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**Datasheet for the decision
of 22 September 2015**

Case Number: T 1548/11 - 3.2.05

Application Number: 01901114.7

Publication Number: 1269057

IPC: F16L11/08, F16L59/153

Language of the proceedings: EN

Title of invention:

Flexible, armoured pipe and use of same

Patent Proprietor:

National Oilwell Varco Denmark I/S

Opponent:

Technip France

Headword:

Relevant legal provisions:

EPC 1973 Art. 56, 111(1), 113(1), 116(1)

EPC 1973 R. 67

RPBA Art. 11

Keyword:

Substantial procedural violation - violation of the right to be heard (yes)

Remittal to the department of first instance - special reasons for not remitting the case

Inventive step (no)

Reimbursement of appeal fee (yes)

Decisions cited:

T 0562/08

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 1548/11 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 22 September 2015

Appellant:
(Opponent)

Technip France
6-8, Allée de l'Arche,
Faubourg de l'Arche,
ZAC Danton
92400 Courbevoie (FR)

Representative:

Vincent Christian Gendron
Fédit-Loriot
38, avenue Hoche
75008 Paris (FR)

Respondent:
(Patent Proprietor)

National Oilwell Varco Denmark I/S
Priorparken 480
2605 Brøndby (DK)

Representative:

Anette Hegner
Hegner & Partners A/S
Banemarksvej 50
2605 Brøndby (DK)

Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
17 May 2011 concerning maintenance of the
European Patent No. 1269057 in amended form.**

Composition of the Board:

Chairman M. Poock
Members: P. Lanz
G. Weiss

Summary of Facts and Submissions

- I. The present appeal by the opponent is against the interlocutory decision of the opposition division posted on 17 May 2011 ruling that patent EP-B-1 269 057, as amended during the opposition proceedings, met the requirements of the European Patent Convention.
- II. The opponent filed notice of opposition against the patent based on the grounds for opposition according to Article 100(a) EPC 1973 (lack of novelty and lack of inventive step). With the notice of opposition, oral proceedings were requested as an auxiliary measure in case the opposition division did not follow the main request for revocation of the patent. The oral proceedings were held on 28 January 2008, and at the end of them the opposition division decided to revoke the contested patent for lack of novelty.
- III. The patent proprietor filed notice of an appeal against this decision. In appeal decision T 562/08, this board of appeal in a different composition judged that the subject-matter claimed was novel. The impugned decision was set aside and the case was remitted to the opposition division for further prosecution.
- IV. In its letter dated 7 July 2010, the opposition division summarised the board's decision and invited the parties to submit their requests and, in particular, to present their respective cases with regard to the unsettled issue of inventive step. Both parties took the opportunity to file observations on the question of inventive step. However, only the patent proprietor asked for oral proceedings as an auxiliary request. Based on these written submissions and without holding oral proceedings, the opposition

division followed the patent proprietor's main request and decided that the patent as amended met the requirements of the EPC. It is the opponent's appeal against this decision which is the subject of the present appeal proceedings.

V. Oral proceedings were held before the board of appeal on 22 September 2015.

VI. The appellant (opponent) requests that the decision under appeal be set aside, that the European patent be revoked and that the appeal fee be reimbursed.

The respondent (patent proprietor) requests that the decision under appeal be set aside and that the case be remitted to the opposition division for the assessment on inventive step.

VII. The documents referred to in the appeal proceedings included the following:

A1: American Petroleum Institute: "Recommended Practice for Flexible Pipe", API Recommended Practice 17B, Second Edition, July 1, 1998;

A2: American Petroleum Institute: "Specification for Unbonded Flexible Pipe", API Specification 17J, Second Edition, November 1999;

A4: US 5 307 842;

A5: Sergio Lima Porciuncula et al.: "Marlim Field: Risers, Flowlines and Umbilicals Developed", Offshore Technology Conference, 3-6 May 1999;

A8: US 4 590 971;

A9: US 4 921 018.

