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Datasheet for the decision of 13 May 2014

Case Number: T 1229/10 - 3.2.05

Application Number: 01974060.4

Publication Number: 1325256

IPC: F16L11/08

Language of the proceedings: EN

Title of invention:
Armoured, flexible pipe

Patent Proprietor:
National Oilwell Varco Denmark I/S

Opponent:
Technip France SA

Headword:
-

Relevant legal provisions:
RPBA Art. 13(1)
EPC 1973 Art. 54

Keyword:
Request filed after party filed grounds of appeal - admitted
Novelty - (yes)
Remittal to the department of first instance

Decisions cited:

Catchword:

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Case Number: T 1229/10 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 13 May 2014

Appellant: (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)
Respondent: (Opponent)	Technip France SA 6-8, Allée de l'Arche, Faubourg de l'Arche, ZAC Danton 92400 Courbevoie (FR)
Representative:	Vincent Christian Gendron Cabinet Fédit-Loriot 38 avenue Hoche 75008 Paris (FR)
Decision under appeal:	**Decision of the opposition division of the European Patent Office posted on 18 May 2010 revoking European patent No. 1325256 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman: M. Poock
Members: H. Schram
M. J. Vogel

Summary of Facts and Submissions

I. The appellant (patent proprietor) lodged on 8 June 2010 an appeal against the decision of the opposition division, posted on 18 May 2010, by which European patent No. 1 325 256 was revoked. The statement of grounds was filed on 14 June 2010.

The opposition division held that the subject-matter of claim 1 as granted was not new, Article 54 EPC 1973.

II. Oral proceedings were held before the board of appeal on 13 May 2014.

III. The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of any of the sets of claims filed on 14 February 2014 as main request and first to fifth auxiliary requests.

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

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

D4 DK 2000 00672 (English translation);

D5 *Recommended practice for flexible pipe*, API recommended practice 17B, second edition (front page; Section 1, page 1; Section 4, pages 10 and 13; Section 6, page 42; Section 12, page 104), July 1, 1998;

D6 *Specification for unbonded flexible pipe*, API recommended practice 17J, second edition (front

page; Section 2, page 3; Section 7, page 26), March 1, 1997;

D7 FR-A 2 775 052;

D8 *Methodology to study the general corrosion of steel armours in simulated conditions of flexible pipe annulus influence of confinement and evaluation of the PH*, Ropital F, Condat-Taravel C, Saas JN and Duret C,. Congress EUROCORR 2000, London, 10 to 14 September 2000.

V. Claim 1 of the main request reads as follows:

"1. A flexible armoured pipe for transporting a fluid substance, the flexible armoured pipe comprising an impermeable liner (2a), an outer armouring layer (3a) and an inner armouring layer (1a) consisting of one or more wound armouring elements, the inner armouring layer (1a) is placed on the inside of the liner (2a), such that it is in contact with the fluid, which is to be transported in the pipe, and the outer armouring layer (3a) is placed on the outside of the liner (2a) and consists of at least two layers of wound armouring elements which are completely or partly permeable for fluids, characterised in that the outer armouring layer (3a) including one optional outside permeable sheath against mechanical damages is the outermost layer, said outer armouring layer (3a) and the outer side of the impermeable liner (2a), in use, is in contact with the surrounding water, whereby the outer pressure act directly on the liner (2a) and applies a hydrostatic pressure to the liner (2a) and the inner armouring layer (1a) absorbs the hydrostatic pressure applied to the liner (2a)."

