that it would have been withdrawn, so there is no reason not to consider it in appeal proceedings.
- 5.2 The expression "deformation quantity" could possibly be regarded as an unclear term under Article 84 EPC, but this parameter is not so ill-defined that it could not be put into practice. In fact, paragraph [0069] of the patent links the deformation to feature 1.11, so the skilled person, reading the patent with a mind willing to understand, will realise that feature 1.10 relates to the local deformation of the blank. There is no evidence that the skilled person would not know how to conduct the stamping so that the desired deformation quantity is obtained. Furthermore, there is no reason why the skilled person could not determine in the final product whether the local deformation is higher than 10% or lower. The skilled person is able to compare the stamped blank with the non-deformed blank and to conclude whether the local deformation is higher than 10%, which implies that the stamping was done with a deformation quantity higher than 10%. Figure 14 of D9b is only partially relevant in that respect, since it relates to the calculated (predicted) thickness and not to the effective thickness of the product produced by the claimed process in comparison with an unstamped blank.

5.3 Concerning the enablement over the whole scope, it is noted that the intended effect is not expressed in the claim. The question arises whether, when examining sufficiency of disclosure, the intended effect of the claimed subject-matter should be taken into account. It is well-established case law that an objection of insufficient disclosure cannot legitimately be based on an argument that the patent does not enable a skilled person to achieve a technical effect which is not defined in the claim (see T 1311/15, Reasons 5.2). The effect is however of relevance to the question of inventive step (see point 7.5 below).

6. Article 54 EPC

Documents D2, D9b and D32 were considered to anticipate novelty of the process claim of the patent as granted. The now-main request includes the additional features 1.3.a and 1.3.b. The requirements of Article 54 EPC are met for the following reasons:

6.1 D2 discloses that Usibor 1500 P[®] is pre-coated with an aluminum-based layer (page 453, point 2.1, lines 12 and 13), but the composition of the pre-coating is not indicated. Therefore at least feature 1.3b is not disclosed in D2.

6.2 D9b discloses Usibor 1500 P[®] with a metallic coating of aluminum-silicon of approximately 25 µm/side.

D9b does not disclose the thickness of the particular sheet used for processing. It is known that the thickness of the Usibor 1500 P[®] product of D21 is in the range of 0.8 to 2.5 mm. However, this does not provide any information about the specific thickness of the sheet used in the process of D9b. D9b does not

disclose that the process used applies to sheets of different thicknesses, and simply does not provide any disclosure on thickness. Although it is stated that Usibor 1500 P[®] is used for the pillars and sills of the new VW Passat (figures 9 and 10), which have a thickness of 1.8 mm according to D15, it is not disclosed that said pillars were obtained by the process described in D9b. In fact, figures 9 and 10 are part of the subchapter "market trends" that generally discusses the use of such Usibor 1500 P[®] without giving details about the production process of the pillars. Consequently there is no disclosure of thermal treatment conditions for a specific sheet with a defined thickness. Therefore the information provided in D9b in combination with D21 does not allow the direct and unambiguous conclusion that features 1.5 to 1.7 are complied with in D9b.

The board also does not agree with the opposition division regarding feature 1.9. D9b discloses that the total cycle time lies between 15s and 25s. Depending on the cooling rate used, this range does not necessarily mean that the transfer time is less than 10°C. The expression "transfer very quickly on a press for the stamping" (page 163, last paragraph) is not associated with a specific time. There is no evidence that a transfer time slightly higher than 10s would no longer lead to a martensitic structure. Although it is highly likely that the transfer would happen in not more than 10 seconds, likelihood is not sufficient for a direct and unambiguous disclosure.

D9b discloses that Usibor 1500 P[®] is a pre-coated boron steel with a metallic coating of aluminum-silicon ("Alusi": 90% Al) (page 164, last line before the footnote). The exact composition of the pre-coating is

not disclosed. It can also not be concluded that the pre-coating had to be the same as that used in the process claimed. Figure 4 of D9b shows the structure of the alloyed Al-Fe-Si layer after hot stamping (see figure 4 and page 165, lines 1 to 3), but the exact process conditions for the particular part shown in figure 4 are not known. Therefore it cannot be accepted that the pre-coating had to be the same because all the other process conditions were the same. Consequently, feature 1.3b is not disclosed explicitly or implicitly in D9b.

To sum up, D9b is not prejudicial to novelty of claim 1, since at least features 1.3b, 1.5 to 1.7 and 1.9 are not directly and unambiguously derivable from D9b.

6.3 D32 (page 4, left-hand column, last sentence) discloses that an aluminum-based pre-coating is applied to Usibor 1500 with a hot-dipped process, but the composition of the pre-coating is not indicated. Therefore at least feature 1.3b is not disclosed in D32.