VIII. Independent claim 1 reads as follows:

"Armoured flexible pipe comprising an inner liner (3), on the inside of which a carcass (1) is provided, while the outer side of the inner liner is surrounded by one or more layers of pressure (5,6) and tensile (7,8) armour, which in turn is surrounded by one or more layers of thermally insulating bands, which are shielded from the surroundings by an outer sheath (9) forming a barrier against the ingress of fluids from the pipe surroundings

characterized in that

the armoured flexible pipe comprises a thermally insulating layer consisting of said thermally insulating bands, and the thermally insulating bands (10) are provided between the outer sheath (9) and the tensile armour (7,8), and are made of a homogeneous polymer or a homogeneous polymer mixture."

IX. The arguments presented by the appellant in writing and during the oral proceedings are essentially as follows:

By issuing the impugned decision on inventive step without holding oral proceedings, the opposition division violated the appellant's right to be heard. Reference was made to its notice of opposition, in particular to section VIII of Form 2300, containing a clear auxiliary request for oral proceedings, which was never withdrawn. The oral proceedings held before the opposition division prior to its first decision related exclusively to the issue of novelty, as could be clearly seen from the minutes. The order of the board of appeal to set that decision aside and to remit the

case to the opposition division for further prosecution had to be seen as an instruction to continue the initial opposition proceedings. Thus, the requests filed before the first opposition decision was taken, except for those which had been withdrawn or replaced, were still valid after the remittal. Hence the opposition division was obliged to give the appellant an opportunity to orally present its case on inventive step before taking an adverse decision. Not meeting this obligation constituted a serious procedural violation justifying the reimbursement of the appeal fee. However, in view of the length of the proceedings to date, remittal of the case to the opposition division was not justified.

The subject-matter of claim 1 was not based on an inventive step in view of documents A1 and A2, which were fundamental for the design of armoured flexible pipes. Document A1 alone or the combined teaching of documents A1 and A2 (see in particular document A1, page 11, Table 1 incl. Note 5, as well as paragraph 4.3.1.2, page 13, Figure 6 and page 46, paragraph 7.2.4.1 and page 82, paragraph 10.2.1.5) disclosed a flexible pipe with thermally insulating bands. This pipe design formed the closest prior art, from which the subject-matter of claim 1 differed in the features of:

- the tensile armour being surrounded by one or more layers of thermally insulating bands,
- the thermally insulating bands being provided between the outer sheath and the tensile armour
- and being made of a homogeneous polymer or a homogeneous polymer mixture.

Thus, the only issues to be decided by the skilled person were the location and the material of the insulating layer. Regarding the location, the proposal in claim 1 to provide the insulating layer between the outer sheath and the tensile armour was the most straightforward possibility. It avoided the insulating layer being damaged by deformation of the armour and at the same time allowed it to be protected from the aggressive submarine environment. This location was also explicitly suggested in document A2 (see page 4, paragraph 3.1.25) and hence could not justify the presence of an inventive step. The same was true of the feature specifying that the insulating bands were made of a homogeneous polymer or a homogeneous polymer mixture. If the syntactic foam used for insulating the pipe turned out not to be sufficiently robust against deformation and damage by local mechanical influences, the skilled person would obviously replace it with a homogeneous material known from document A1, page 39, Table 11. The alternative approach of increasing the thickness of the foam layer, which was suggested by the respondent, would not solve the problem and would therefore not be seriously contemplated by the skilled person. In summary, on the basis of the combined teaching of documents A1 and A2 the subject-matter claimed was not based on an inventive step.

