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**Datasheet for the decision
of 7 October 2025**

Case Number: T 0450/24 - 3.2.03

Application Number: 12767860.5

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C22C38/60, C23C2/02, C23C2/26,
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Language of the proceedings: EN

Title of invention:
HOT STAMP-MOLDED HIGH-STRENGTH COMPONENT HAVING EXCELLENT
CORROSION RESISTANCE AFTER COATING

Patent Proprietor:
Nippon Steel Corporation

Opponent:
Salzgitter Flachstahl GmbH

Headword:

Relevant legal provisions:
EPC Art. 54, 83

Keyword:

Sufficiency of disclosure - (yes)

Novelty - (yes)

Decisions cited:

T 0602/10

Catchword:



Beschwerdekammern
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Case Number: T 0450/24 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 7 October 2025

Appellant: Salzgitter Flachstahl GmbH
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 25 January 2024
rejecting the opposition filed against European
patent No. 2695963 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman C. Herberhold
Members: B. Miller
N. Obrovski

Summary of Facts and Submissions

- I. European patent No. 2695963 ("the patent") relates to an aluminium-plated hot-stamp-molded high-strength component.
- II. An opposition to the patent was filed on the grounds of Article 100(b) EPC and Article 100(a) EPC together with Articles 54 and 56 EPC. The opposition division decided to reject the opposition.

This decision was appealed by the opponent ("the appellant").

III. Cited evidence

- (a) The following documents had already been cited during the opposition proceedings.

- D1.1 "Fahrzeugdaten", PASSAT Var. TREND 77
TDISG5, model 2006, Volkswagen
Aktiengesellschaft
- D1.2 Gutachten Nr. 18BS-00988JB, Ingenieurbüro
für Kfz-Technik GmbH, dated 21.8.2018
- D1.3 Testimony from Frau Notarin Weigel-
Grabenhorst, 7 February 2018
- D1.4 Applikationsbericht 22070806, TAZ GmbH
- D1.5 Applikationsbericht 23091801, TAZ GmbH
including
- "correction 1" (letter of Mr. Moser)
 - "correction 2" (letter of TAZ GmbH),
- both corrections filed on 9 January 2024
- D2 Hein et al., "Presshärten von USIBOR 1500 P:

Simulationsbasierte Bauteil- und
Prozessanalyse", submitted for the
International conference "Neuere
Entwicklungen in der Blechumformung", 2006
MAT INFO Werkstoff-Informationen-
gesellschaft mbH

D3 WO 2008/053273 A1

D4 EP 2 270 257 A1

D5 Self-study programme 339, The Passat 2006,
Volkswagen AG, Technical status 03.2005

(b) The following further documents were cited by the
appellant for the first time:

- in the statement setting out the grounds of
appeal:

D6 DIN Norm EN ISO 643:2003

D7 Report: "Untersuchungen von AlSi-Schichten
auf Stahl", Institut für Werkstoffkunde der
Leibniz Universität Hannover, 10 May 2024,

D8 Report A082/24: "Analyse AlSi-Schicht auf
Stahl", IMA Materialforschung und
Anwendungstechnik GmbH, Dresden, 13 May
2024.

- in the submission dated 27 November 2024:

D9 EP 2 086 755 B1

(c) The patent proprietor ("the respondent") submitted the following evidence:

- with its reply to the statement of grounds of appeal:

D5' coloured copy of D5

- with the letter dated 10 March 2025:

D10: print-out of the website concerning EN 10292:
 [www.dinmedia.de/en/standard/din-
en-10292/77268920](http://www.dinmedia.de/en/standard/din-en-10292/77268920)

IV. The wording of claim 1 as granted reads as follows (including numbering of the features as used by the parties).

- 1a) "A hot stamped high strength part which is excellent in post painting anticorrosion property, comprising
- 1b) an alloy plating layer comprising
- 1c) an Al-Fe intermetallic compound phase on the surface of a steel sheet,
- 1d) said alloy plating layer is comprised from phases of a plurality of intermetallic compounds,
- 1e) a mean linear intercept length of crystal grains of a phase containing Al: 40 to 65 mass% among said phases of the plurality of intermetallic compounds is 3 to 20 μm ,
- 1f) wherein the mean linear intercept length is defined and measured as described in the description,
- 1g) an average value of thickness of said Al-Fe alloy plating layer is 10 to 50 μm , and

- 1h) a ratio of the average value of thickness to the standard deviation of thickness of said Al-Fe alloy plating layer satisfies the following relationship:
 $0 < \text{standard deviation of thickness} / \text{average value of thickness} \leq 0.15;$
- 1i) wherein said Al-Fe alloy plating layer contains, by mass%, Si: 2 to 7%."

V. Oral proceedings were held on 7 October 2025.

At the end of the oral proceedings the following requests were maintained by the parties.

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

The respondent requested that the appeal be dismissed.

Moreover, both parties requested that documents submitted by the other party not be admitted. The appellant requested that D5' not be admitted, and the respondent requested that the documents which had been filed late during opposition proceedings (D1.5, including its various corrections) or which were filed for the first time in appeal proceedings (D7 to D9) not be admitted.

In addition, both parties requested that arguments submitted by the other party for the first time in appeal proceedings not be admitted.

