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**Datasheet for the decision
of 8 November 2018**

Case Number: T 1533/17 - 3.2.03

Application Number: 09701846.9

Publication Number: 2242863

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C21D8/02, C22C38/32, C22C38/38,
C23C2/12

Language of the proceedings: EN

Title of invention:

PROCESS FOR MANUFACTURING STAMPED PRODUCTS, AND STAMPED
PRODUCTS PREPARED FROM THE SAME

Patent Proprietor:

ArcelorMittal France

Opponents:

Salzgitter Flachstahl GmbH
Tata Steel IJmuiden BV
ThyssenKrupp Steel Europe AG
Volkswagen Aktiengesellschaft

Headword:

Relevant legal provisions:

EPC Art. 54(3)

RPBA Art. 13(3), 12(4)

Keyword:

Late-filed evidence - adjournment of oral proceedings would have been required (yes)

Late-filed document - admitted (yes)

Late-filed requests - auxiliary requests 6 and 7 clearly allowable (no)

Late-filed auxiliary request 6a - admitted (yes)

Novelty - implicit disclosure (yes)

Decisions cited:

G 0001/03, T 0447/92, T 0519/92, T 0450/89, T 0464/94

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1533/17 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 8 November 2018

Appellant:
(Patent Proprietor)

ArcelorMittal France
1- 5, rue Luigi Cherubini
93200 Saint Denis (FR)

Representative:

Lavoix
2, place d'Estienne d'Orves
75441 Paris Cedex 09 (FR)

Respondent:
(Opponent 1)

Salzgitter Flachstahl GmbH
Eisenhüttenstrasse 99
38239 Salzgitter (DE)

Representative:

Moser Götze & Partner Patentanwälte mbB
Paul-Klinger-Strasse 9
45127 Essen (DE)

Respondent:
(Opponent 2)

Tata Steel IJmuiden BV
Wenckebachstraat 1
1951 JZ Velsen-Noord (NL)

Representative:

Kruit, Jan
Tata Steel Nederland Technology B.V.
Group Intellectual Property Services - 3G37
P.O. Box 10000
1970 CA Ijmuiden (NL)

Respondent:
(Opponent 3)

ThyssenKrupp Steel Europe AG
Kaiser-Wilhelm-Strasse 100
47166 Duisburg (DE)

Representative:

Cohausz & Florack
Patent- & Rechtsanwälte
Partnerschaftsgesellschaft mbB
Bleichstraße 14
40211 Düsseldorf (DE)

Respondent: Volkswagen Aktiengesellschaft
(Opponent 4) 38436 Wolfsburg (DE)

Representative: Liebl, Thomas
NEUBAUER - LIEBL - BIERSCHEIDER
Münchener Strasse 49
85051 Ingolstadt (DE)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 27 June 2017
revoking European patent No. 2242863 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman G. Ashley
Members: B. Miller
G. Weiss

Summary of Facts and Submissions

I. European patent No. 2 242 863 relates to a process for producing a hot stamped coated steel sheet.

II. Four oppositions were filed against the patent, based on the grounds of Article 100(b) EPC and of Article 100(a) EPC together with both Articles 54 and 56 EPC.

The opposition division decided to revoke the patent, since neither the patent as granted (main request) nor the patent in amended form based on a first and second auxiliary request was considered to meet the requirements of Article 54 EPC.

The patent proprietor (hereinafter: the appellant) filed an appeal against this decision.

III. The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted (main request) or on the basis of claims filed with the statement setting out the grounds of appeal as auxiliary requests 1 to 5 or on the basis of claims submitted with letter dated 20 August 2018 as auxiliary requests 6 or 7 or filed at the oral proceedings as auxiliary request 6a.

IV. The opponents 1 to 4 (hereinafter: the respondents 1 to 4) requested that the appeal be dismissed.

V. Wording of the requests

Claim 1 according to the main request reads as follows (including a features analysis proposed by the appellant):

- 1.1 "A process for making a hot stamped coated steel blank, comprising:
- 1.2 - pre-coating a steel strip or sheet with aluminium- or aluminium alloy, by hot dip of said steel strip or sheet having a first side and a second side, in an aluminium or aluminium alloy bath,
- 1.3 - the thickness t_p of the said pre-coating being from 20 to 33 micrometers at every location on said first and second sides of said strip or sheet, then
- 1.4 - cutting said pre-coated steel strip or sheet to obtain a pre-coated steel blank, then
- 1.5 - heating said aluminum- or aluminum alloy pre-coated steel blank in a furnace preheated to a temperature and during a time defined by diagram ABCD of figure 1 if thickness of said sheet is greater than or equal to 0.7mm and less than or equal to 1.5mm,
- 1.6 and by diagram EFGH of figure 1 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,
- 1.8 and at a heating rate V_c' between 500 and 700°C comprised between 1.5 and 6°C/s, to obtain a heated blank; then
- 1.9 - transferring said heated blank to a die; then
- 1.10 - hot stamping said heated blank in said die, to thereby obtain a hot stamped steel blank, then
- 1.11 - cooling said hot stamped steel blank at a mean rate V_r between the exit of said heated blank from the furnace, down to 400°C, of at least 30°C/s."