- X. The respondent's written and oral submissions may be summarised as follows:

After remittal of the case to the first instance, the opposition division explicitly invited both parties to state their requests. The appellant reacted by requesting the revocation of the patent but did not request oral proceedings. Moreover, the opposition

division had held oral proceedings prior to its first decision, so the appellant's initial request for oral proceedings was exhausted. In fact, the opposition division did ensure that the opponent had full opportunity to present its case and requests. It was an exaggeration for the appellant to assert that it was surprised by the opposition division's decision, which, in the respondent's view, was thus not tainted with a procedural violation. In the event that the board nevertheless concluded that a procedural violation had occurred, it had no choice but to remit the case to the department of first instance. If the board, in these circumstances, decided itself on the merits of the case an objection under Rule 106 EPC would be raised by the respondent. Regarding the last issue the board notes that, when explicitly asked by the chairman during the oral proceedings, no such objection was actually raised (cf. minutes of the oral proceedings, page 2/3, penultimate paragraph).

For the assessment of inventive step the unbonded flexible pipe disclosed in document A1, Table 1 on page 11 and Figure 6 on page 13, formed the closest prior art. The armoured flexible pipe as presently claimed differed from this known pipe in the features of

- the tensile armour being surrounded by one or more layers of thermally insulating bands,
- the armoured flexible pipe comprising a thermally insulating layer consisting of said thermally insulating bands,
- the thermally insulating bands being provided between the outer sheath and the tensile armour,

- and being made of a homogeneous polymer or a homogeneous polymer mixture.

The objective technical problem to be solved was to permanently limit the transport of heat through the pipe wall, while preserving the pipe's resistance against local mechanical influences in the long term.

When deciding on the inventive merits of the claimed solution, it had to be noted that documents A1 and A2 were a catalogue-like collection of features obtained from different suppliers with different flexible pipe structures in mind. Thus, there was no teaching that any feature could be combined with any other feature disclosed therein. Additionally, documents A1 and A2 were silent on what the individual features or their combinations could achieve. When starting from the unbonded flexible pipe disclosed in document A1, Table 1 on page 11 and Figure 6 on page 13 as the closest prior art, the skilled person had to make several choices in order to arrive at the claimed solution: first he had to decide to add a thermal insulation layer, then he had to determine how to provide the layer, where to position it and from which material to make it. Even if documents A1 and A2 listed some information regarding the possibility of providing a thermal insulation layer, its form and its location, it did not give any guidance on any of these selections. Moreover, the claimed selection of a homogeneous material was not even mentioned in documents A1 and A2, which proposed solid material, foam or syntactic foam (cf. A1, page 39, Table 11). This also held true for the other prior art on file, in particular document A4 suggesting a composite insulating material (cf. column 3, lines 48 to 50), A5 disclosing the use of syntactic foam (cf. page 3, left column, penultimate paragraph),

A8 (cf. column 1, lines 61 to 64) and A9 both mentioning foamed polymers. In view of the lack of guidance, the skilled person would improve the pipe's long-term resistance to local mechanical influences rather by increasing the thickness of the insulation than by choosing a homogeneous material for that layer. Thus, the appellant's submissions were based on an ex-post-facto analysis. The evidence on file did not point the skilled person towards the claimed solution, which therefore was based on an inventive step.

Reasons for the Decision

1. Alleged procedural violation

1.1 The appellant submits that, by issuing the impugned decision on inventive step without holding oral proceedings in spite of a valid request to that effect, the opposition division violated its right to be heard, which constituted a serious procedural violation justifying reimbursement of the appeal fee. The respondent does not share this view and points out that the opposition division held oral proceedings prior to its first decision and that, after remittal of the case to the department of first instance, the opposition division explicitly invited both parties to state their requests. The appellant reacted by requesting the revocation of the patent but did not request oral proceedings. Thus, in the respondent's opinion, the impugned decision was not tainted with a procedural violation.

1.2 The board first refers to the appellant's notice of opposition, in particular to Form 2300, section VIII "Autres requêtes", containing an unequivocal auxiliary request for oral proceedings:

"Procédure orale demandée si la Division d'Opposition n'entendait pas révoquer le brevet."