VI. The appellant's main arguments, where relevant to this decision, can be summarised as follows.

(a) Admittance of D1.5 and its corrections 1 and 3

D1.5, with its corrections, was filed in response to the preliminary opinion set out in the annex to the summons to attend oral proceedings before the opposition division. It was highly relevant and should have been admitted by the opposition division. Correction 3 of D1.5 further resolved the deficiencies identified by the opposition division.

(b) Admittance of D5'

D5' should have been filed in opposition proceedings.

(c) Admittance of D7

D7 was filed in response to the reasoning in the contested decision that the choice of the etching agent had an influence on the determination of the mean linear intercept length.

(d) Admittance of D8

D8 was filed as an auxiliary measure, in case the Board concluded that claim 1 as granted was new in view of D1.1 to D1.4, D1.5, D2, D5 and D7. The reason that D8 was only filed in appeal proceedings was that the appellant would not have been able to find another competent analytical laboratory quickly enough during the opposition proceedings. D8 was *prima facie* highly relevant and was part of the same public prior use (the Volkswagen Passat as evidenced by D1.1-D1.3, D2 and D5)

as that already discussed in the opposition proceedings.

(e) Novelty

Claim 1 defined the mean linear intercept length in feature 1e) in relation to a non-specific reference in feature 1f) to a measurement method as described in the description. This non-specific reference meant that the mean linear intercept length of feature 1e) was vaguely defined and had to be considered in a broad, technically meaningful context. In particular, the reference according to feature 1f) of claim 1 could not be interpreted as meaning that the mean linear intercept length had to be determined after etching with Nital. Furthermore, claim 1 did not exclude the use of a different etching agent such as Dix-Keller, either on its own or in combination with Nital.

Moreover, using the Dix-Keller agent for etching was technically meaningful, because it was a well-known etching agent for aluminium.

The public prior use as evidenced by D1.1-D1.4, D2 and D5 demonstrated that a hot-stamped high-strength part according to claim 1 was publicly available in a VW Passat from 2006 and thus known in the art before the priority date of the patent. In particular, D1.4 provided experimental evidence that the VW Passat comprised steel parts with an intermetallic plating layer having the composition as defined by claim 1. D1.4 further showed that, after etching of the polished test sample with the etching agent Dix-Keller, the plating layer contained a phase with grains having a mean linear intercept length as required by feature 1e) of claim 1.

Even if claim 1 were interpreted more narrowly to define an intermetallic phase comprising grains with a specific mean linear intercept length which had to be determined after etching with the etching agent Nital, D1.4 nevertheless demonstrated that this condition was likely to have been met by the metal part obtained from the VW Passat and analysed according to D1.4. Using an etching agent did not change the grain size of an intermetallic layer, but simply contributed to making the grains more visible. Therefore, the grain size determined after etching with the etching agent Dix-Keller could be expected to be identical to that determined after using the etching agent Nital.

Furthermore, the mean linear intercept length was an unusual parameter because paragraph [0035] of the patent provided its own definition of this parameter. In the case of an unusual parameter such as this, the onus was on the respondent to demonstrate that the metal parts obtained from the VW Passat, for which, given the results after etching with Dix-Keller, a mean intercept length of the grains in accordance with the subject-matter of claim 1 had to be considered very likely, did not fall within the definition according to claim 1.

(f) Sufficiency of disclosure

The mean linear intercept length of the crystal grains of a phase, as referred to in claim 1 of the patent, was an unusual parameter for which no standard measurement was known to the skilled person. Although the patent disclosed a method for determining the mean linear intercept length of crystal grains of a phase in paragraph [0035], it presented its own

specific definition of the parameter in the same paragraph, making it clear that a different but undisclosed measurement method was to be used ("Therefore, in this Description, the mean linear intercept length of the crystal grains in the alloy plating layer is defined as the mean linear intercept length which is measured in the direction parallel to the steel sheet surface.").

The patent did not specify several conditions for the measurement method referred to in claim 1, such as:

- the specific apparatus
- the appropriate parameter settings in the polarisation microscope for identification of the grains
- the criteria for identifying the grains in the intermetallic layer
- the length of the line drawn parallel to the steel sheet surface
- the number of measurements
- how to proceed if the line started or ended in a grain

These conditions were essential for the skilled person wishing to determine the mean linear intercept length.

D6 (DIN standard) was irrelevant to the patent, because it related to a method for determining the grain size in steel. Furthermore, the patent did not refer to D6.

Paragraph [0036] of the patent disclosed that the grain boundaries could not be clearly identified. This was confirmed by Figure 3 of the patent, in which no grains could be identified, and by the laboratory results in

D1.4, which had not been able to discern any such grains after etching with Nital.

Consequently, the invention was not disclosed by the patent in a manner that was sufficiently clear and complete for a skilled person to be able to carry it out.

VII. The respondent's main arguments, where relevant to this decision, can be summarised as follows.

(a) Admittance of D1.5 and its corrections 1 to 3

The opposition division correctly exercised its discretion not to admit D1.5 and its various corrections, applying the correct criteria such as *prima facie* relevance. The circumstances of the appeal case did not justify admitting D1.5 and its corrections 1 to 3 either.