VI. The arguments of the appellant, in writing and during the oral proceedings, can be summarized as follows:

Claim 1 of the main request was filed in response to the communication of the board and corresponded to claim 1 of the second auxiliary request filed with the statement of grounds. Claim 1 of the main request made it clear that the inner armouring layer was placed on the inside of the liner, such that it was in contact with the fluid to be transported in the pipe. This was disclosed on page 2, lines 11 and 12, of the application as filed. That the inner armouring layer of the flexible armoured pipe had to be in contact with the fluid to be transported in the pipe was a consequence of the construction of the flexible armoured pipe as claimed in claim 1 of the patent, see paragraphs [0008] and [0009] of the patent. The amendment did not raise a new issue, since this was an issue that had been discussed extensively before the opposition division. Claim 1 of the main request should therefore be admitted in the appeal proceedings, Articles 13(1) and (3) Rules of Procedure of the Boards of Appeal (RPBA).

The subject-matter of claim 1 of the main request required that the inner armouring layer 1a consisted of one or more wound armouring elements, and that the outer armouring layer 3a consisted of two or more layers of wound armouring elements. The wording "consisting of" and "consists of" in said claim implied that the inner and outer armouring layer did not comprise anything else than wound armouring elements or layers thereof. If the outer sheath 9 of the flexible pipe shown in figure 2 of document D4 was considered to correspond to the liner of said claim, the "inner armouring layer(s)" of document D4 would had to

comprise the armouring layer 5, 6, the inner liner 3 and the carcass 1, since the armouring layer 1a of the invention had to be in contact with the fluid transported by the pipe. In that case the "inner armouring layer" of document D4, which was not constituted of wound armouring elements only. If on the other hand the inner liner 3 of the flexible pipe shown in figure 2 of document D4 was considered to correspond to the liner of said claim, the feature of claim 1 of the main request that the outer side of the impermeable liner 2a, in use, was in contact with the surrounding water, was not fulfilled. It followed that the subject-matter of claim 1 of the main request was novel over document D4.

The respondent had stated that documents D5 and D6 should be read together as a single document because document D5 refers to document D6. This was not correct. The information incorporated by reference was restricted to the specific information referred to in the reference to that incorporated document. The pipe shown in figure 6 of document D5 comprised anti-wear layers and an outer impermeable sheath. However, document D5 was silent about the permeability of these layers.

Since the pipes known from documents D5, D7 and D8 required an outer impermeable sheath, these documents pointed away from the invention, which required either a pervious outer sheath or no sheath at all. The respondent speculated in each case that when the outer sheath was damaged, the resulting pipe would fall within the scope of claim 1. This speculative view was based on a misinterpretation of claim 1. An interpretation of the claim that made technical sense was that the hydrostatic pressure was applied to the

liner along the length of the liner and not only to a very locally damaged area. The subject-matter of claim 1 of the main request was therefore novel over these documents as well.

VII. The arguments of the respondent, in writing and during the oral proceedings, can be summarized as follows:

The function of appeal proceedings inter partes was to give a judicial decision upon the correctness of the decision under appeal taken by the opposition division. Since the appellant had defended its patent before the opposition division on the basis of the claims as granted, none of the auxiliary requests filed with the statement of grounds and none of the requests filed in response to the summons to oral proceedings by the appellant should be admitted into the appeal proceedings. Moreover, the main request was late-filed and contained an additional feature taken from the description, which had not been searched. Since the main request could and should have been presented in the first instance proceedings, this request should not be admitted, cf Article 12(4) RPBA.

The person skilled in the art reading the expression "inner armouring layer (1a) consisting of one or more wound armouring elements" in claim 1 of the main request would understand the term "consisting of" that said inner armouring layer essentially consisted of one or more wound armouring elements, but that other specific elements may be present, since the purpose of the inner armouring layer 1a was to prevent the collapse of the liner 2a, cf paragraphs [0026] and [0035] of the patent in suit. The wording "in contact with" additional feature of claim 1 of the main request with respect to claim 1 as granted, viz "such that it

is in contact with the fluid, which is to be transported in the pipe" included "directly in contact with" and "indirectly in contact with". The layer formed by the armouring layers 5, 6, the inner liner 3, and the carcass 1 of document D4 corresponded therefore to an inner armouring layer, which was in contact with the fluid transported by the pipe, which was placed on the inside of impermeable sheath 9 and surrounded by tension armouring layer 7, 8. Consequently, claim 1 of the main request was not new with respect to document D4.