It is not in dispute that this statement constitutes a valid auxiliary request for oral proceedings and that this request was never explicitly withdrawn. However, it remains in dispute whether not re-stating this request upon enquiry by the opposition division is to be seen as an implicit withdrawal and whether the request was exhausted by the fact that oral proceedings were held before the opposition division's first decision on the case.

- 1.3 Regarding the first issue, it is established case law that a further prosecution of opposition proceedings on remittal by a board of appeal has to be regarded as a continuation of the original opposition proceedings. Thus, with the remittal of the case the parties' requests valid in the opposition proceedings leading to the first decision, including any auxiliary request for oral proceedings, became effective again (cf. Case Law of the Boards of Appeal of the European Patent Office, 7th Edition, 2013, III.C.2.7.). The appellant was not legally required to re-state them after remittal, despite the explicit invitation by the opposition division to the parties to submit their respective requests. In particular, the fact that the request for oral proceedings was not repeated cannot be interpreted as a withdrawal of the request, since a party's request for oral proceedings can be withdrawn only by virtue of a clearly expressed intention not to proceed with the request, for example in the form of an unambiguous written statement to that effect (cf. Case Law of the Boards of Appeal of the European Patent Office, 7th Edition, 2013, III.C.2.3.). Such an explicit

declaration is not apparent from the file. The board concludes that, in the present case, the appellant's auxiliary request for oral proceedings according to Article 116(1) EPC 1973 filed at the outset of the opposition proceedings was still legally effective when the opposition division took the decision now under appeal.

1.4 As to the second issue of a possible exhaustion of the request for oral proceedings, reference is made to Article 116(1), second sentence, EPC 1973, which gives the European Patent Office the power to reject a request for further oral proceedings before the same department where the parties and the subject of the proceedings are the same. The board notes that during the oral proceedings held before the opposition division before issuing the first decision only the question of novelty in view of documents A1 and/or A2 was discussed. Since the opposition division found the contested claim to lack novelty, it revoked the patent without touching upon the issue of inventive step during the oral proceedings. By contrast, the decision now under appeal deals exclusively with the question of inventive step. Its subject is therefore not the same as the subject of the oral proceedings held before the first decision was taken. In view of that, the opposition division did not have any discretion to reject or disregard the appellant's request for oral proceedings before deciding on inventive step. For the same reasons, the respondent's argument relating to an exhaustion of the request for oral proceedings must fail.

1.5 The board holds that, by disregarding the appellant's request for oral proceedings, which was legally effective when the contested decision was taken, the

opposition division violated the appellant's right to be heard enshrined in Article 113(1) EPC 1973. This amounts to a substantial procedural violation justifying reimbursement of the appeal fees in the event that the appeal is allowable - Rule 67, first sentence, EPC 1973 (applicable here, cf. J 10/07, OJ EPO 2008, 567, Reasons 7).

- 1.6 Article 11 of the Rule of Procedure of the Boards of Appeal (RPBA) provides that a case shall be remitted to the department of first instance if fundamental deficiencies are apparent in the first instance proceedings, unless special reasons present themselves for doing otherwise. Violation of the principle of the right to be heard is considered to be a fundamental deficiency of first-instance proceedings, and remittal is often ordered accordingly. It is, however, generally acknowledged that there is no absolute right for a party to have every aspect of a case examined in two instances. Other criteria, in particular the general interest that proceedings are brought to a close within an appropriate period of time, have also to be taken into account (cf. Case Law of the Boards of Appeal of the European Patent Office, 7th Edition, 2013, IV.E. 7.4.2). In view of the above and contrary to the respondent's assertion, there is no obligation for the board to (again) remit the case at issue to the department of first instance.