(b) Admittance of D7

D7 could and should have been filed during the opposition proceedings, given that the opposition division had already indicated in the annex to the summons to attend oral proceedings that the public prior use relating to D1.4 was not convincing, in particular because a different etching agent had been used. Moreover, D7 was not even *prima facie* relevant, as it contradicted D1.4.

(c) Admittance of D8

D8 related to a fresh case and should have been filed in opposition proceedings. Furthermore, D8 was not *prima facie* relevant.

(d) Novelty

D1.4 explicitly demonstrated that the public prior use did not disclose at least features 1e) and 1f) of claim 1. The values obtained for the mean linear intercept length after etching with the etching agent Dix-Keller were not comparable with those obtained after etching with the etching agent Nital. The mean linear intercept length was a standard parameter used to determine grain size.

(e) Sufficiency of disclosure

Paragraph [0035] of the patent provided the skilled person with sufficient information to carry out the invention. The appellant's arguments were based on mere allegations. The fact that an analytical laboratory failed to identify grains using a polarisation microscope in an unusual and incorrect manner was not proof that the patent could not be carried out.

Reasons for the Decision

1. Admittance of D1.5 and its corrections 1 and 3

1.1 D1.5 and its corrections 1 and 2 were filed after the opposition period and were thus late-filed.

D1.5 was submitted by the appellant on 10 November 2023, i.e. on the last day of the Rule 116 EPC period. The appellant (then opponent) submitted two corrections to D1.5 (referred to as "correction 1" and "correction 2") on 9 January 2024, i.e. one day before the oral proceedings before the opposition division.

The opposition division decided not to admit the late-filed D1.5 and its corrections 1 and 2 into the proceedings (Article 114(2) EPC).

1.2 According to Article 12(6), first sentence RPBA, the Board shall not admit requests, facts, objections or evidence which were not admitted in the proceedings leading to the decision under appeal, unless the decision not to admit them suffered from an error in the use of discretion or unless the circumstances of the appeal case justify their admittance.

1.3 The Board cannot find an error in the use of discretion by the opposition division.

The opposition division's decision is reasoned, and is based on a *prima facie* assessment of the relevance of the content of these documents (see point 1 of the minutes, point II.2.2 of the Reasons for the contested

decision). The opposition division justified the lack of relevance on the basis that the items of data presented in D1.4, D1.5 and its corrections 1 and 2 were contradictory and fundamentally different. Moreover, various calculation and methodological errors were identified, see in particular points II.2.2.3, II.2.2.4 and II.4.2.3 of the contested decision.

As an aside, the Board notes that, during the appeal proceedings, the appellant conceded that the data presented in the opposition proceedings had contained various errors, see the further corrected version of table 1 of D1.5 presented on page 9 of the statement setting out the grounds of appeal ("correction 3") and the following additional comments by the appellant ("Ergänzend wird zu den Dokumenten D1.5, Correction 1 und Correction 2 ausgeführt, dass in dem ursprünglich eingereichten Dokument D1.5 in der Tabelle 1 anstatt der Anzahl der Korngrenzen die Anzahl der Körner und eine Gesamtlängelänge von 286 μm anstelle der untersuchten Gesamtlänge von 858 μm zur Ermittlung der mittleren lineare Achsenabschnittslänge (dort mittlere Sehnenlänge) zu Grunde gelegt wurden. Hieraus resultierten dann fälschlicherweise mittlere lineare Achsenabschnittslängen im Bereich von 5 bis 7 μm .")

The opposition division therefore applied its discretion under Article 114(2) EPC in an appropriate manner.

- 1.4 The circumstances of the appeal case referred to in Article 12(6), first sentence RPBA do not justify the admittance of D1.5 and its corrections 1 and 2 either.
- 1.4.1 Corrections 1 and 2 do not simply involve correcting obvious calculation errors, but rather require a

completely different length of the measurement line ("Gesamtlinielänge") to be considered in correction 2, and the numbers of grains to be replaced by numbers of grain boundaries in correction 1. Neither correction can be considered obviously recognisable and correctable by the respondent or the Board.

- 1.4.2 Furthermore, corrections 1 and 2 contradict each other. Correction 1 contains two corrected versions of table 1 of D1.5, the upper version ("upper table correction 1") and the lower version ("lower table correction 1").

In the last paragraph of point II.4.2.3 of its decision, the opposition division correctly realised that, according to the statements in paragraph [0035] of the patent and correction 1, it is the lower table correction 1 that should be used. Yet correction 2 implies that the upper table correction 1 should be used ("Es ergeben sich somit mittlere Sehnenlängen in μm von 21, 18, 15, 18, und 18 anstatt der im Bericht angegebenen 7, 6, 5, 6 und 6").

- 1.5 The results summarised in the again corrected final version of table 1 of D1.5, as presented for the first time on page 9 of the statement setting out the grounds of appeal ("correction 3"), differ significantly from those of the first version of table 1 of D1.5; compare columns "Anzahl Körner/Korngrenzen", "Körner gesamt/ Anzahl Korngrenzen gesamt" and "mittlere Sehnenlänge/ mittlere lineare Achsenabschnittslänge".

