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**Datasheet for the decision  
of 23 October 2012**

**Case Number:** T 0806/09 - 3.5.02

**Application Number:** 00114534.1

**Publication Number:** 1113550

**IPC:** H02B 13/045

**Language of the proceedings:** EN

**Title of invention:**

Current transformer for a gas insulated switchgear

**Patentee:**

MITSUBISHI DENKI KABUSHIKI KAISHA

**Opponent:**

SIEMENS AKTIENGESELLSCHAFT

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 56, 123(2)

EPC Art. 13

**Keyword:**

"Inventive step - no (main request and auxiliary request 4)"

"Added subject-matter - yes (auxiliary requests 2 - 10)"

"Admissibility of late-filed requests - yes (auxiliary request 11) - no (auxiliary requests 12, 13)"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 0806/09 - 3.5.02

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.02  
of 23 October 2012

**Appellant:** MITSUBISHI DENKI KABUSHIKI KAISHA  
(Patent Proprietor) 7-3, Marunouchi 2-chome  
Chiyoda-ku  
Tokyo 100-8310 (JP)

**Representative:** Popp, Eugen  
Meissner, Bolte & Partner GbR  
Widenmayerstrasse 48  
D-80538 München (DE)

**Respondent:** SIEMENS AKTIENGESELLSCHAFT  
(Opponent) Postfach 22 16 34  
D-80506 München (DE)

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 6 February 2009  
revoking European patent No. 1113550 pursuant  
to Article 101(3)(b) EPC.

**Composition of the Board:**

**Chairman:** M. Ruggiu  
**Members:** M. Rognoni  
P. Mühlens

## Summary of Facts and Submissions

- I. The patentee (appellant) appealed against the decision of the opposition division revoking European patent No. 1 113 550.
- II. In the contested decision, the opposition division found, *inter alia*, that the subject-matter of claim 1 of the patent in suit lacked an inventive step within the meaning of Article 56 EPC, that the first to fourth auxiliary requests violated Article 123 (2) EPC and that claim 1 of the fifth auxiliary request was also not allowable under Article 56 EPC.
- III. The following documents cited in the contested decision are relevant to the Board's decision:
- E1: EP-B1-0 650 236
  - E3: DE-A1-41 21 654
  - E5: DE-A1-195 05 812
  - E8: US-A-5 939 876.
- IV. With the statement of grounds of appeal, the appellant submitted new claims by way of auxiliary requests 1 to 9.
- V. With a letter dated 11 March 2010, the appellant filed two sets of claims replacing the previous auxiliary requests 8 and 9 and filed a new auxiliary request 10.
- VI. In reply to a communication summoning the parties to oral proceedings, the appellant, with a letter dated 17 September 2012, submitted three sets of claims as auxiliary requests 11 to 13.

VII. On 23 October 2012, oral proceedings were held before the Board.

VIII. The appellant requested to admit auxiliary requests 11, 12 and 13, filed with letter of 17 September 2012, into the proceedings.

The respondent (opponent) requested not to admit these requests into the proceedings.

After deliberation, the Board decided to admit only auxiliary request 11 into the proceedings.

IX. The appellant requested that the decision under appeal be set aside and that the patent be maintained unamended (main request), or that the patent be maintained in amended form on the basis of one of the auxiliary requests 1 to 7 filed with the grounds of appeal of 15 June 2009, or on the basis of one of the auxiliary requests 8 to 10 filed with letter of 11 March 2010, or on the basis of auxiliary request 11 filed with letter of 17 September 2012.

The respondent (opponent) requested that the appeal be dismissed.

X. Claim 1 of the patent as granted (main request) reads as follows:

"A gas insulated switching device comprising:

a series of mutually connected pressure containers (1, 4) within the center of which a conductor (2) is positioned and within which an insulating and arc-

extinguishing gas fills a space around the conductor;  
and

a current transformer fabricated by Rogowskii coils (7) for detecting a current passing through the conductor (2) and being accommodated in a groove formed within the body of an annular adaptor attached to the pressure containers (1, 4);

characterised in that  
the annular adaptor (5) is metallic and located between flanges of the pressure containers (1, 4), and the current transformer is attached to the pressure containers (1, 4) via the annular metallic adaptor (5) and uses the metallic adaptor (5) to obtain an earth potential, the groove being open to the space purged with the insulating and arc-extinguishing gas."