In the judgement of the board, special reasons speak against a further remittal of the present case to the opposition division, in particular the length of the opposition (appeal) proceedings to date (including two appeal procedures) and the considerable further delay which would ensue from a remittal. Moreover, it is observed that the appellant whose right to be heard has

been violated requests the board not to remit the case to the opposition division but to decide itself on the remaining issue of inventive step. In these circumstances, remittal of the case to the department of first instance would be inequitable. The board thus exercises its discretion under Article 111(1) EPC 1973 and Article 11 RPBA in the sense that it will decide itself on the merits of the appeal.

2. *Inventive step*

2.1 The board's judgement in case T 562/08

In its decision in appeal case T 562/08, this board of appeal in a different composition decided on the issue of novelty of present claim 1. The board's conclusions in that decision can be summarised as follows:

- Documents A1 and A2 were intended to be used together and included sufficient cross-references, such that a skilled person becoming aware of either one of documents A1 and A2 would necessarily also be directed to the other (Reasons 2, last paragraph).
- No other cited document (i.e. documents A1 to A9) went beyond the disclosure of documents A1 and A2 (Reasons 2.3).
- In document A1, both "Product Family III" (Table 1, page 11) and the "Unbonded Flexible Pipe" of Figure 6 (page 13) disclosed the same sequence of layers as present claim 1 with the exception of the thermally insulating layer. The "typical variation" within "Product Family III" further set out in Note 5 of Table 1 specified that thermal

insulation was added to the pipe. Similarly, section 7.2.4.1 (page 46) indicated that thermal layers could be added to the flexible pipe. The skilled person starting from "Product Family III" (Table 1, page 11) or from the "Unbonded Flexible Pipe" of Figure 6 (page 13) would therefore have to make a first decision to choose a flexible pipe with an insulating layer (Reasons 2.1, third paragraph).

- The location of the thermal insulation within the pipe was not specified in the description of the armoured flexible pipe of document A1. Section 3.1.25 of document A2 merely indicated that *"the [insulating] layer is usually located between the outer tensile armour layer and the outer sheath"*. This formulation made clear that this possible location of the insulating layer was not mandatory and that the insulating layer could in fact be located elsewhere in the pipe. It followed that the skilled person had to exercise a further choice in terms of selecting a location for the insulating layer (Reasons 2.1, sixth to eighth paragraphs).

- Moreover, according to document A1, Table 11 and Note 1 on page 39, the structure of the polymer material used for *"the insulation may be solid material, foam or syntactic foam"*. Again, the skilled person would have to make a choice in favour of "solid material" which, furthermore, may or may not itself be homogeneous. The feature of claim 1 that the insulating bands were made of homogeneous polymer or a homogeneous polymer mixture therefore did not follow directly and unambiguously from the disclosure of document A1

(Reasons 2.1, last paragraph), even if the example of document A2, section 6.2.2.3 on page 20, which suggested PVC for the insulating layer, was taken into account.

2.2 The implications of decision T 562/08 for the judgement of inventive step in the present appeal proceedings are as follows:

In view of the prior art contained in documents A1 to A9, the unbonded flexible pipe of "Product Family III" disclosed in document A1, Table 1 on page 11 and Figure 6 on page 13, represents the most promising starting point for an inventive step assessment of the subject-matter of claim 1. The armoured flexible pipe as presently claimed differs from this known pipe in the features of

- (a) the tensile armour being surrounded by one or more layers of thermally insulating bands,
- (b) the armoured flexible pipe comprising a thermally insulating layer consisting of said thermally insulating bands,
- (c) the thermally insulating bands being provided between the outer sheath and the tensile armour,
- (d) and being made of a homogeneous polymer or a homogeneous polymer mixture.