7. Article 56 EPC

7.1 The invention relates to a process for making a hot stamped coated steel sheet.

7.2 D9b was chosen as the closest prior art by the parties. It explicitly deals with hot stamping of Usibor 1500 P[®], but does not disclose at least features 1.3b, 1.5 to 1.7 and 1.9.

7.3 The problem to be solved by the present invention is to provide a process that leads to a product having particularly good weldability (paragraph [0009] of the patent).

7.4 The problem is solved by a process according to claim 1 characterised in that it includes features 1.3b, 1.5 to 1.7 and 1.9.

7.5 It needs to be analysed whether it is credible that this problem is solved over the whole range claimed. As indicated in paragraph [0009], the coating layers are of relevance for obtaining the good weldability. This is also confirmed in paragraphs [0036] and [0037] of the patent. All the examples of the patent relate to specific steel and coating compositions. In particular example 2 situation i) relates to a process according to claim 1, while in situation ii) the blanks were heated to 950°C for 7 minutes at a heating rate V_c of 11°C/s. This led to a structure of the upper layers different from that shown in Figure 1 (column 16, lines 11 to 18). It is not indicated in the patent that the structure is identical to that shown in figure 2. The reference in paragraph [0026] also does not allow the conclusion that figure 2 is the result of example 2, situation ii). Therefore it cannot be argued that situation ii) has to be completely different from D9b, since figure 4 of D9b would, rather, be similar to figure 1 than to figure 2. Simply, information is lacking about how figure 4 of D9b was obtained.

It is a fact that heating the blanks to 950°C for 7 minutes is encompassed by the conditions given in D9b (900°C to 950°C, during 4 to 10 minutes) (page 163, point 1.1, line 4). Although the pre-coating structure of example 2 situation ii) is accepted as different from D9b, the comparison between example 2 situation i) and example 2 situation ii) still shows that some of the features distinguishing D9b from claim 1 have an impact on weldability.

D21 shows a similar weldability range (http://www.usinorauto.com/v_anglaise/produits/fiches/a_usibor2.htm, page 3/5, table at the bottom) to example 2, situation i), but the thickness of the sheet is different from that used in example 2 (1.6 mm vs. 1.2 mm) and the conditions for welding are not disclosed in D21.

Therefore the board accepts that there is no convincing evidence from the opponents' side showing that a sheet obtained by the process of D9b has as good weldability as a sheet obtained according to the claimed process. In other words, due to the lack of evidence to the contrary it is accepted that the problem posed is solved. The problem does not need to be redefined in less-ambitious terms.

- 7.6 The solution to this problem is not obvious.
- 7.6.1 D9b does not contain any indication that the specific choice of heating conditions for a specifically pre-coated sheet leads to better weldability.
- 7.6.2 D2 is silent about weldability and does not disclose the composition of the pre-coating. In addition, D2 discloses that the dwell time should be at least 3.5 min for the 1.75 mm-thick blank, but details about the temperature are missing in the context of the specific experimental procedure. The general disclosure in the introduction is similar to that of D9b (about 5 to 10 minutes in a furnace at about 900 to 950°C).
- 7.6.3 D10 discloses that the composition is optimised from the point of view of weldability (column 4, lines 31 to 33). It also discloses a pre-coating of 9% to 10%

silicon and from 2.5% to 3.5% iron, the remainder being aluminum (claim 7). However, this composition is not associated with the specific heating conditions as claimed. Although said heating conditions overlap with those of D9b, the argument that the heating conditions would be taken from D9b and the pre-coating from D10 in order to solve the posed problem is based on hindsight.

7.6.4 D21 is silent about the composition of the pre-coating.

7.6.5 D22 in figure 2 provides possible heating curves for Usibor 1500, but does not provide any information about the composition of the pre-coating.

7.6.6 D24, apart from being post-published, relates to feature 1.9 since it discloses that the transfer generally takes less than three seconds. However, it does not provide information about the heating of the sheet and the composition of the pre-coating.

7.6.7 D56 discloses in claim 1 the same pre-coating as D10 (9% to 10% silicon and from 2.5% to 3.5% iron, the remainder being aluminum and impurities), but does not teach anything about improved weldability properties.

7.7 In conclusion, the specific combination of heating conditions and pre-coating for good weldability is not rendered obvious by the prior art. The subject-matter of claim 1 of the main request meets the requirements of Article 56 EPC.

8. Rule 103(4) (a) EPC

During oral proceedings before announcement of the decision opponent 1 withdrew their appeal. Consequently

the conditions for partial reimbursement (25%) set out in Rule 103(4) (a) EPC are met.

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 on the basis of the main request, submitted on 12 October 2021 as auxiliary request 105, and a description to be adapted.
3. The appeal fee of opponent 1 is reimbursed at 25%.

The Registrar:

The Chairman:



C. Vodz

E. Bendl

Decision electronically authenticated