Table 1 as presented in D1.5

Tabelle 1: Mikroskopisch ausgemessene, mittlere Sehnenlänge (Korngröße)

Probe	Teilstück	Gesamt-Linienlänge	Anzahl Körner Messung 1	Anzahl Körner Messung 2	Anzahl Körner Messung 3	Körner gesamt	Mittlere Sehnenlänge [µm]	Standardabweichung
4.1	A außen	286 µm	12	16	12	40	7	2
5.1	B innen		16	17	15	48	6	1
6.1	A außen		20	17	17	54	5	2
4.3	A außen		18	16	14	48	6	2
4.3	B innen		18	14	17	49	6	2

Table 1 of D1.5 presented on page 9 of the statement of grounds of appeal ("correction 3")

Korrigierte Tabelle 1 aus Dokument D1.5: Mikroskopisch ausgemessene, mittlere lineare Achsenabschnittslänge							
Probe	Teilstück	Gesamt-Linienlänge [µm]	Anzahl Korn-grenzen Messung an Stelle 1	Anzahl Korn-grenzen Messung an Stelle 2	Anzahl Korn-grenzen Messung an Stelle 3	Anzahl Korn-grenzen gesamt	Mittlere lineare Achsenabschnittslänge [µm]
4.1	A außen	858	12	15	11	38	23
5.1	B innen	858	15	17	14	46	18 19
6.1	A außen	858	19	16	16	51	15 17
4.3	A außen	858	17	15	13	45	18 19
4.3	B innen	858	17	13	16	46	18 19

1.6 According to Article 12(6), second sentence RPBA, the Board shall not admit requests, facts, objections or evidence which should have been submitted in the proceedings leading to the decision under appeal, unless the circumstances of the appeal case justify their admittance.

1.7 In the Board's view, a correct version of table 1 of D1.5 - as, according to the appellant, represented by "correction 3" - could and should already have been submitted in the opposition proceedings.

1.8 Furthermore, the circumstances of the appeal proceedings do not justify the admittance of "correction 3" either. In particular, it is not justified, during an appeal, to have to evaluate complex and significantly different test results from those presented in the opposition proceedings, and which additionally contradict the previously filed versions, as set out above.

1.8.1 Moreover, the credibility of the results summarised in correction 3, and thus their *prima facie* relevance, is called into question by the fact that the results obtained for the mean linear intercept length differ considerably between D1.4 and the various versions of D1.5, despite relating to the same sample derived from a Passat from 2006. In addition, no crystal grains as defined in claim 1 of the patent were found in the samples measured in D1.4 when using Nital, see point 4.3.2, first paragraph on page 4 of D1.4.

It was only later, when further tests were performed according to D1.5, that the alleged grains were found using the etching agent Nital. This raises the question of why the appellant was only able to identify crystal grains for the tests summarised in D1.5 later on.

1.8.2 A set of test results that require various corrections (D1.5 and its, ultimately, four different versions of table 1) and which are contradictory in respect of the mean linear intercept length for the same test sample (compare results using Nital according to D1.4 with those of D1.5, and see contradiction between the values reported in correction 2 and correction 3) cannot be considered to represent reliable or credible evidence of *prima facie* relevance.

1.9 The Board thus decided not to admit D1.5 and its corrections 1 to 3 into the appeal proceedings (Article 12(6), first and second sentence RPBA).

2. Admittance of D5'

The respondent submitted D5' with its reply to the statement setting out the grounds of appeal. D5' is a coloured version of D5, which was submitted by the appellant in opposition proceedings and referred to in its statement setting out the grounds of appeal. D5' does not make any change to the respondent's appeal case but simply makes D5 easier to read, since the various drawings and pictures are in colour.

Therefore, the Board decided to admit D5' into the appeal proceedings (Article 12(4) RPBA).

3. Admittance of D7

3.1 The appellant submitted D7 for the first time during the appeal proceedings, in support of its assertion that the choice of etching agent was irrelevant to the determination of the mean linear intercept length.

According to Article 12(2) RPBA, "[i]n view of the primary object of the appeal proceedings to review the decision under appeal in a judicial manner, a party's appeal case shall be directed to the requests, facts, objections, arguments and evidence on which the decision under appeal was based".

Any part of a party's appeal case which does not meet the requirements of Article 12(2) RPBA must be regarded as an amendment, according to Article 12(4), first

sentence RPBA. The admittance of such an amendment is at the Board's discretion.

Therefore, document D7 and the novelty objection based on it may only be admitted at the Board's discretion.

- 3.2 Moreover, under Article 12(6) RPBA, evidence or objections which should have been submitted in the proceedings leading to the decision under appeal are not to be admitted, unless the circumstances of the appeal case justify their admittance.
- 3.2.1 According to established case law on Article 12(6) RPBA, when determining whether a piece of evidence or an objection should already have been submitted during the opposition proceedings, an assessment is usually made as to whether the evidence or objection in question can be considered an appropriate and immediate response to **new developments** at a late stage of the opposition proceedings, particularly during the oral proceedings before the opposition division.
- 3.2.2 In the present case, however, the filing of D7 cannot be considered a response to new developments at a late stage of the opposition proceedings.

On page 6, first paragraph of the annex to the summons to attend oral proceedings, the opposition division had already expressed the view that the subject-matter of claim 1 as granted was novel, and that in particular the experimental evidence presented in D1.4 was not convincing. The reasoning for this view referred to the use of an etching agent that differed from the one specified in paragraph [0035] of the patent

("The opposition division is of the preliminary opinion that the samples etched with the two different etching solutions will be different and not comparable. Thus the evidence presented by the opponent is not considered to demonstrate that the samples investigated exhibit features 1e)-1f)").