Claim 1 according to auxiliary request 1 reads as follows:

"A gas insulated switching device comprising:

a series of mutually connected pressure containers (1, 4) within the center of which a conductor (2) is positioned and within which an insulating and arc-extinguishing gas fills a space around the conductor;  
and

a current transformer fabricated by Rogowskii coils (7) for detecting a current passing through the conductor (2) and being accommodated in a groove formed within the body of an annular adapter attached to the pressure containers (1,4), wherein

the annular adapter (5) is metallic and located between flanges of the pressure containers (1, 4),

the current transformer is attached to the pressure containers (1, 4) via the annular metallic adapter (5) and uses the metallic adapter (5) to obtain an earth potential,

the groove is open to the space purged with the insulating and arc-extinguishing gas, and

the annular adapter has a fully solid cross-section in a radial direction between the groove and a radially inner peripheral surface of the annular adapter."

Claim 1 according to auxiliary request 2 differs from claim 1 of the first auxiliary request in that the feature "an annular adapter attached to the pressure containers (1, 4), wherein the annular adapter (5) is metallic and located between flanges of the pressure containers (1, 4)" has been replaced by the following feature inserted between the first and second paragraphs:

"a single metallic annular adapter (5) located between and attached to a respective pair of flanges of the pressure container (1, 4)"

Claim 1 according to auxiliary request 3 differs from claim 1 of auxiliary request 2 in that "a single metallic annular adapter (5)" has been replaced by "a one-piece metallic annular adapter (5)".

Claim 1 according to auxiliary request 4 differs from claim 1 of the auxiliary request 2 in that it further comprises the following feature:

"the groove opens, via a side wall of said annular adapter that extends radially toward the center of the pressure containers, to the space purged with the insulating and arc-extinguishing gas."

Claim 1 according to auxiliary request 5 differs from claim 1 of auxiliary request 4 in that "a single metallic annular adapter (5)" has been replaced by "a one-piece metallic annular adapter (5)".

Claim 1 according to auxiliary request 6 reads as follows:

"A gas insulated switching device comprising:

a series of mutually connected pressure containers (1, 4) within the center of which a conductor (2) is positioned and within which an insulating and arc-extinguishing gas fills a space around the conductor;

an insulating spacer (3); and

a current transformer fabricated by Rogowskii coils (7) for detecting a current passing through the conductor (2) and being accommodated in a groove formed within the body of an annular adapter attached to the pressure containers (1, 4), wherein

the annular adapter (5) is metallic and located between flanges of the pressure containers (1, 4),

the current transformer is attached to the pressure containers (1, 4) via the annular metallic adapter (5) and uses the metallic adapter (5) to obtain an earth potential,

the groove is open to the space purged with the insulating and arc-extinguishing gas,

a side of said annular adapter contacts said insulating spacer,

an opposing side of said annular adapter is attached to an adjacent one of said flanges, and

said annular adapter is attached to another of said flanges via said insulating spacer."

Claim 1 according to auxiliary request 7 differs from claim 1 of auxiliary request 6 in that it further comprises the following feature:

"the annular adapter has a fully solid cross-section in a radial direction between the groove and a radially inner peripheral surface of the annular adapter."