Claim 1 of the main request also lacked novelty with respect to documents D5/D6, D7 and D8, whereby document D6 was to be considered to be incorporated in document D5, since it was cited therein numerous times, eg in the foreword and in point 1.1.

Each of the documents D5, D7 and D8 disclosed that the outer barrier layer of the flexible armoured pipe could be damaged. In that case the outer barrier sheath was no longer impermeable, and as a result, the damaged flexible armoured pipe took away the novelty of said claim. It was sufficient that the part of the pipe that was damaged had all the features of claim 1 of the main request, since the claim did not specify that its features applied to the entire length of pipe. Even if the claim was construed as meaning that this was the case, it was clear that the surrounding water could penetrate along the length of pipe through the outer armouring layer.

Reasons for the Decision

1. The appeal is admissible.

2. *Admittance of the main request of the appellant*

2.1 During the oral proceedings before the opposition division the appellant has submitted (see point 3 of the minutes) that the inner armouring layer 1a defined by claim 1 as granted was a layer that was in contact with the fluid transported by the pipe. This also followed from the first sentence of paragraph [0009] of the patent.

The opposition division did not share this view, see the first sentence of the penultimate paragraph of point 2 of the reasons of the decision under appeal, which reads: "The inner armouring layer is not defined in claim 1 as being entirely in contact with the fluid to be transported by the pipe". As a result of this interpretation the opposition division came to the conclusion that the subject-matter of claim 1 as granted was not new with respect to document D4, and revoked the patent.

2.2 With its statement setting out the grounds of appeal the appellant filed a second auxiliary request containing the feature "the inner armouring layer (1a) is placed on the inside of the liner (2a), such that it is in contact with the fluid, which is to be transported in the pipe".

Article 12(4) RPBA, second sentence, provides, as a general rule, that everything presented by the parties under Article 12(1) RPBA shall be taken into account by the board if and to the extent it relates to the case

under appeal and meets the requirements in Article 12(2) RPBA. Article 12(4) RPBA, first sentence, however contains an exception to that general rule, which reads: "Without prejudice to the power of the Board to hold inadmissible facts, evidence or requests which could have been presented or were not admitted in the first instance proceedings".

In the communication annexed to the summons to oral proceedings, the board did not exercise the discretion under Article 12(4) RPBA, first sentence, to hold any of the nine auxiliary requests of the appellant filed with its statement of grounds inadmissible on the ground that one or more of these requests "could have been presented in the first instance proceedings".

2.3 Claim 1 of the main request, which corresponds to claim 1 of the second auxiliary request filed with its statement of grounds, differs from claim 1 as granted in that the expression "such that it is in contact with the fluid, which is to be transported in the pipe" is inserted after the expression "placed on the inside of the liner (2a)", that the wording "are in contact" is replaced by the wording "is [sic] in contact" and in that the words "acts directly" is replaced by the words "act [sic] directly". A basis for the additional feature is page 2, lines 11 and 12, of the application as filed.

2.4 Since the main request of the appellant was already filed on 14 February 2014 sufficient time was available to conduct, if desired, a search for the additional feature taken from the description. Since moreover said request was filed with a view to overcome the novelty objection (see point 2.1) and claim 1 thereof meets the requirements of Article 123 EPC (see point 2.3), it is

admitted into the appeal proceedings, Article 13(1) RPBA.

MAIN REQUEST

3. *Ground for opposition "lack of novelty", Article 100(a) EPC 1973 in combination with Article 54 EPC 1973*

3.1 An invention is considered to be new if it does not form part of the state of the art, Article 54(1) EPC 1973. According to established case law a claimed invention forms part of the state of the art, if its subject-matter is clearly and directly derivable from said state of the art for the person skilled in the art.