Hence, the appellant already had a clear incentive to supplement its arguments during the opposition proceedings.

3.2.3 The appellant was also aware of this, as it submitted further experimental evidence (D1.5) two months before the oral proceedings, in response to the preliminary view of the opposition division.

3.2.4 No reason can be found as to why the appellant had to submit yet another new piece of evidence (D7) during the appeal proceedings.

Indeed, it was the appellant's responsibility to submit all the necessary documents and an appropriately substantiated objection during the opposition proceedings.

3.2.5 The course of the opposition proceedings does not *prima facie* provide a justification for filing D7 only during the appeal proceedings either, since the subject discussed during the opposition proceedings did not change.

3.3 Furthermore, D7 is not *prima facie* relevant to the discussion of novelty, either.

3.3.1 According to the appellant, Table 3 of D7 demonstrates that the mean linear intercept length obtained does not vary depending on the etching agent used.

However, the results reported by the appellant in D1.4 contradict these conclusions, since point 4.3.2 states that, despite time-consuming and repeated efforts, no grains were found when the samples in D1.4 were etched by the etching agent Nital, unlike the tests using the etching agent Dix-Keller.

3.3.2 Moreover, it is questionable whether the etching conditions such as the etching duration are comparable in the tests according to D7 and D1.4, since these conditions are not reported in either document.

3.3.3 Furthermore, D7 and D1.4 do not refer to the same samples and hence to the same materials. According to D7, sample 6.2 from the B-pillar and sample 3.2 from the roof carrier were used (see point 2 of D7), whereas in D1.4 sample 4.3 was used (see point 4.1 of D1.4). Pictures 87 and 88 of D1.3 show that the part from which sample 6.2 was taken belonged to a component of the B-pillar which was welded to another steel sheet from which samples measured in D1.4 (and in particular sample 4.3) were taken.

These test samples differ significantly, since no grains were visible in the samples of D1.4 after etching with Nital (see point 4.3.2 of D1.4). In contrast, in the samples of D7 the grains **were most clearly visible** before etching, see picture 11 and page 2, paragraph below picture 1 of D7. Moreover, it is also doubtful, in view of picture 87 of D1.3 ("EN10292"), whether the sample analysed in D7 is a hot-stamped high-strength steel sheet.

3.3.4 In addition, D7 itself casts doubts on whether the results reported there are applicable to etching processes on any substrate, as D7 states on page 1 that the test results relate only to the analysed specimens ("Die Versuchsergebnisse beziehen sich nur auf die untersuchten Gegenstände").

3.4 In view of these points, the Board decided not to admit D7 into the appeal proceedings (Article 12(6) RPBA, second paragraph).

4. Admittance of D8

4.1 The appellant submitted D8 for the first time during appeal proceedings, to support the assertion that the subject-matter of claim 1 was not novel over the samples derived from a VW Passat from 2006, as documented in D1.1 - D1.3, D2 and D5.

4.2 As with D7, the Board may admit D8 and the novelty objection based on it at its discretion, in line with Article 12(4), first sentence RPBA and Article 12(6) RPBA.

4.3 As already indicated above, on page 6, first paragraph of the annex to the summons to attend oral proceedings, the opposition division had already expressed its view that the subject-matter of claim 1 as granted was novel, and that the experimental evidence presented in D1.4 was not convincing.

Hence, the appellant already had a clear incentive to supplement its arguments at that time.

There is no reason why the appellant had to file yet another new piece of evidence (D8) during the appeal proceedings.

Indeed, the appellant was required to submit all the necessary documents and a fully substantiated objection during the opposition proceedings.

- 4.4 The appellant justifies submitting D8 as an auxiliary measure to be on the safe side, in case the Board concluded that granted claim 1 was new in view of D1.1 to D1.4, D1.5, D2, D5 and D7 (see first sentence of point III.4.4 of the statement of grounds of appeal).

This argument, which is based on the potential lack of success of an argument based on D7, is not convincing, since D7 was itself not submitted during the opposition proceedings.

- 4.5 As set out in relation to the admittance of D7, the course of the opposition proceedings does not *prima facie* provide a justification for filing D8 only during the appeal proceedings either, since the subject discussed during the opposition proceedings did not change.

- 4.6 The appellant further justified the late filing of D8 on the basis that it would have been difficult to find an alternative competent laboratory to perform measurement of the mean linear intercept length.

This argument is not convincing either.

If the appellant had realised the need to find an alternative competent laboratory during the opposition proceedings, this could and should have been

accomplished during the opposition proceedings, in particular as the summons to attend the oral proceedings was issued about nine months in advance. Moreover, if more time was needed to find an alternative analytical laboratory, at the least a request to postpone the oral proceedings could and should have been filed.

Instead, the appellant filed further experimental evidence (D1.5) in the opposition proceedings, again from TAZ GmbH, the same laboratory that performed the analysis reported in D1.4.

Commissioning another laboratory in the hope that it will produce the desired results, and filing these further results during an appeal, is not in line with the primary purpose of the appeal proceedings, which is to review the decision under appeal.

