

Internal distribution code:

- (A) Publication in OJ
(B) To Chairmen and Members
(C) To Chairmen
(D) No distribution

**Datasheet for the decision
of 10 May 2012**

Case Number: T 0568/10 - 3.2.08

Application Number: 00909739.5

Publication Number: 1136580

IPC: C22C 38/06, C22C 38/02,
C22C 38/04

Language of the proceedings: EN

Title of invention:
Use of steel in laser welding

Patent Proprietor:
Nippon Steel Corporation

Opponent:
Tata Steel IJmuiden BV

Headword:
-

Relevant legal provisions:
EPC Art. 123(2)
EPC R. 115(2)

Keyword:
"Unallowable amendment (yes)"

Decisions cited:
T 0201/83, T 0714/00

Catchword:
-



Case Number: T 0568/10 - 3.2.08

D E C I S I O N
of the Technical Board of Appeal 3.2.08
of 10 May 2012

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

Representative: Kruit, Jan
Tata Steel
Group Intellectual Property Services
P.O. Box 10000
NL-1970 CA IJmuiden (NL)

Respondent: Nippon Steel Corporation
(Patent Proprietor) 6-3, Ohtemachi-2-chome
Chiyoda-ku
Tokyo 100-8071 (JP)

Representative: Vossius & Partner
Siebertstraße 4
D-81675 München (DE)

Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
8 January 2010 concerning maintenance of
European patent No. 1136580 in amended form.

Composition of the Board:

Chairman: T. Kriner
Members: R. Ries
A. Pignatelli

Summary of Facts and Submissions

I. By its interlocutory decision posted on 8 January 2010 the opposition division held that European patent No. 1 136 580 could be maintained in amended form on the basis of claims 1 and 2 of the auxiliary request then on file.

Amongst other findings, the opposition division came to the conclusion that the amendment to the lower limit of the range for aluminium, which had been extracted from an example of the steel alloy used according to claim 1, was allowable under Article 123(2) EPC, since this individual feature was not so closely associated with the remaining elements of the example as to determine significantly the alloy's pre-weld and post-weld properties.

II. The appellant (opponent) lodged an appeal against this decision on 16 March 2010, paying the appeal fee on the same day. The statement setting out the grounds of appeal was filed on 18 May 2010.

III. Oral proceedings took place before the Board on 10 May 2012.

As announced in its letter dated 26 April 2012, the appellant did not attend the oral proceedings.

IV. The following requests were made:

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

The respondent (patent proprietor) requested that the appeal be dismissed (main request) or that the patent be maintained on the basis of one of the sets of claims according to auxiliary requests 1 to 6, filed on 28 September 2010.

V. Claim 1 of main request reads as follows:

"Use of a steel in laser welding, in which the laser welding is done to a section of the steel plate cut by laser cutting, plasma cutting or gas cutting without removing scales, the steel containing, by weight %,

0.01 to 0.20% of C,
0.01 to 1.5% of Si,
0.2 to 2.0% of Mn,
0.02% or less of P,
0.02% or less of S and
0.031 to 1.0% of Al; and

optionally further containing, by weight %, one or more of

0.001 to 0.1% of Ti,
0.001 to 0.1% of Zr,
0.0001 to 0.02% of Mg,
0.0001 to 0.02% of Ca and
0.001 to 0.3% of REM; and

further optionally containing, by weight %, one or more of 0.001 to 0.1% of Nb, 0.001 to 1.0% of V, 0.001 to 2.0% of Mo, 0.01 to 3.0% of Cu, 0.01 to 7.0% of Ni, 0.01 to 5.0% of Cr and 0.0001 to 0.01% of B the balance consisting of Fe and unavoidable impurities; and the value of Y defined by the following equation (1)

satisfying $0.4 < Y < 1.5$,

$$Y = 0.88[\%Al] + 1.14[\%Si] + 0.67[\%Ti] + 0.35[\%Zr] + 0.66[\%Mg] + 0.40[\%Ca] + 0.30[REM] \dots (1)."$$

Claim 1 of the auxiliary requests differs from claim 1 of the main request by the addition of diverse features. However, the feature according to which the steel contains, by weight %, 0.031 to 1.0% Al is comprised in claim 1 of all requests.

VI. The appellant's arguments relevant to the present decision can be summarized as follows:

The amendment to claim 1, i.e. the restriction of the Al-range to 0.031% Al was based on an isolated feature extracted from a set of features that were originally disclosed in example F only in combination. An amendment of this nature would only be justified in the absence of any clearly recognisable functional or structural relationship among said features (T0714/00). As set out in the patent specification, Al, Si and the remaining components Ti, Zr, Mg and Ca functioned together for the purpose of deoxidation and suppressing the occurrence of blowholes. Equation (1) featuring in claim 1 and paragraph [0035] of the specification, however, made clear that the amount of Al was dependent on the amount of Si in the steel composition and vice versa. Hence, Al and Si in the steel composition were linked and could not be selected independently from each other.

Amending the lower limit of the range for Al to 0.031% in claim 1 thus contravened Article 123(2) EPC.