Claim 2 relates to a preferred embodiment of the process according to claim 1.

Claim 3 according to the main request reads as follows (including a features analysis proposed by the appellant):

- 3.1 "A hot stamped coated steel blank, which comprises:
- 3.2 (a) a strip of base steel having a first side and a second side; and
- 3.3 (b) a coating on at least one of said first side of said strip of base steel and said second side of said strip of base steel, wherein:
- 3.4 (i) said coating results from the interdiffusion between said base steel, and aluminium or aluminium alloy pre-coating,
- 3.5 (ii) said coating comprises, proceeding from base steel outwards,
 - (a) Interdiffusion layer
 - (b) Intermediate layer
 - (c) Intermetallic layer
 - (d) Superficial layer
- 3.6 (iii) said coating contains, in surfacic fraction, less than 10% of porosities
- 3.7 and wherein the said layers (c) and (d) are quasi-continuous by occupying at least 90% of their respective level
- 3.8 and wherein less than 10% of layer (c) is present at the extreme surface of said hot stamped coated steel blank."

Claims 4 to 9 relate to preferred embodiments of the coated steel blank according to claim 3.

Claim 10 reads:

"Use of a hot stamped coated steel blank according to any of the claims 3 to 9 for the manufacturing of a land motor vehicle."

Claim 11 reads:

"Use of a hot stamped coated steel blank manufactured according to a process according to any of the claims 1 or 2, for the manufacturing of a land motor vehicle."

Claim 1 of each of auxiliary requests 1, 3 and 5 corresponds to claim 1 of the main request wherein feature 1.8 reads (amendment in bold)

"and at a heating rate V_c between 500 and 700°C comprised between 1.5 and 6°C/s **and different from V_c** , to obtain a heated blank; then"

Claim 1 of each of auxiliary requests 2 and 4 has the same wording as claim 1 of the main request.

Claim 1 of auxiliary request 6 corresponds to claim 1 of the main request wherein feature 1.7 reads (amendment in bold):

"at a heating rate V_c between 20 and 700°C comprised between 4 and 12°C/s **with the exclusion that V_c is of 4°C/s or 6°C/s**"

and wherein the following disclaimer has been introduced after feature 1.11:

"with the exclusion of a process comprising the steps consisting of:

- pre-coating a cold rolled steel sheet, 1,2mm thick, 120m long and 650mm wide, containing by weight:
0.23 % carbon, 1.25% manganese, 0.017% phosphorus,
0.002% sulfur, 0.27% silicon, 0.062% aluminum,
0.021% copper, 0.019% nickel, 0.208% chromium,
0.005% nitrogen, 0.038% titanium, 0.004% boron,

- 0.003% calcium with an aluminum-based alloy with composition 9.3% silicon, 2.8% iron, the remainder being aluminum and unavoidable impurities,
- afterwards cutting said pre-coated cold rolled steel sheet into blanks,
 - heating said blanks at 920°C for 6mn, this time including the heating phase and the holding time with a heating rate V_c between 20 and 700°C of 10°C/s,
 - hot stamping and then quenching the heated blanks in order to obtain full martensitic structures."

Claim 1 of auxiliary request 6a corresponds to claim 1 of auxiliary request 6 wherein the expression "with the exclusion that V_c is of 4°C/s or 6°C/s" in feature 1.7 has been deleted.

Claim 1 of auxiliary request 7 corresponds to claim 1 of the main request wherein the following feature has been added:

"wherein the elapsed time between said heated blank exits said furnace and said stamping commences is not more than 10 seconds".

VI. State of the art

The following documents are relevant for this decision.

Documents referred to in the contested decision and cited by the parties in their statement setting out the grounds of appeal and the replies to the appeal:

- D1: EP 1 380 666 A1;
- D2: Wilsius J. et al., "Status and future trends of hot stamping of USIBOR 1500P", 7 November 2006;
- D3: DE 10 2004 007071 A1;