- 4.7 Moreover, contrary to the appellant's argument, it is not uncontested that the results reported in D8 are *prima facie* relevant, see point 4.3.2 of the reply to the statement setting out the grounds of appeal ("Missing features in D8").
- 4.8 Furthermore, D8 is not merely supplementary to the prior use analysed in D1.4, because the samples analysed in the experimental report D8 are different from those used in D1.4. D8 uses samples 4.4 and 6.4 of the VW Passat (see page 2: "Prüfgegenstand" of D8), whereas D1.4 uses sample 4.3 (see point 4.1 of D1.4).

As different steel panels, with different compositions and properties, are used to form the various parts of a VW Passat chassis and indeed single parts of it such as the B-pillar (see D5 or D5', page 11), the samples of

D8 taken from the same car, and even from the same B-pillar, are not necessarily formed from the same type of metal sheet as the sample analysed in D1.4.

Hence, D8 relates to a fresh case, which is not supposed to be discussed for the first time in appeal proceedings "in view of the primary object of the appeal proceedings to review the decision under appeal in a judicial manner" (Article 12(2) RPBA).

4.9 In view of the reasons indicated above, the Board decided not to admit D8 into the appeal proceedings (Article 12(6), second sentence RPBA).

5. Novelty

5.1 Interpretation of claim 1

5.1.1 Claim 1 relates to a hot-stamped high-strength part comprising an Al-Fe alloy plating layer containing 2 to 7 mass% silicon ("Si"), which is further defined by the mean linear intercept length of the crystal grains of a phase containing 40 to 65 mass% aluminium ("Al"). The mean linear intercept length is specified as 3 to 20 μm (see feature 1e)), wherein the mean linear intercept length is defined and measured as described in the description (see feature 1f)).

The parameter in features 1e) and 1f) of claim 1 is thus defined by an explicit reference to the patent specification.

This reference to the description (feature 1f)) does not refer to a specifically identified paragraph in the description. However, the only paragraph of the patent's specification that describes a method of

measuring the mean linear intercept length is paragraph [0035]. Therefore, the patent leaves no doubt that the reference in feature 1f) of claim 1 relates to paragraph [0035]. The patent discloses there that the method of measurement of the mean linear intercept length includes an etching step by 2 to 3 vol% of Nital, as follows.

"The method of measurement of a mean linear intercept length in an alloy plating layer is to polish any cross-section of a hot stamped part, then **etch it by 2 to 3 vol% of Nital** and examine the result by a microscope" (emphasis added by the Board).

This explicit statement is confirmed by the rest of the description of the patent, which does not mention an alternative etching agent, even in relation to further measurements such as the thickness measurement of the plating layer, but which consistently refers to Nital (see also paragraphs [0025], [0093] of the patent).

- 5.1.2 The appellant argued that claim 1 needed to be interpreted more broadly because the patent disclosed its own definition of the mean linear intercept length in paragraph [0035], without any limitation regarding the etching agent.

"Therefore, in this Description, the mean linear intercept length of the crystal grains in the alloy plating layer is defined as the mean linear intercept length which is measured in the direction parallel to the steel sheet surface."

However, this argument is not convincing, since this sentence from the middle of paragraph [0035] of the patent has to be read in the technical context of the

preceding and following sentences of the paragraph. The remaining sentences clearly define how to measure the mean linear intercept length, and explain that the measurement is performed in a direction parallel to the steel sheet surface because of the plating layer's thickness.

A change in the measurement direction, taking into account the particularities of the sample to be analysed as described in paragraph [0035], does not provide a reason to simply ignore all the previously described steps for preparing the sample, such as polishing and etching.

Use of a mixture of the indefinite ("a") and definite ("the") articles in paragraph [0035] of the patent does not call into question the fact that the skilled person would consider the technical disclosure of the entire paragraph when trying to identify the method of measurement referred to by feature 1f) of claim 1.

5.1.3 The Board therefore considers that, by virtue of its reference to the description in feature 1f), the definition of claim 1 encompasses the requirement that the mean linear intercept length be measured after etching with the etching agent Nital, and does *not* therefore encompass the use of an etching agent such as Dix-Keller in combination with or as an alternative to Nital.

5.2 Public prior use (D1.1 to D1.4, D2 and D5)

5.2.1 The novelty objection raised by the appellant is based on a public prior use which is documented in documents D1.1 to D1.4, D2 and D5, concerning a Passat produced by Volkswagen in 2006.

D1.4 discloses the mean linear intercept length determined for samples from the B-pillar of the VW Passat, which were etched using the etching agent Dix-Keller.

Therefore, the measurement method used in D1.4 does not comply with that described in paragraph [0035] of the patent, to which feature 1f) of claim 1 refers.

Indeed, D1.4 confirms in point 4.3.2 that no grain boundaries could be observed in the plating layer of the analysed samples obtained from the VW Passat when Nital was used as the etching agent.

5.2.2 Consequently, the public prior use as presented by the appellant (D1.1 - D1.4, D2 and D5) does not directly and unambiguously demonstrate that the alloy plating layer of the samples derived from the Passat comprised grains with a mean linear intercept length as required by features 1e) and 1f) of claim 1.

5.3 The appellant correctly pointed out that the grains and their size as such are not affected by the use of an etching agent.