Claim 1 according to auxiliary request 8 reads as follows:

"A gas insulated switching device comprising:

a series of mutually connected pressure containers (1, 4) within the center of which a conductor (2) is positioned and within which an insulating and arc-



extinguishing gas fills a space around the conductor;  
and

a current transformer fabricated by Rogowskii coils (7)  
for detecting a current passing through the conductor  
(2) and being accommodated in a groove formed within  
the body of an annular adapter attached to the pressure  
containers (1, 4), wherein

the annular adapter (5) is metallic and located between  
flanges of the pressure containers (1, 4),

the current transformer is attached to the pressure  
containers (1, 4) via the annular metallic adapter (5)  
and uses the metallic adapter (5) to obtain an earth  
potential,

the groove is open to the space purged with the  
insulating and arc-extinguishing gas,

the body of the annular adapter has a first side and a  
second, opposite side that extend in a radial direction  
with respect to the pressure containers, said groove  
being formed in said first side, and

a plurality of Rogowskii coils of the same dimensions  
is concentrically arranged in said groove in an axial  
direction with respect to the pressure containers."

Claim 1 according to auxiliary request 9 reads as  
follows:

"A gas insulated switching device comprising:

a series of mutually connected pressure containers (1, 4) within the center of which a conductor (2) is positioned and within which an insulating and arc-extinguishing gas fills a space around the conductor;

an insulating spacer (3) that separates the gas is [sic] the series of containers (1, 4); and

a current transformer fabricated by Rogowskii coils (7) for detecting a current passing through the conductor (2) and being accommodated in a groove formed within the body of an annular adapter attached to the pressure containers (1, 4), wherein

the annular adapter (5) is metallic and located between flanges of the pressure containers (1, 4),

the current transformer is attached to the pressure containers (1, 4) via the annular metallic adapter (5) and uses the metallic adapter (5) to obtain an earth potential,

the groove is open to the space purged with the insulating and arc-extinguishing gas,

the body of the annular adapter has a first side and a second, opposite side that extend in a radial direction with respect to the pressure containers, said groove being formed in said first side,

said second side of said annular adapter contacts said insulating spacer,

a portion of said first side of said annular adapter is attached to an adjacent one of said flanges,

said annular adapter is attached to another of said flanges via said insulating spacer, and

a plurality of Rogowskii coils of the same dimensions is concentrically arranged in said groove in an axial direction with respect to the pressure containers."

Claim 1 according to auxiliary request 10 differs from claim 1 of the ninth auxiliary request in that it further comprises the following feature:

"the annular adapter has a fully solid cross-section in a radial direction between the groove and a radially inner peripheral surface of the annular adapter."

Claim 1 according to auxiliary request 11 reads as follows:

"A gas insulated switching device comprising:

a series of mutually connected pressure containers (1, 4) within the center of which a conductor (2) is positioned and within which an insulating and arc-extinguishing gas fills a space around the conductor; and

a current transformer for detecting a current passing through the conductor (2) and being accommodated in a groove formed within the body of an annular adaptor attached to the pressure containers (1,4);

the annular adaptor (5) is metallic and located between flanges of the pressure containers (1, 4),

the current transformer is attached to the pressure containers (1, 4) via the annular metallic adaptor (5) and uses the metallic adaptor (5) to obtain an earth potential,

the groove being open to the space purged with the insulating and arc-extinguishing gas,

characterised in that

the current transformer is fabricated by a plurality of Rogowskii coils (7) which are accommodated in the groove, the plurality of Rogowskii coils (7) having the same diameters and are arranged side by side in an axial direction of the pressure containers (1, 4) around the same axis centers."

Claim 1 according to auxiliary request 12 differs from claim 1 of auxiliary request 11 in that it further comprises the following feature:

"the Rogowskii coils (7) are monolithically molded by a flexible resin (12) inside the metallic adaptor (5)."

Claim 1 according to auxiliary request 13 differs from claim 1 of auxiliary request 12 in that it further comprises the following feature:

"a flange of the pressure container (1) overlaps the groove accommodating the Rogowskii coils (7) and a cut-out (15) is formed in the flange of the pressure

container so as not to clog an opening portion of the groove."

XI. The appellant's arguments may be summarised as follows:

An established criterion for the selection of the most promising starting point for establishing whether a claimed subject-matter satisfied the requirements of Article 56 EPC was the similarity between the technical problems addressed by the invention and in the relevant prior art. In fact, the assessment process should start from a situation as close as possible in reality to that encountered by the inventor.