3.2 Document D4

3.2.1 This document discloses (see page 1, lines 3 to 7, page 6, line 21, to page 8, line 2, and figure 2) a flexible armoured pipe comprising, from the outside inwards, a tension armouring layer 7, 8, an impermeable sheath 9, a pressure armouring layer 5, 6, and an inner liner 3, which surrounds a carcass 1 constituted of a spirally wound metal band 2.

For the purpose of assessing the novelty of claim 1 of the main request, either sheath 9 or inner liner 3 of document D4 may be taken to correspond to the impermeable liner 2a mentioned in said claim.

3.2.2 If sheath 9 of document D4 is taken to correspond to the impermeable liner 2a, the inner armouring layer 5, 6 must be taken to correspond to the inner armouring layer (1a) of claim 1 of the main request. In that case the feature of the preamble of claim 1 of the main

request, viz "the inner armouring layer (1a) is placed on the inside of the liner (2a), such that it is in contact with the fluid, which is to be transported in the pipe", is not disclosed, since the inner liner 3, which is in contact with the fluid transported by the pipe, prevents the flow of fluids to or from the inside of the pipe (page 6, lines 27 to 28).

The respondent has argued that the expression "the inner armouring layer ... is in contact with the fluid" in claim 1 of the main request encompassed both a direct contact and an indirect contact between the inner armouring layer and the fluid transported in the pipe, and that the inner armouring layer 5, 6 of the pipe shown in figure 2 of document D4 was in contact with the fluid transported in the pipe through inner liner 3.

This cannot be accepted. The expression "in contact" appears twice in claim 1 of the main request, one time in the preamble and one time in the characterizing part, cf "the outer side of the impermeable liner (2a), in use, is in contact with the surrounding water". When two physical entities are said to be in contact, the meaning of the wording "in contact" is unambiguous, namely the act or state of touching physically.

3.2.3 If the inner liner 3 of document D4 is taken to correspond to the impermeable liner 2a, the carcass 1 must be taken to correspond to the inner armouring layer (1a) of claim 1 of the main request. In that case the feature of the characterizing part, viz "the outer side of the impermeable liner (2a), in use, is in contact with the surrounding water" is not disclosed, since the impermeable sheath 9 surrounds the inner layers and prevents the surrounding water from entering

the inner armouring layer 5, 6 and being in contact with the outer side of the inner liner 3.

3.2.4 The subject-matter of claim 1 of the main request is therefore new with respect to document D4.

3.3 Documents D5, D6, D7 and D8

3.3.1 The respondent has submitted that for the purpose of assessing novelty document D6 was to be considered to be incorporated in document D5, since it was cited therein numerous times, eg in the foreword and in point 1.1.

The board does not share the view of the respondent that document D5 and D6 form a single document. In point 1.1 of document D5, which provides guidelines for flexible pipe, it is merely stated that "This recommended practice supplements API Specification 17J" (emphasis added by the board). API Specification 17J (document D6) relates to unbonded flexible pipe. Even if document D6 had been incorporated by reference in document D5 (which is not the case), the information content of document D6 that can be used for attacking novelty on the basis of document D5 would be limited to passages of document D6 that are unambiguously referred to in document D5.

3.3.2 Documents D5, D7 and D8 have in common that they describe a flexible armoured pipe comprising an impermeable outer barrier sheath. Such an impermeable layer prevents the ingress of fluids from the surroundings to the pipe's armouring layer, and provides the advantage that the pipe's armouring can be executed in materials which, if unprotected, cannot

withstand the surrounding environment (cf paragraph [0003] of the patent in suit.

In contrast, the first characterizing feature of claim 1 of the main request requires that "the outer armouring layer (3a) ... is the outermost layer" (apart from an optional outside permeable sheath against mechanical damages). Consequently, "said outer armouring layer (3a) and the outer side of the impermeable liner (2a), in use, is in contact with the surrounding water", cf the second characterizing feature of claim 1 of the main request.