However, the choice of etching agent influences the visibility and appearance of the grains, since the available etching agents are not equally strong and react differently, affecting the visibility of the grains and their boundaries in different ways. This is also confirmed by the appellant itself, see for example its statement setting out the grounds of appeal (paragraph bridging pages 21 and 22) and its letter dated 27 November 2024 (page 10, second paragraph), which reads as follows.

"Allgemein ist zu Ätzmitteln für Korngefügeuntersuchungen bekannt, dass diese entweder auf die Korngrenzen wirken wie beispielsweise das Ätzmittel Nital in Stahl, auf die Kornsubstanz der Körner wirken wie beispielsweise Dix-Keller oder als Farbätzmittel - wie beispielsweise das Ätzmittel Murakami - sich auf die Kornsubstanz der Körner ablegen und deren Orientierung bzw. Grenzen sichtbar machen. Ein Metallograph wählt je nach Ziel der Untersuchung und Darstellungsmethode ein geeignetes Ätzverfahren aus."

Considering that the choice of etching agent influences the visibility of the grains, and that the actual measurement of the mean linear intercept length is based on an optical evaluation using a polarisation microscope, it can be concluded that the visibility of the grains influences the values determined for the mean linear intercept length.

Therefore, it cannot be concluded that the values of the mean linear intercept length of an AlFeSi plating layer, as determined by optical evaluation after etching with the more aggressive etching agent Dix-Keller, are equivalent to those determined after etching with the etching agent Nital.

This is also confirmed by D1.4 itself, as it states in point 4.3.2 that the mean linear intercept length could not be obtained from the analysed samples using Nital but only after using the much stronger Dix-Keller.

Therefore, the appellant has not demonstrated even indirectly that the grains in the plating layer of the Passat of public prior use have a mean linear intercept length determined after etching with Nital, as required

by the reference in feature 1f), that falls within the range defined by feature 1e) of claim 1.

- 5.4 The appellant further argued that the mean linear intercept length according to features 1e) and 1f) of claim 1 of the patent was an unusual parameter for which there was no concrete definition of how to achieve it, such as which apparatus to use and which criteria to apply to identify grains and their boundaries, etc.

This argument is not convincing either.

In metallography, it is common practice to analyse grains and their sizes, since the properties of metal phases are fundamentally dependent on the grain size. As grains vary in shape and size, it is also common practice to determine mean values for grain size. D6 demonstrates that determining a mean particle size by using a line segment method (a line of set length is drawn and the number of grain boundaries crossing the line is counted) is common practice for the skilled person.

Although D6 focuses on determining the grain size in steel phases, it nevertheless confirms that the mean linear intercept length is a common way to describe grain sizes in metallurgy. Moreover, contrary to the appellant's assertion, D6 is not entirely unrelated. It is clear that the optical determination method is not limited to specific metals or types of grain, but can be used to analyse any material for which grains can be identified by microscopy. Furthermore, the plating layer according to claim 1 comprises iron, aluminium and a small amount of silicon, and is present on steel. Hence, a skilled person working with steel parts and

their plating layers comprising intermetallic phases of iron would be familiar with the various standard methods for determining grain sizes in steel, such as the method described in D6.

Therefore, the skilled person in the field of metallurgy is aware of the parameter "grain size" and the meaning of "mean linear intercept length".

It follows that the parameter "mean linear intercept length" is not an unusual parameter in the sense of the case law, see Case Law of the Boards of Appeal, 11th edition, 2025, II.C.5.5.3, that could justify a reversal of the burden of proof in line with III.G. 5.2.2 d) there.

5.5 In view of the above, the subject-matter of claim 1 is novel over the public prior use as documented by D1.1-D1.4, D2 and D5.

6. Sufficiency of disclosure

6.1 According to claim 1 of the patent, the invention is defined by the mean linear intercept length of the crystal grains of a phase in the plating layer on a hot-stamped high-strength part. Claim 1 defines the measurement method to be used for determining this length by referring to the description.

The patent discloses a method for determining the mean linear intercept length of crystal grains of a phase in paragraph [0035].

This paragraph is the only one in the patent to describe a method for determining the mean linear intercept length of the crystal grains of a phase, and

therefore leaves the skilled person in no doubt as to which method steps are to be followed and which specific details must be particularly adapted for analysing the thin plating layer according to the invention, namely: i) use Nital as the etching agent and ii) measure the mean linear intercept length in a direction parallel to the steel sheet surface.

Given that a skilled person working in metallurgy is familiar with identifying grains and determining their size using conventional instruments such as polarisation microscopes, the patent provides sufficient information for the skilled person to determine the mean linear intercept length as defined in claim 1. Furthermore, in paragraph [0035] the patent discloses that the "polarization angle is adjusted so that the contrast of the crystal grains becomes the clearest. At this time, the layer of a compound whose contrast appears light at the surface layer side consecutively from the layer of a compound whose contrast appears dark is a phase of Al: 40 to 65%." Contrary to the appellant's view, the patent therefore provides guidance which helps to identify the crystal grains.