As reflected in the opening paragraphs of the contested patent, one of the central objectives of the claimed invention was to improve the conventional current transformers based on Rogowskii coils so as to increase measurement accuracy and achieve a higher degree of miniaturisation.

Document E1 did not teach or suggest the use of Rogowskii coils and thus failed not only to address a similar technical problem, but also to disclose one of the central features constituting the objective starting point of the present invention. Consequently, it was inappropriate to select E1 as the closest prior art.

On the other hand, document E3 related to a gas insulated switching device which employed a current transformer based on Rogowskii coils. Furthermore, E3 explicitly stated in column 1, lines 50 to 56, that one of its objects was to provide a current transformer

having a high degree of measurement accuracy and a small size. As such, E3 exhibited greater similarity to the relevant structural aspects and objectives of the present invention than any of the other prior art documents. Thus, E3 represented the objectively most appropriate choice of closest prior art.

However, even if E1 were to be considered to represent the closest prior art document, the subject-matter of claim 1 of the contested patent exhibited an inventive step.

The reduction in size achieved by the structure recited in claim 1 of the contested patent was significantly greater than the size reduction the person skilled in the art could have expected by replacing the current transformer shown in E1 with Rogowskii coils. In fact, the present invention, as specified in claim 1 of the main request, was optimised in a previously unforeseen and unexpected manner to exploit the smaller size of Rogowskii coils. E1 and the prior art cited with regard to Rogowskii coils did not foresee such advantages and accordingly did not teach or suggest modifying the cumbersome bulky and costly design of E1 in a manner that advantageously synergised with this aspect of Rogowskii coils. A further feature which distinguished the claimed subject-matter from the switching device according to E1 and from any of the cited prior art was that the current transformer used the metallic adaptor to obtain an earth potential.

Although document E8 showed a gas insulated switching device comprising Rogowskii coils, this choice of current transformer appeared arbitrary as it was not linked to any specific teaching. The person skilled in

the art facing the problem of increasing the measurement accuracy and miniaturization attainable with the switching device disclosed in E1 would not consider E8 as relevant prior art and would not look at it as providing a possible solution to the problem addressed in the contested patent.

In summary, the subject-matter of claim 1 of the patent in suit involved an inventive step with respect to the combination of E1 and E8.

As to auxiliary requests 1 to 10, the subject-matter of the corresponding claims 1 was directly and unambiguously derivable from the application as originally filed and, in particular, from the drawings. In fact, the features which distinguished these auxiliary requests from the subject-matter of the granted claim 1 reflected some particular aspects of the embodiments of the invention which were clearly shown in the figures and immediately evident to the skilled person.

As to auxiliary request 11, claim 1 differed from the granted claim 1 in that it specified how the Rogowskii coils were located within the groove. As none of the prior art documents showed a gas insulated switching device having this particular arrangement of two Rogowskii coils, the subject-matter of claim 1 according to auxiliary request 11 satisfied the requirements of Article 56 EPC.

Auxiliary requests 12 and 13 related to subject-matter which had already been considered in the opposition appeal proceedings and sought to overcome previous

objections. Although late-filed, they should be admitted into the appeal proceedings.

XII. The respondent argued essentially as follows:

The choice of E1 as closest prior art document relied on well established criteria developed on basis of the problem-solution approach. The only difference between the gas insulated switching device known from E1 and the subject-matter of claim 1 according to the contested patent was that in the latter the current transformer was fabricated by Rogowskii coils. As found by the opposition division, E1 constituted the most promising starting point for an obvious development leading to the invention and thus constituted the closest prior art.