- D4: WO 2008/053273 A1;
- D4a: Evaluation of the porosity on the coating in a reference range of Fig.1 of D4;
- D5: Hein P. et al., "Neuere Entwicklungen in der Blechumformung; Presshärten von USIBOR 1500P: Simulationsbasierte Bauteil- und Prozessanalyse", 2006;
- D5a: Diagram 1: Aufheizrate mit Ofentemperatur 900°C;
- D5b: Diagram 2: Aufheizrate mit Ofentemperatur 900°C;
- D8: J. Winkel, "Quetten zum Presshärten von Stahlblech im Automobilbau", Gaswärme International (53), Nr.7/2004;
- D11: H. Engels et al., "Controlling and Monitoring of the Hot-Stamping Process of Boron-Alloyed Heat-Treated Steels", New Developments in Sheet Metal Forming, 2006, pages 135 to 150;
- D14: D. Cornette et al., "High Strength Steels for Automotive Safety Parts", SAE Technical Paper, 2001;
- D14a: Porositätsauswertung der Fig. 22 der D14;
- D18: DVS presentation Carsten Lachmann, "Entwicklungen hochfester Stahlblechqualitäten und fügetechnische Aspekte für den Einsatz im Automobilbau aus werkstofflicher Sicht", 2005.
- D18c: Microsection evaluation of slide 32 of D18;
- D18d: Microsection evaluation of slide 32 of D18;
- D25: ASTM A464A/A463M-06-Standard specification for steel sheet, aluminium coated, by the hot dip process, 2006 version.

Documents referred to in the contested decision and cited for the first time in appeal proceedings during oral proceedings by the appellant:

- D29: WO 2012/048841 A1;
- D30: WO 2012/028224 A1;

D31: US 2011/0056594 A1.

Further documents submitted by the appellant with the letter dated 20 August 2018:

D40: Brahim Bourouga (Pr): "Report on the heating of coated steel blanks for hot stamping", 31 July 2018;

D41: Excerpt from "Harmonized Tariff Schedule of the United-States (2003) - Supplement 1";

D42: Excerpt from PhD Thesis "Etude de la porosité dans les matériaux composites stratifiés aeronautiques" by Yohann Ledru, 14 September 2009;

D43: Arun M. Gokhale: "Quantitative Characterization and Representation of Global Microstructural Geometry", ASM Handbook, Volume 9: Metallography and Microstructures, 2004, pages 428 to 447;

D44: N. Chawla et al., "Microstructure and mechanical behavior of porous sintered steels", Material Science and Engineering A 390, 2005, pages 98 to 112;

D4b: Evaluation of the porosity of the coating in Fig 1 of D4;

D14b: Assessment of Fig. 22 of D14;

D18f: Assessment of slide 32 of D18.

VII. With the summons to oral proceedings, the Board sent a communication pursuant to Articles 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) indicating to the parties its preliminary, non-binding opinion of the case.

VIII. Oral proceedings were held on 8 November 2018. At the end of the oral proceedings the Board pronounced its decision.

IX. The appellant's arguments, as far as relevant for this decision, can be summarised as follows.

Documents D40 to D44 and D4b, D14b and D18f were filed in response to the preliminary opinion of the Board. Therefore they should be admitted into the proceedings.

The interpretation of the wording of claim 1 by the opposition division that the heating rates V_c and V_c' could be identical did not make sense technically, since the heating rate in a continuous furnace was not linear as shown by D1, D3, D8, D11, D29 to D31. Therefore the reasoning in the impugned decision based thereon was wrong. D4 disclosed a process of manufacturing hot stamped products. However, the contested patent was based on an improvement of the process described in D4. D4 neither defined that the heating rate V_c' between 500 and 700°C had to be between 1.5°C/s and 6°C/s nor disclosed a process leading to this heating rate as an inevitable result of the explicitly disclosed process conditions.

Therefore the subject-matter of claim 1 as granted was novel.

The same arguments with respect to novelty applied in principle to claim 1 of each of the auxiliary requests. In particular, the disclaimers in claim 1 of each of auxiliary requests 6 and 6a excluded the disclosure of D4 and therefore the subject-matter of claim 1 of these requests was novel over D4.

- X. The respective arguments of the respondents 1 to 4 can be summarised as follows.

Documents D40 to D44 and D4b, D14b and D18f could and should have been filed during the opposition proceedings, since all issues addressed in the annex to the summons by the Board had been discussed already in the opposition proceedings. In particular the late filing of the experimental report D40 shortly before the oral proceedings meant that the respondents could not verify the experimental evidence or produce counter-evidence. Therefore these documents should not be admitted into the proceedings.

Claim 1 of the main request included the possibility that both heating rates, V_c and V_c' were in the same range. Moreover, D4 disclosed a process of manufacturing hot stamped products which was defined by exactly the same process steps as defined in claim 1 of the main request with the only exception being that the heating rate V_c' was not explicitly mentioned. However, measuring a further parameter did not render the otherwise known method novel. In particular, example 2 i) of D4 disclosed the same process as the example given in the contested patent. Following the process according the example 2 i) of D4 it was an inevitable result, that the heating rate V_c' between 500 and 700°C was between 1.5°C/s and 6°C/s.

Therefore the subject-matter of claim 1 as granted lacked novelty.

The same arguments with respect to novelty applied in principle to claim 1 of each of the auxiliary requests. In particular the disclaimer of auxiliary request 6a was not sufficient to establish novelty over the

general teaching of D4 provided by the claims and the accompanying description.