6.2 Moreover, D6 confirms that there is even a DIN standard for measuring the mean linear intercept length in steel phases. While the patent does not refer to D6, and while D6 does not require the mean linear intercept length to be determined by drawing a line parallel to the plating layer surface, as specified by the patent (see paragraphs [0020] and [0035]), D6 confirms that the parameter "mean linear intercept length" is known to the skilled person, at least in the context of steel. The skilled person dealing with plating layers on steel can be expected to be able to carry out the

refined measurement method disclosed in the patent using common general knowledge.

6.3 The appellant argued that applying the principles set out in T 602/10 (see point 1.7 of the Reasons) led to the conclusion that the invention was insufficiently disclosed by the patent. The Board cannot agree with this argument, if only because the case underlying T 602/10 differs significantly from the case at hand. In the present case, the mean linear intercept length is determined using a known method and apparatus for determining the parameter. This is in striking contrast to the case underlying the cited decision, because there a conceptually completely different and new method and apparatus were used to determine a parameter.

6.4 The appellant argued that the patent did not specify several conditions for the measurement method of the mean linear intercept length, such as:

- the specific apparatus
- the appropriate parameter settings for identifying the grains
- the criteria for identifying the grains in the intermetallic layer
- the length of the line drawn parallel to the steel sheet surface
- the number of measurements
- how to proceed if the line started or ended in a grain

6.5 However, the appellant did not provide substantiated reasoning based on verifiable facts to explain why any of the missing explanations would prevent the skilled person from carrying out the invention in line with the disclosure provided by the patent.

Therefore, the appellant's arguments are based on mere allegations and are not convincing, see Case Law of the Boards of Appeal, 11th edition, 2025, Chapter II.C.9.

6.6 Furthermore, the appellant's allegations are not persuasive either.

6.6.1 A patent is directed to a skilled person. Therefore, it is not necessary for a patent to describe conventional analytical equipment and its settings. Regarding the use of a polarisation microscope, the appellant has not explained why the skilled person would be unable to identify grains using a standard polarisation microscope with the conventional setting for such apparatus.

The patent states, in paragraph [0036], that using trace lines might be helpful, since in practice grain boundaries might not be perfectly clear, and that their visibility could be further enhanced by said trace lines. However, this does not imply that the skilled person cannot identify grain boundaries and simply count them in order to determine the mean linear intercept length.

6.6.2 Furthermore, the Board is convinced that a skilled person would be aware that the greater the precision of a measurement, the greater the number of measurements required and, in the present case, the greater the length of the line used for the measurement.

6.6.3 Furthermore, the Board cannot see any reason why a skilled person might have serious difficulty in identifying grains and determining grain boundaries, given that this is common practice in metallurgy.

Moreover, the various experimental reports submitted by the appellant demonstrate that, after appropriate sample preparation, grains can be identified using a polarisation microscope by adjusting its contrast (see paragraph [0035] of the patent). The appellant argued that in Figure 3 of the patent, which shows black and white pictures of low resolution, the grains could not be properly identified in the plating layer, and so the patent did not provide the required information for the skilled person to identify and count the grain boundaries using a polarisation microscope. However, the resolution of pictures in patent documents printed in black and white cannot reflect what a skilled person actually sees when using such a microscope. Indeed, figures of patents simply illustrate reality and are interpreted accordingly by the skilled person. Therefore, when assessing the possibility of carrying out an invention, it is important to consider what the skilled person is expected to achieve in reality rather than relying only on figures in the patent.

- 6.6.4 In this regard, the appellant referred to point 4.3.2 of D1.4, which states that no grains could be identified after etching with Nital. Figures 25 and 26 of D1.4 show that the laboratory performing the measurement tests adjusted the polarisation filter of the microscope to fixed values.

This stepwise adjustment of the polarisation filter of the polarisation microscope according to D1.4, which was also explicitly confirmed by the appellant during the oral proceedings before the Board, does not correspond to the "adjustment of the polarization angle so that the contrast of the crystal grains becomes the clearest" as defined in paragraph [0035] of the patent.

Therefore, the failure to determine grains reported in D1.4 does not provide any hint that the skilled person faces undue burden in identifying the crystal grains, and does not call into question the ability of the skilled person to identify grains in a plating layer that has been etched with Nital when using a polarisation microscope.

- 6.6.5 Moreover, the appellant has not presented any substantiated facts to explain why the skilled person could not determine the mean linear intercept length by placing the start or end of the line within a grain.

On the contrary, the various experimental reports submitted by the appellant during the opposition and appeal proceedings (D1.4, D1.5, D7 and D8) in fact confirm that analytical laboratories can measure the mean linear intercept length without any problems.

- 6.7 The Board therefore concludes that the ground of opposition pursuant to Article 100(b) EPC does not prejudice maintenance of the patent. The question of whether some of the appellant's arguments relating to sufficiency of disclosure constitute an amendment to the case in the sense of Article 12(2) RPBA is not a decisive point, since they were taken into account by the Board in reaching this conclusion. Therefore, there is no need to discuss their admittance.

7. Neither D9 nor D10, nor the offers made by Mr Asam, Mr Mirthes, Mrs Grumpt and Mr Klemm to be witnesses, played any role in the above reasoning or in the parties' arguments relating to the points discussed above. This was not disputed by the parties. Therefore, the admissibility of D9 and D10 does not need to be

discussed here, nor is a decision on the hearing of witnesses necessary.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



C. Spira

C. Herberhold

Decision electronically authenticated