Document E8 related to a gas insulated switching device which used Rogowskii coils arranged in a metallic adaptor as current sensors. Furthermore, the switching device according to E8 was structurally very similar to the one known from E1 and to the claimed invention. Thus, it would have been immediately obvious to a skilled person, starting from E1 and wishing to improve the accuracy and the miniaturization of the known switching device, to replace the bulky toroidal core current transformers used in E1 with Rogowskii coils. Consequently, the subject-matter of claim 1 of the contested patent did not involve an inventive step within the meaning of Article 56 EPC.

Claims 1 of auxiliary requests 1 to 10 comprised features which were not directly and unambiguously disclosed in the application as filed, but which, at



most, could only be identified in the figures. The selection of features taken more or less arbitrarily from figures of the preferred embodiments constituted a generalisation of such embodiments and thus defined subject-matter which extended beyond the content of the application as originally filed (Article 123 (2) EPC).

The auxiliary requests 11 to 13 were late-filed and as such should not be admitted into the appeal proceedings. As to claim 1 of auxiliary request 11, its subject-matter resulted from an obvious combination of the teachings of E1 and E8.

## **Reasons for the Decision**

1. The appeal is admissible.

### Main request

2. Claim 1 of the patent as granted relates to a "gas insulated switching device" comprising the following features according to the itemisation used in the contested decision:
  - (a) a series of mutually connected pressure containers within the center of which a conductor is positioned and within which an insulating and arc-extinguishing gas fills a space around the conductor; and
  - (b) a current transformer fabricated by Rogowskii coils for detecting a current passing through the conductor and

(c) being accommodated in a groove formed within the body of an annular adaptor attached to the pressure containers;

characterised in that

(d) the annular adaptor is metallic and

(e) located between flanges of the pressure containers, and

(f) the current transformer is attached to the pressure containers via the annular metallic adaptor and uses the metallic adaptor to obtain an earth potential,

(g) the groove being open to the space purged with the insulating and arc-extinguishing gas.

Closest prior art

3.1 In the contested decision, the opposition division identified E1 as the closest prior art document. The appellant has contested the opposition division's finding and argued that E3 should be taken as the appropriate and realistic starting point of the present invention.

3.2 As pointed out in the "Case Law of the Boards of Appeal of the European Patent Office" (6th edition 2010, I.D.3. Closest prior art, page 164, second paragraph), the closest prior art for assessing inventive step is normally a prior art document disclosing subject-matter

conceived for the same purpose or aiming at the same objective as the claimed invention and having the most relevant technical features in common, *"i.e. requiring the minimum of structural modifications"*. As shown in the following, the latter criterion is clearly fulfilled by document E1, which explicitly discloses features (a), (c), (d), (e), (g) and, at least partly, (f).

3.3 As to E3, this document relates to a gas insulated switching device comprising, *inter alia*, current and voltage sensors 10 and 11 arranged on an annular support 13, which can be located inside a pressure container or between flanges of the pressure containers 8 and 9 (E3, column 3, lines 9 to 13). Figure 2 of E3 shows the component of current and voltage sensors 10 located within the pressure container 7. No specific constructional details of the sensors 11 mounted between the flanges of the pressure containers 7 and 9 are shown in E3. Thus, E3 discloses a gas insulated switching device comprising features (a), (b), (d), and (e). In fact, the annular support 13 is not provided with a "groove" for accommodating the Rogowskii coil.

3.4 The choice of E1 as closest prior art does not exclude that also E3 might be regarded as another possible starting point for the assessment of the invention. However, the Board agrees with the approach taken by the opposition division and stipulated in the Guidelines for Examination according to which the *"closest prior art is that which in one single reference discloses the combination of features which constitutes the most promising starting point for an obvious development leading to the invention"*

(Guidelines for Examination 2012, Part G - Chapter VII-3, 5.1 - emphasis added).