Reasons for the Decision

1. Admissibility of Documents D40 to D44, D4b, D14b and D18f

1.1 The appellant filed these documents after the communication of the Board pursuant to Article 15(1) RPBA.

1.2 Admissibility of D40

D40 is an experimental report on hot stamping tests performed by Brahim Bourouga. The appellant justified the late filing of D40 by explaining the difficulty to find an independent institution having the required equipment and the available capacity to perform tests which lasted three days.

Taking into account this argument, it follows that the same difficulty in finding available equipment would also apply to the respondents when trying to verify the experiments described in D40 or to provide counter-experiments.

The Board therefore agrees with the submission of the respondents that they did not have enough time between the filing of D40 and the oral proceedings to analyse and react to the experimental report.

Since consideration of the experimental evidence of D40 would have required adjournment of the oral proceedings, the Board in exercising its discretion under Article 13(3) RPBA does not admit D40 into the proceedings.

1.3 Admissibility of D41 to D44

D41 represents an excerpt from the legislation on importing coated steel sheets into the USA. It confirms that the coated steel sheet "Usibor" fulfils the requirements of the standard ASTM 463 (D25), and supports the arguments of the appellant concerning the interpretation of D2.

D42, an excerpt of a PhD thesis, as well as D43 and D44, scientific articles, support the appellant's argument that the skilled person is aware of how to measure porosity.

Since none of these documents change the appellant's case, the Board in exercising its discretion under Article 13(3) RPBA admits them into the proceedings.

1.4 Admissibility of D4b, D14b and D18f

D4b, D14b and D18f are based on documents D4, D14 and D18 which have been in appeal proceedings already. They present a further evaluation of the figures/pictures in D4, D14 and D18c and therefore support the arguments of the appellant.

The Board therefore admits these documents into the proceedings (Article 13(3) RPBA).

2. Main Request - Article 100(a) EPC in combination with Article 54 EPC

2.1 Interpretation of Claim 1 of the Main Request

2.1.1 Interpretation of Features 1.7 and 1.8

Claim 1 of the main request relates to a process for making a hot stamped coated steel product which defines that the heating rate V_c between 20 and 700°C is between 4 and 12°C/s, and the heating rate V_c' between 500 and 700°C is between 1.5 and 6°C/s (features 1.7 and 1.8).

On the face of it, claim 1 encompasses the theoretical possibility that the heating rates defined as V_c and V_c' can be in the same range and can even have the same value, as discussed in the impugned decision in point 3.2.1 of the reasons.

The Board agrees with the appellant that the heating step in an industrial hot stamping process usually takes place in a continuous furnace such as illustrated in figure 1 on page 137 of D11:

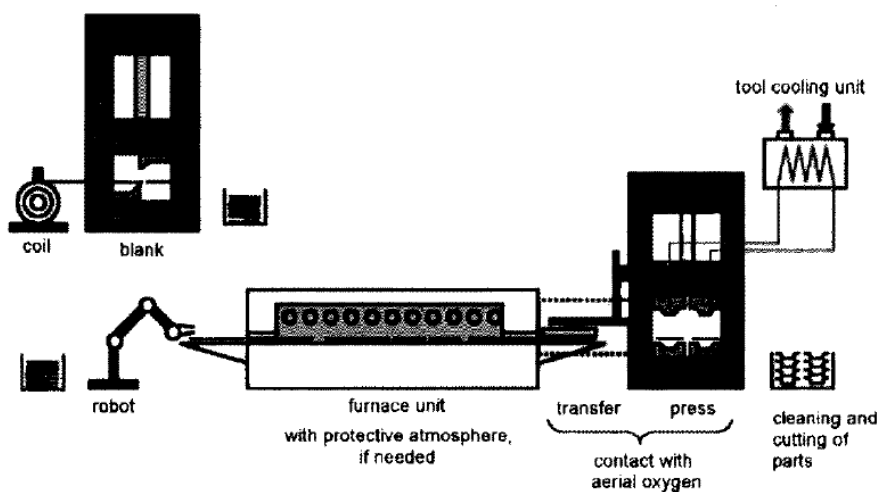


Figure 1. Illustration of the direct hot-stamping process

The Board further agrees with the appellant that the heating in a furnace having a set temperature follows basic principles of physics. This implies that the heating rate, in the absence of any special equipment, decreases over time as illustrated by Figure 2 of D8:

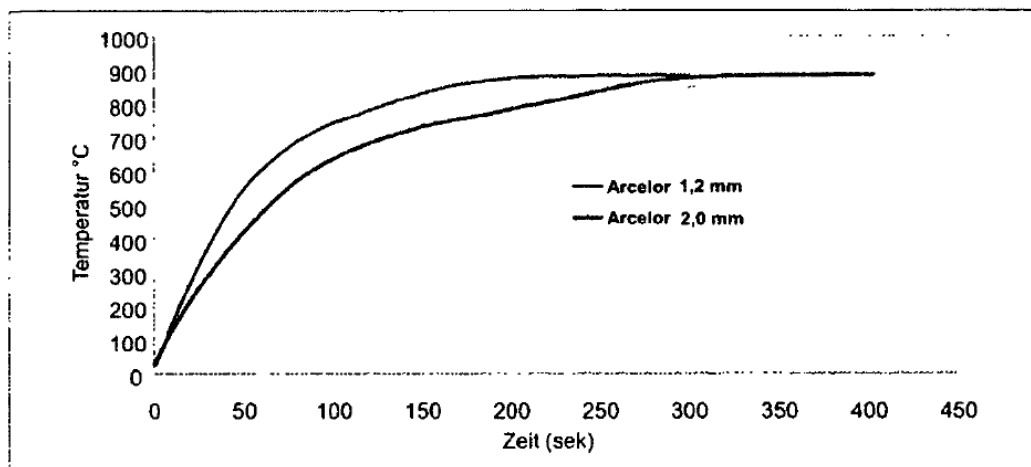


Bild 2: Usibor 1500 AISi (Ofentemperatur 900 °C)
Fig. 2: Usibor 1500 AISi (furnace temperature 900°C)

Further confirmation of the decrease in heating rate over time is given in D31 (Fig. 1), D30 (Fig. 1), D5a and D5b.

It therefore follows that in a conventional, continuous furnace the heating rate V_c cannot be the same as V_c' , and that V_c' is lower than V_c .

2.1.2 Interpretation of Features 1.5 and 1.6

The appellant argues that the temperatures defined by the two diagrams referred to in features 1.5 and 1.6 of claim 1 concern the heating of the sheet and do not mean that the furnace itself is preheated to a single temperature.

In other words, the appellant argues that the expression in feature 1.5:

"heating said aluminum- or aluminum alloy pre-coated steel blank in a furnace preheated to a temperature and during a time defined by diagram ..."

should be interpreted as

"heating said aluminum- or aluminum alloy pre-coated steel blank in a *preheated furnace* to a temperature and during a time defined by diagram ...".

However, the interpretation given by the appellant does not correspond to the actual wording of the claim.

According to the normal meaning, claim 1 defines that the coated steel strip or sheet is heated

- a) by placing it in a furnace preheated to a specific, single temperature as defined by a diagram and
- b) during a time defined by the same diagram.

The wording of claim 1 is clear and does not leave any room for an interpretation as submitted by the appellant.

Moreover, the literal meaning is consistent with the teaching of the example of the contested patent (paragraph [0025]), according to which the sheets were cut into blanks which "were heated at 920°C for 6 mn, this time including the heating phase and the holding time", i.e. were heated (ramping phase) by holding in the furnace set at a single temperature.

The wording of claim 1 therefore does not encompass a heating process, wherein the furnace can have different

temperature zones, for example a heating zone having a higher temperature than the holding zone.

2.2 Appreciation of D4 as Prior Art pursuant to Article 54(3) EPC

2.2.1 It is undisputed that D4 can be considered to be comprised in the state of the art pursuant to Article 54(3) and 153(5) EPC and Rule 165 EPC.

2.2.2 The appellant submits that the requirements of Article 54(3) EPC should not prevent the applicant from filing a further application directed to an improvement of the invention disclosed in the document giving rise to the prior right. Therefore the assessment of novelty over a priority document, which only by legal fiction is considered to be comprised in the state of the art pursuant to Article 54(3) EPC, should be stricter than when assessing novelty with respect to prior art published before the priority date (prior art according to Article 54(2) EPC).

2.2.3 The Board does not agree. The assessment of novelty pursuant to Article 54(2) EPC follows a strict approach, whereby a document only discloses subject-matter that is directly and unambiguously derivable from the document (see Case Law of the Boards of Appeal, 8th edition, 2016, Chapter I.C.4.1, in particular T 464/94, T 511/92 and T 450/89, as cited by the appellant).

The same approach has been consistently applied to prior art pursuant to Article 54(3) EPC (see Case Law of the Boards of Appeal, 8th edition, 2016, Chapter I.C.2.4.1). Accordingly, the Board agrees with the reasoning in T 447/92, also cited by the appellant,

that novelty has to be strictly assessed in case of prior art pursuant to Article 54(3) EPC. However, T 447/92 does not conclude that a different level of strictness has to be applied in such a case. Moreover, there are no provisions in the EPC, in particular Article 54(3) EPC, that for the purpose of determining novelty different types of prior art have to be assessed in accordance with different standards of strictness.

Therefore, the Board sees no reason when considering a prior art according to Article 54(3) EPC to go beyond the well established strict approach confirmed by the case law and in line with the EPC.