2.3 The technical effect of features (a) to (c) is to limit the transport of heat through the wall of the pipe (cf. paragraph [0009] of the patent). Feature (d) has the effects of improving resistance to deformation and damage by local mechanical influences (cf. paragraph

- [0011] of the patent) and of preserving the characteristics of the pipe in the long term (cf. last sentence of paragraph [0011] of the patent).
- 2.4 The objective technical problem is to provide an armoured flexible pipe in which the transport of heat through the pipe wall is permanently limited, while the pipe's resistance to local mechanical influences is preserved in the long term.
- 2.5 In assessing the obviousness of the claimed solution, account has to be taken of paragraph [0011] of the patent in suit explaining the known limitations of using syntactic foam filled with hollow glass balls for thermally insulating flexible pipes, in particular the limited resistance to damage by local mechanical influences. Being aware of the fact that the resistance provided by this known material is insufficient, it is a straightforward out of a limited number of possibilities for the skilled person to replace the foam filled with hollow glass balls by a generally homogeneous material, in particular since it is not apparent or alleged that this modification would cause any surprising effect. Furthermore, the respondent's argument that the skilled person, confronted with the above technical problem, would not change the material but increase the thickness of the insulating layer is not persuasive, since an increased layer thickness would not improve the insufficient material properties of the insulation and thus not solve the problem posed. Consequently, it is not apparent that feature (d) provides an inventive contribution.
- 2.6 Regarding the further distinguishing features (a) to (c), reference is again made to document A1, which represents the industry standard jointly established by

petroleum companies, pipe manufacturers and regulatory authorities for the design of flexible pipes (cf. A1, page iii, second paragraph). It suggests, as a typical variation within the standard pipe designs, the addition of thermal insulating layers to the flexible pipe cross-section if the fluid temperature inside the system must be maintained at a particular level (page 11, Note 5 to Table 1 and right-hand column, section 4.3.2.1; page 46, right-hand column, section 7.2.4). The application of the insulating layers is done with a tape winding machine (page 82, right column, section 10.2.1.5). Thus, document A1 discloses feature (b) as a typical design element of flexible pipes.

Furthermore, it is observed that standard document A1 in fact forms part of standard document A2 (cf. A2, page 1, right-hand column, section 2.1.2 making reference to API RP 17B). Document A2 in turn states that the insulating layer, which may be added to the flexible pipe in order to increase its thermal insulation properties, *"is usually located between the outer tensile armor layer and the outer sheath."* (cf. A2, page 4, right-hand column, section 3.1.25), thereby anticipating the sequence of layers as defined in features (a) and (c).

In view of the above, the board concludes that documents A1 and A2, which are to be read together, disclose not only the closest prior art in the form of the unbonded flexible pipe of "Product Family III" divulged in document A1, Table 1 on page 11 (as well as in Figure 6 on page 13), but, separately therefrom, also the differing features (a) to (c).

2.7 It remains to be investigated whether or not the skilled person would combine these separate elements

(a) to (d) with the unbonded flexible pipe of "Product Family III" disclosed in document A1 and thereby arrive at the subject-matter of claim 1 without an inventive step.

In that respect, it has to be taken into account that documents A1 and A2 define a jointly established industry standard for the design of flexible pipes. These documents actually codify the differing features (a) to (c) as standard design options. It thus does not require an inventive step for a skilled person, i.e. an engineer responsible for the design of armoured flexible pipes, to apply these standardised principles depending on the intended operational conditions without any unexpected effect being apparent. The same is true of feature (d) relating to the routine choice of a homogeneous material for the insulating layer, as explained in paragraph 2.5 above. In that light and because of the prescriptive character which document A1 and A2 already had before the priority date of the patent, the respondent's principal argument that it was only with hindsight that the claimed subject-matter seemed obvious is not convincing.

For these reasons, the subject-matter of claim 1 is not based on an inventive step - Article 56 EPC 1973.

3. *Reimbursement of the appeal fee*

In view of the appeal being allowable and the serious procedural violation established in paragraph 1.5 above, the appeal fee is to be reimbursed in accordance with Rule 67, first sentence, EPC 1973.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.
3. The request of reimbursement of the appeal fee is allowed.

The Registrar:

The Chairman:



D. Meyfarth

M. Poock

Decision electronically authenticated