- 3.5 In summary, the Board shares the opposition division's opinion that E1 represents the closest prior art.
- 4.1 It is uncontested that E1 discloses a gas insulated switching device comprising features (a), (c), (d), (e) and (g) recited in claim 1 of the contested patent. According to the respondent, also feature (f) was fully disclosed in E1, whereas the appellant has argued that E1 did not teach to use the metallic adaptor to obtain an earth potential.
- 4.2 The wording "*and uses the metallic adaptor to obtain an earth potential*" occurs in paragraphs [0008] and [0013] of the application as published. The original application, however, does not disclose any structural features relating to the way the earth potential is obtained from the metallic adaptor and, in particular, whether feature (f) implies a direct electrical connection between the current transformer and the metallic adaptor.

On the other hand, E1 discloses a metallic adaptor (see claim 1) directly connected to the flanges of the metal containers 2 and 3. In operation, as convincingly explained by the respondent, the containers of a gas insulated switching device are usually earthed to provide a path to the stray currents induced in the metallic containers by the current flowing through the conductor. In E1, the metallic adaptor is at the same potential as the containers. It is furthermore implicit that the reference voltage required by the current

transformer can be provided by the containers or by the adaptor.

In the light of the background knowledge common in the art, it is implicit for the skilled person that, in the switching device known from E1, the metallic adaptor can be used to obtain an earth potential as reference voltage for the current transformer.

4.3 Hence, the subject-matter of claim 1 differs from the known switching device only in that the current transformer is fabricated by Rogowskii coils.

4.4 As known in the art (see for instance E5, column 1, lines 9 to 13), current sensors based on Rogowskii coils are not affected by magnetic saturation and are thus well-suited for accurately detecting both very small and very large currents.

Hence, starting from document E1, the problem solved by the claimed invention can be seen in providing a gas insulated switching device with an improved current sensor.

5.1 Document E8 shows a gas insulated switching device comprising two Rogowskii coils 10 for detecting the current flowing through the conductor 9. These two coils are located in a cavity delimited by two tube sections 4 and 5 clamped between the flanges of two pressure containers.

5.2 In the light of the known advantages provided by a current sensor based on Rogowskii coils and of the use of such coils in the context of gas insulated devices

documented in E8, it would be obvious to a person skilled in the art to replace the toroidal core transformers in the gas insulated switching device according to E1 with two Rogowskii coils. All the more so as such replacement would not require any substantial modification of the remaining components of the switching device.

5.3 Hence, the subject-matter of claim 1 according to the appellant's request does not involve an inventive step within the meaning of Article 56 EPC.

Auxiliary requests 1 to 5

6.1 Claims 1 according to auxiliary requests 1 to 5 comprise the following feature:

- *"the annular adapter has a fully solid cross-section in a radial direction between the groove and a radially inner peripheral surface of the annular adapter".*

6.2 As acknowledged by the appellant, the above wording is not found in the description or in the claims of the original application. However, in the appellant's view, it accurately described the cross sections of the adaptors shown in Figure 1 and was thus fully supported by the original application.

6.3 The Board agrees that the drawings of an application are an integral part of the disclosure and that, in principle, a figure may provide support for a claimed feature.

In the present case, the drawings relate only to one particular section of the annular adapter along the plane identified by the axis of the conductor 11 and the connectors of the current transformer. This cross-section shows the space between the groove and the inner peripheral surface of the annular adaptor as "solid". Although it may be reasonable to assume that this should also be the case for other sections along different planes containing the axis of the conductor, this particular feature of the annular adapter is not explicitly disclosed.

- 6.4 The original application, which refers to the adapter only in general terms, defines it as being metallic, annular and having a groove with an "opening portion". Figures 1 to 3 show the same embodiment of an annular adapter with a groove accommodating two coils side by side. Figure 4 shows an embodiment in which flanges of a pressure container 1 and of a metallic adaptor 5 "are identical". According to Figure 5 an annular adapter has an elongated groove for accommodating two concentric coils.

The fact of selecting a particular characteristic (a *fully solid cross-section*), which can only be identified in the illustrative embodiments of the invention, and of combining it with the more general definition of the adapter given in the description of the invention constitutes, in the Board's opinion, an impermissible intermediate generalisation of the original disclosure, in the sense that it seeks to characterize the invention with respect to some undefined adapter falling between the general adapter

referred to in the description and the specific examples shown in the drawings.