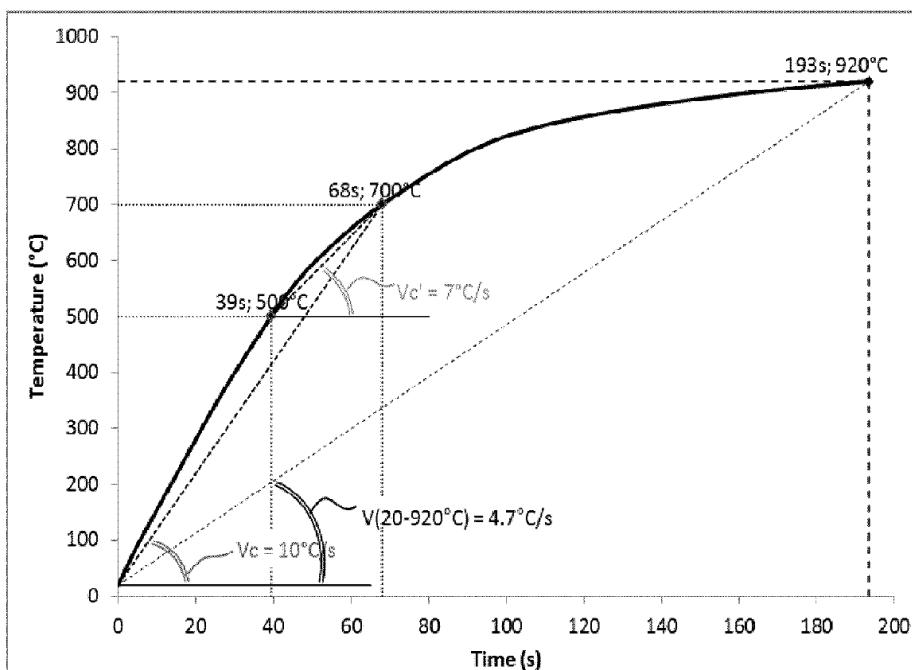
2.3 Disclosure of Example 2 i) of D4

2.3.1 It is undisputed by the appellant that example 2 i) of D4 discloses a process according to claim 1 with the exception that the heating rate V_c' is not disclosed.

The critical question therefore is whether or not the heating rate V_c' as defined in claim 1 of the main request is an implicit feature of the process according to the example of D4.

2.3.2 The appellant argues that a heating rate V_c' between 1,5 and 6 °C/s is not inevitable when the heating rate V_c is 10°C/s, as in the example 2 i), since the heating rate V_c' depends on the type of furnace and the specific heating parameters.

This might be correct and hypothetically heating curves can be drawn showing this possibility (see grounds of appeal, page 6):



However, as indicated above in point 2.1.2, the wording of claim 1 implies that the furnace is preheated to a specific, single temperature. Therefore claim 1 does not encompass a process wherein the heating zone and the holding zone are set to different temperatures which could be modified to vary the heating rate V_c' .

2.3.3 D4 discloses in example 2 i) a process in which, compared with the example given in paragraph [0025] of the contested patent,

- a) exactly the same sheet with the same coating (see example 1 of D4)
- b) is placed in a furnace preheated to exactly the same temperature of 920°C
- c) for the same time of 6 min
- d) at the same heating rate V_c of 10°C/s.

Since, in both the example of the contested patent and example 2 i) according to D4, the furnace is not defined in detail, it can be concluded that the skilled person would only consider a usual furnace as normally used in the art, namely a continuous furnace, as submitted by the appellant (see point 2.1.1 above), which is set to 920°C.

Furthermore, the final product obtained by the process of example 2 i) of D4 and the example of the contested patent is described in both as having the same coating (see D4, page 4, lines 1-15):

"(a) Interdiffusion layer or intermetallic layer, 17 micrometers thick. This layer is itself composed of two sub-layers. Hardness HV50g ranges from 295 to 407, and the mean composition is, by weight: 90%Fe, 7%Al, 3%Si.
(b) Intermediate layer, 8 micrometers thick. This layer has a hardness of 940HV50g and a mean composition, by weight: 43%Fe, 57%Al, 1%Si,
(c) Intermetallic layer, 8 micrometers thick, displaying a hardness of 610HV50g, a mean composition of, by weight: 65%Fe, 31%Al, 4%Si
(d) Superficial layer, 7 micrometers thick, 950 HV50g, with a mean composition of, by weight: 45%Fe, 54%Al, 1%Si. Layers (c) and (d) are quasi-continuous, i.e. occupying at least 90% of the level corresponding to the considered layer. In particular, layer (c) does not reach the extreme surface except very exceptionally. Anyway, this layer (c) occupies less than 10% of the extreme surface."

2.3.4 The appellant argues in this regard, that D4 does not address the porosity of the coating, and in particular does not disclose the link between the heating rate V_c and the porosity of the coating, which is discussed in

the contested patent at column 8, lines 32 to 34 and lines 45 to 51. The appellant concludes from this that the process disclosed in D4 cannot be the same as defined in claim 1, since it does not achieve a coating having the required porosity.