VII. The respondent's arguments relevant to the present decision can be summarized as follows:

Contrary to the appellant's allegations, a recognizable functional or structural relationship among the components Al and Si did not exist. As set out in claim 1 and the patent specification, the amounts of elements which were present in the alloy for deoxidation were defined within specific ranges under the requirement that equation (1) was satisfied. However, equation (1) only mentioned the accumulated deoxidation power of the respective elements against the scales on the steel plate during laser welding but did not define a functional relationship between these components. Paragraph [0015] of the patent specification explained that Al was one of the deoxidising elements and no other effect was attributed to or expected by its presence. From the definition given in the patent specification, it was evident that the amounts of the individual elements Al and Si as well as the optional elements Ti, Zr, Mg, Ca, and REM could be selected freely and independently. The examples given in Table 1 of the patent showing various combinations of the deoxidising elements supported the fact that such free combinations were possible over a wide range. Contrary to the appellant's view, the patent did not disclose any indication showing that the amount of Al was so closely associated with the other components of example F as to determine the effect of that embodiment as a whole in a unique manner and to a significant degree. Following the considerations given in decision T0201/83, the amendment to claim 1 was thus allowable.

Hence, the amendment to the range for Al on the basis of an example was justified and allowable under Article

123(2) EPC, as was confirmed in the decision of the opposition division.

Reasons for the Decision

1. The appeal is admissible.
2. Amendment to claim 1 of all requests; Articles 100(c), 123(2) EPC, added subject matter
 - 2.1 During examination proceedings, the lower limit for the Al range of the steel composition featuring in granted claim 1 was amended from 0.0005% into 0.031%. It was undisputed that the amendment was based on the individual Al-content of the steel composition of example F given in Table 1 of the original application.
 - 2.2 According to established jurisprudence of the Boards of Appeal, if a claim is restricted to a preferred embodiment given in the patent application, it is normally not admissible under Article 123(2) EPC to extract isolated features from a set of features which had originally been disclosed in combination for that embodiment. As an exception, such kind of amendment would only be justified in the absence of any clearly recognisable functional or structural relationship among said features (Case Law of the Boards of Appeal of the EPO, 6th edition, 2010, section III.A.2).

In the case of metal alloy compositions, decision T0201/83 states: *"An amendment of a concentration range in a claim for a mixture such as an alloy, is allowable on the basis of a particular value described in a*

specific example, provided the skilled man could have readily recognised this value as not so closely associated with the other features of the example as to determine the effect of that embodiment as a whole in a unique manner and to a significant degree."

The present Board follows the approach of the jurisprudence and in particular the view expressed in decision T0201/83 according to which, because of the effects of interaction of the elements in a metal alloy, it is not possible to make any arbitrary selection of individual features from single examples for defining new ranges. Rather, regard must be had to the context in the disclosure. To disregard this context would result in a new selection from the original range, which was neither explicitly nor implicitly disclosed.

- 2.3 As to the present case, the Board has come to the conclusion that for the reasons explained below the value extracted from the example was closely associated with the other features of the example so that the amendment is not allowable.

It is firstly noted that the lower limit of 0.031% Al is not disclosed as a preferred lower limit for the Al range in the application as originally filed. No indication whatsoever is found in the application as filed that a threshold value of 0.031% Al would be critical and therefore should be adhered to. It therefore must be concluded that the value of 0.031% in example F has been selected arbitrarily as a lower limit rather than on purpose.

Secondly, paragraph [0015] of the patent specification states that, on the one hand, Al is an important element as a deoxidiser but, on the other hand, adversely affects impact toughness unless its presence is limited to 1.0% or lower. Likewise, silicon is added as a deoxidiser but acts also as a steel strengthening element, as the patent specification states in paragraph [0012]. Contrary to the respondent's view, it is well known to the person skilled in metallurgy and also clearly confirmed in the patent at issue itself that the effect of Al and Si is not confined exclusively on deoxidizing the pool of liquid steel formed during laser welding. Apart from their deoxidation potential, both elements actually do contribute to the mechanical properties of the steel alloy. This means that the overall properties of examples F are significantly determined by the specific amounts of Al and Si in combination and interaction with the remaining components also featuring in this example.

Thirdly, the patent specification requires in paragraph [0030] that rules (1) and (2) for purposely correlating at least the amounts of the individual alloying elements Al and Si with one another should be satisfied. The Board's assessment that the amounts of Al and Si are inextricably linked with each other and are also closely associated with the other deoxidising components Ti, Zr, Mg, Ca and REM, when present, is corroborated by the correlation rules in the specification and also in claim 1.

As further set out in paragraph [0035] of the patent specification, the upper and lower limits for X and Y

calculated from rules (1) and (2) are to be adhered to in order to suppress the formation of blowholes and to prevent the plasma from becoming unstable during laser welding. The skilled reader of the patent specification cannot be assumed to have any doubts as to whether the amounts of Al and Si have to be selected in a specific way to achieve the previously mentioned object. Hence, the choice of the concentration of one component (here Al) affects the concentration of the other component (here Si), since both have the same function of suppressing the formation of blowholes and stabilizing the plasma during welding.

In consequence thereof and contrary to the respondent's allegations, there is no disclosure in the patent at issue indicating that the amounts of Al and Si may be selected freely and independently. Changing the lower limit of the range for Al on the basis of the Al content featuring in example F was therefore not permissible.

For these reasons, the subject matter of claim 1 of the main request and also of the auxiliary requests 1 to 6, all comprising the same unallowable restriction of the Al-range, extends beyond the content of the application as filed and claim 1 of all requests is accordingly not allowable (Article 123(2) EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

V. Commare

T. Kriner