Furthermore, in the present case, the particular feature taken from the drawings does not contribute to a more precise definition of the invention or to the solution of a specific problem, but appears to be merely dictated by the desire to distance the subject-matter of the independent claim from the prior art document E1.

- 6.5 In summary, the Board considers that claims 1 according to auxiliary requests 1 to 5 contain subject-matter which extends beyond the content of the application as originally filed. Hence, such requests do not comply with the requirements of Article 123 (2) EPC.

Auxiliary requests 6 and 7

- 7.1 Claims 1 according to auxiliary requests 6 and 7 differ from claim 1 of the contested patent, *inter alia*, in that the gas insulated switching device comprises "*an insulating spacer*". As further specified in the claim, the "*annular adapter contacts said insulating spacer*" and is attached to one of the flanges "*via said insulating spacer*".

- 7.2 In the application as originally filed the insulating spacer is defined as follows:

- "*the metallic adaptor is attached via an insulating spacer for separating the gas in the mutually connected series containers*" (published



application, paragraph [0010], column 2, lines 55 to 57 - underlining added).

- *"Numerical reference 3 designates an insulating spacer for supporting the conductor 2 and separating the gas in the pressure container 1 and the other pressure container 4 connected thereto. Numerical reference 5 designates an annular metallic adaptor attached to flanges of the pressure containers 1 and 4 via the insulating spacer 3" (ibid. paragraph [0019], column 4, lines 48 to 54 - underlining added).*

In other words, the application as filed does not refer to a generic insulating spacer, as recited in claim 1 of auxiliary requests 5 and 6, but to a spacer with specific functions, i.e. for supporting the conductor and separating the gas in the pressure containers.

- 7.3 In the Board's opinion, the reference to a generic *"insulating spacer"* in claims 1 of auxiliary requests 5 and 6 constitutes a generalisation of the specific insulating spacer disclosed in the original application which does not comply with Article 123 (2) EPC.

#### Auxiliary requests 8 to 10

- 8.1 Claims 1 according to auxiliary requests 8 to 10 comprise, *inter alia*, the following feature:

- *"the body of the annular adapter has a first side and a second, opposite side that extend in a radial direction with respect to the pressure*

*containers, said groove being formed in said first side".*

- 8.2 The above description of the *"body of the annular adapter"* does not occur in the application as originally filed but only appears to match some characteristics of the annular adapter shown in the figures. In particular, the application as filed discloses explicitly only that the *"metallic adaptor 5 according to Embodiment 1 has the groove inside a body of the metallic adaptor 5"* (published application, paragraph [0020], column 5, lines 13 to 15). No other feature of the body of the adapter is described.
- 8.3 The combination of an unspecified adapter comprising a groove for accommodating the coils with some features relating to the constitution of the particular adapter used in the embodiments shown in the figures constitutes an intermediate generalisation of such specific embodiments. Thus, claims 1 according to auxiliary requests 8 to 10 infringe Article 123(2) EPC.

Auxiliary request 11

- 9.1 Auxiliary request 11 differs from the main request essentially in that the current transformer is specified as follows:

- *"the current transformer is fabricated by a plurality of Rogowskii coils (7) which are accommodated in the groove, the plurality of Rogowskii coils (7) having the same diameters and are arranged side by side in an axial direction of*

*the pressure containers (1, 4) around the same axis centers".*

The above wording is taken from the description of the original application, paragraph [0020], column 5, lines 15 to 19.