However, the porosity of the coating is not defined in claim 1 of the contested patent and therefore the claimed process is not limited to one in which a certain porosity must be achieved.

Furthermore, it is not plausible that the porosity of the coatings according to D4 and the contested patent differ, since the cited parameters, such as the hardness, thickness and composition of each layer are exactly the same for both. The mere fact that the porosity of the coating is not reported in D4 does not mean that it has to be different.

Moreover, D4 discloses in figure 1 a micrograph of a coated steel sheet obtained according to the process described therein. The micrograph in figure 1 indicates that the coating does not contain many pores. Dependent on the resolution of the micrograph and the size of the pores considered, the porosity of the coating, in surfacic fraction, achieved by the process of D4 can be calculated to be 2,4 % (D4a submitted by respondent 4) or 14,34 % (D4b submitted by the appellant).

The contested patent on the other hand does not define how the porosity is to be determined, and does not disclose a micrograph which could provide any information about the porosity and its measurement. Hence, any method can be applied for determining the porosity reported in the contested patent and it cannot be determined whether the evaluation presented in D4a

or D4b reflects correctly the porosity of the coating according to D4.

It follows that neither the teaching in the contested patent nor the evaluation of porosity according to D4b can cast doubt that the process disclosed in D4 is the same as defined in claim 1 of the contested patent.

- 2.3.5 Since the same material in the same thickness is heated for the same time with the same heating rate V_c in the same type of furnace preheated to the same, single temperature and exactly the same product is obtained, it can only be concluded that the heating rate V_c' is inevitably the same as in the example of the contested patent, since no further parameters are defined in D4 or in the contested patent which could have an influence on the heating rate V_c' , and which could provide the possibility for obtaining the hypothetical heating curve as submitted by the appellant.

The heating rate V_c' defined in claim 1 of the main request is therefore an inherent feature of the process disclosed in D4.

The subject-matter of claim 1 of the main request therefore lacks novelty over D4.

3. Auxiliary Requests 1, 3 and 5 - Article 54 EPC

Claim 1 of each of auxiliary requests 1, 3 and 5 defines that V_c is different from V_c' .

As indicated above in point 2.1.1, the Board agrees with the argument of the appellant that in a conventional furnace the heating rate V_c' is lower than the heating rate V_c .

Therefore it is inherent to the process described in D4 that V_c is different from V_c' .

The subject-matter of claim 1 of each of auxiliary requests 1, 3 and 5 lacks novelty for the same reasons as claim 1 of the main request.

4. Auxiliary Requests 2 and 5 - Article 54 EPC

Compared to claim 1 of the main request, claim 1 of each of auxiliary requests 2 and 4 is unamended, and hence lacks novelty for the reasons given above.

5. Admissibility of auxiliary request 6

5.1 Auxiliary request 6 was filed after the communication of the Board pursuant to Article 15(1) RPBA.

5.2 Claim 1 of auxiliary request 6 contains two disclaimers, one based on the example 2 i) of D4 and a further one in feature 1.7 based on the general description of D4, namely "with the exclusion that V_c is of 4°C/s or 6°C/s". The latter addresses the argument that the heating rates V_c and V_c' in claim 1 as granted could be identical and therefore the disclosure of a single heating rate V_c of 4°C/s or 6°C/s in D4 could be considered to fulfil the requirements of both V_c and V_c' , as defined in claim 1 as granted.

As indicated above in point 2.1.1, the Board does not consider it technically plausible that the heating rates V_c and V_c' can be identical when following the disclosure of D4. Therefore, the further disclaimer "with the exclusion that V_c is of 4°C/s or 6°C/s" in claim 1 of auxiliary request 6 is not based on a

novelty destroying disclosure and is therefore prima facie contrary to the requirements of Article 123(2) EPC in line with G 1/03.

The Board therefore does not admit auxiliary request 6 into the proceedings by exercising its discretion under Article 13(3) RPBA.

6. Auxiliary request 6a

6.1 Admissibility

Auxiliary request 6a was filed during oral proceedings before the Board following the discussion on novelty over example 2 i) and the admissibility of auxiliary request 6.

Claim 1 of auxiliary request 6a is based on claim 1 of auxiliary request 6, wherein the disclaimer in feature 1.7 "with the exclusion that V_c is of 4°C/s or 6°C/s" has been deleted.

Auxiliary request 6a therefore represents a direct reaction to the discussion during oral proceedings by prima facie removing the objections set out above in point 5 with regard to auxiliary request 6.

The Board therefore admits auxiliary request 6a into the proceedings by exercising its discretion under Article 13(3) RPBA.

6.2 Article 54 EPC

6.2.1 Claim 1 of auxiliary request 6a corresponds to claim 1 of the main request, with the inclusion of a disclaimer based on example 2 i) of D4. Therefore the reasoning

given above in point 2.2 relating to the disclosure of example 2 i) does not apply to claim 1 of auxiliary request 6a.