- 9.2 Although auxiliary request 11 was submitted with a letter dated 17 September 2012 and thus very late in the appeal proceedings, it can be regarded as a viable attempt to overcome Article 123 (2) EPC objections raised against previous requests. Furthermore, this auxiliary request relates to subject-matter which had already been addressed in the opposition appeal proceedings.
- 9.3 Under these circumstances, the Board considers that it is justified to admit auxiliary request 11 into the appeal proceedings.
- 10.1 E1 shows a gas insulated switching device comprising a current transformer fabricated by two toroidal cores 12 and 13 and corresponding coils which are accommodated in a groove ("*Hohlraum*") defined by two adjacent parts 7 and 8 of the annular body 6. The two coils have the same diameters and are arranged side by side in an axial direction of the pressure containers (2, 3) around the same axis centers (cf. E1, column 2, lines 40 to 53). Thus, the claimed subject-matter differs from E1 only in that the coils are Rogowskii coils.
- 10.2 For the same reasons given with respect to the main request, the subject-matter of claim 1 according to the

eleventh auxiliary request results from an obvious combination of the teachings of E1 and E8.

10.3 Hence, the subject-matter of claim 1 according to auxiliary request 11 does not involve an inventive step within the meaning of Article 56 EPC.

Auxiliary requests 12 and 13

11.1 The respondent has objected to the admissibility of auxiliary requests 12 and 13, as they were submitted with a letter dated 17 September 2012 and thus very late in the appeal proceedings. The appellant has not provided any justification for their late filing.

11.2 Claim 1 according to auxiliary request 12 differs from claim 1 of the patent as granted in that it further comprises the following features:

(i) *"the current transformer is fabricated by a plurality of Rogowskii coils (7) which are accommodated in the groove, the plurality of Rogowskii coils (7) having the same diameters and are arranged side by side in an axial direction of the pressure containers (1, 4) around the same axis centers"* and

(ii) *the Rogowskii coils (7) are monolithically molded by a flexible resin (12) inside the metallic adaptor (5)".*

Feature (ii) is recited in the original claim 9, whereas the wording of feature (i) is taken from paragraph [0020], column 5, lines 15 to 19 of the

description of the original application. Claims 7 and 8 as originally filed relate to subject-matter similar to feature (i). However, they do not refer to the diameters of the coils but to their "*dimensions*". In fact, claim 7 specifies that the Rogowskii coils have "*same dimensions*" and claim 8 that the coils have "*a same dimension in axial directions in a cross section of the coils and different dimensions in radial directions of the coils*".

In other words, the combination of features recited in claim 1 of auxiliary request 12 has not been claimed before and thus has never been addressed in the opposition appeal proceedings. Furthermore, this request, which is based on a new combination of features recited in the original claims and of features derived from the description, does not appear likely to overcome outstanding objections under Article 123 (2) EPC.

11.3 The same can be said for claim 1 of auxiliary request 13 which differs from auxiliary request 12 in that it further comprises the following feature disclosed in the description (paragraph [0026], column 6, lines 13 to 19):

- "*a flange of the pressure container (1) overlaps the groove accommodating the Rogowskii coils (7) and a cut-out (15) is formed in the flange of the pressure container so as not to clog an opening portion of the groove*".

11.4 In summary, apart from relating to subject-matter for which protection has never been sought, claims 1 of

auxiliary requests 12 and 13 differ from claim 1 of the granted patent by features which neither provide a more comprehensive definition of the invention nor constitute specific solutions to problems addressed in the original application or, at least, related to its essential teachings. On the contrary, the subject-matter now claimed appears to have been selected merely with a view to increasing the separation between the claimed subject-matter and the closest prior art document E1.

11.5 In summary, the Board sees no reason to admit, at such a very late stage in the appeal proceedings, requests which are not clearly directed to overcoming previously raised objections or to providing a more focussed definition of the actual invention, but which constitute a more or less arbitrary limitation of the subject-matter originally claimed.

11.6 Hence, the Board decides to exercise its discretion under Article 13(1) RPBA not to admit auxiliary requests 12 and 13 into the appeal proceedings.

12. As claim 1 of the main request does not satisfy the requirements of Article 56 EPC and none of the auxiliary requests provides a basis for maintaining the patent in amended form, the appeal has to be dismissed.

**Order**

**For these reasons, it is decided that:**

The appeal is dismissed.

The Registrar

The Chairman

U. Bultmann

M. Ruggiu