6.2.2 The disclosure of a document is however not limited to the examples.

D4 discloses in claim 7 (in combination with claims 1 and 6 on which it depends) a process for making a hot stamped coated steel sheet product which is prepared by the steps of:

- providing a pre-coating on a steel strip with aluminium- or aluminium alloy, the thickness t_p of the said pre-coating being from 20 to 33 micrometres at every location on said first and second sides of said strip or sheet, then
- cutting said pre-coated steel strip or sheet to obtain a pre-coated steel blank, then
- heating said aluminum- or aluminum alloy pre-coated steel blank in a furnace preheated to a temperature and during a time defined by diagram ABCD of figure 1 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 1 if thickness of said sheet is greater than 1.5mm and less than or equal to 3mm to obtain a heated blank; then
- transferring said heated blank to a die; then
- hot stamping said heated blank in said die, to thereby obtain a hot stamped steel blank, then

- cooling said hot stamped steel blank at a rate of at least 30°C/s."

The only and preferred method for coating the steel sheets according to D4 is hot dipping (page 7, lines 7, 11, 33, claim 5). Therefore D4 teaches that the process according to claim 7 includes a coating step by hot dip of the steel strip.

The diagrams disclosed in the figures of D4 correspond exactly to the diagrams disclosed in the figures and referred to in the claims of the contested patent.

Concerning the heating rate, D4 discloses from page 10, line 32 to page 11, line 7, that the heating rate V_c is from 4°C/s to 12°C/s whereby the definition for V_c indicated in D4 corresponds word by word to the definition in the contested patent (column 8, lines 3 to 14).

- 6.2.3 Alternatively to the disclosure based on claim 7, the same disclosure can be found in D4 when taking into account claim 3 and the statements on page 7, lines 11 and 23 to 33, page 11, lines 27 to 28 and page 17, lines 5 to 9.
- 6.2.4 D4 therefore discloses a process according to claim 1 of the contested patent, with the exception that the heating rate V_c' is not explicitly disclosed therein.
- 6.2.5 The critical question therefore is again whether or not the heating rate V_c' as defined in claim 1 of auxiliary request 6a is inevitably obtained when repeating the process described by the general teaching of D4.

6.2.6 The Board observes that D4 discloses preferred heating conditions for the process on page 11, lines 12 to 18:

"Particularly preferred conditions are:

(for thicknesses of 0.7-1.5mm)

- 930°C, from 3 minutes up to 6 minutes;

- 880°C, from 4 minutes 30 seconds up to 13 minutes

(for thicknesses of 1.5 to 3 mm)

- 940°C, from 4 minutes up to 8 minutes;

- 900°C, from 6 minutes 30 seconds up to 13 minutes"

which are exactly the same as the conditions indicated in the contested patent in column 7, lines 37 to 49.

Furthermore, the preferred coated and stamped steel blank to be obtained by the process described from page 9, line 22 to page 10, line 2 of D4 has exactly the same layered structure as defined in the contested patent from column 6, line 42 to column 7, line 3, whereby even certain properties such as the hardness of the individual layers are described to be the same.

D4 therefore discloses a process wherein the same type of material (hot-dip coated steel) is placed in a continuous furnace preheated to exactly the same, single temperature for the same duration and with the same heating rate V_c as defined in claim 1 of the contested patent, and whereby a hot-stamped product is obtained having the same layered coating as intended by the contested patent.

All specific process definitions including the most preferred options disclosed in D4 therefore correspond word by word with the corresponding definitions in the contested patent.

In analogy to the argument presented above in point 2.3 with regard to claim 1 of the main request, the Board cannot see any possibility how a skilled person reworking the teaching of D4 could achieve a different heating rate V_c' when heating the same blank in the same furnace at the same, single temperature and with exactly the same heating rate while obtaining a product having a coating with the same layered structure.

It follows that the heating rate V_c' as defined in claim 1 is inevitably obtained when following the teaching of D4 and therefore is implicitly disclosed by D4.

The subject-matter of claim 1 of auxiliary request 6a therefore lacks novelty over D4.

7. Admissibility of auxiliary request 7

7.1 The appellant filed auxiliary request 7 after the communication of the Board pursuant to Article 15(1) RPBA.

7.2 Claim 1 of auxiliary request 7 differs from claim 1 as granted by the features of claim 2 as granted:

D4 discloses the added feature in claim 7 and as well in the general description on page 17, lines 4 to 9.

Therefore, the subject-matter of claim 1 of auxiliary request 7 prima facie lacks novelty over the general disclosure of D4 for the same reasons as indicated above for claim 1 of the main request.

The Board therefore does not admit auxiliary request 7 into the proceedings by exercising its discretion under Article 13(3) RPBA.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



R. Schumacher

G. Ashley

Decision electronically authenticated