Whereas documents D5, D7 and D8 teach that the ingress of the surrounding water to the pipe's outer armouring layer should be prevented, the invention teaches the opposite: the ingress of the surrounding water to the pipe's outer armouring layer is expressly required, so that the outer pressure of the surrounding water "acts directly on the liner (2a) and applies a hydrostatic pressure to the liner (2a) and the inner armouring layer (1a) absorbs the hydrostatic pressure applied to the liner (2a)", cf the last characterizing feature of claim 1 of the main request.

3.3.3 The respondent has submitted that claim 1 of the main request also lacked novelty with respect to documents D5/D6, D7 and D8. Each of these documents disclosed that the outer barrier layer of the flexible armoured pipe could be damaged. In that case the outer barrier sheath was no longer impermeable, and as a result, the damaged flexible armoured pipe would take the novelty of said claim.

When a prior art document describes a product designed for defect free performance, and at the same time

provides information what to do when said product becomes defective, is damaged or has a malfunction, this raises the question what the information content of the document is with respect to the product.

With respect to document D5 the respondent referred to page 104, Inspection and Repair, Section 12.3.4.1, which reads "If the pipe outer sheath is damaged (caused, for instance, during the pipe retrieval), rapid corrosion of exposed pipe armors can occur when it is subjected to the atmosphere. It is therefore recommended that such areas be immediately protected by using special anti-corrosion products and by covering with tape or bandage if they cannot be immediately repaired".

Document D5 is silent about the extent and nature of the damage to the outer sheath. Between the outer sheath and the (inner) liner ("internal pressure sheath") of the pipe shown in figure 6 on page 13 of section 4.3 (Flexible pipe description – unbonded pipe) four armour layers and two anti-wear layers are arranged. Document D5 is silent about whether the anti-wear layers are permeable, or to what extent they are permeable (assuming that the layers are applied by overlapping tape application). If the damage is minor, it cannot be maintained that the outer pressure of the surrounding water acts directly on the liner, as required by claim 1 of the main request.

Document D6 does not provide a drawing or description of a flexible armoured pipe containing detailed information about its construction.

It follows that the subject-matter of claim 1 of the main request is new with respect to documents D5 and D6.

3.3.4 Document D7 discloses (see page 7, lines 13 to 22, and figures 1 and 2) a flexible pipe comprising a metallic carcass 1 as the innermost element, an internal sealing sheath 2 made of a polymeric material, a pressure vault 3, a ring 4 consisting of a short-pitch winding of a rectangular-section wire, an inner group of tensile armour 5, an intermediate sealing sheath 6, an outer group of tensile armour 7 and an external sealing sheath 8.

For the same reasons given in point 3.2 above, a pipe having two impermeable liners does not take away the novelty of claim 1 of the main request.

3.3.5 Document D8 concerns a study of the corrosion rate of steel armour wires in the annulus of a flexible pipeline in simulated conditions.

This document discloses (see Introduction on page 1, and figure 1) a flexible pipeline comprising an interlocked internal carcass 1, an inner (impermeable) sheath 2, one or two layers of pressure armours 3, two layers of tensile armours 4 and an outer plastic sheath 5 for sealing and protection of the inner metallic components. The purpose of the internal carcass 1 is mainly to prevent collapse of the inner sheath 2 in case if, by accident, the external sheath is torn or removed and the external hydrostatic pressure directly applies onto the inner sheath. The armour layer 4 of the flexible pipeline is not the outermost layer, since sheath 5, the external sheath, is the outermost layer. The flexible pipeline known from document D8 were only

then novelty destroying when the sheath 5 were permeable, cf the first characterizing feature of claim 1 of the main request, viz "[the outer armouring layer (3a) including] one optional outside permeable sheath ... is the outermost layer.

The question is therefore, whether the impermeable sheath 5, if torn by accident, qualifies as a permeable sheath in the meaning of the invention.

The board takes the point of view that a person skilled in the art interprets claim 1 of the main request, which relates to a flexible armoured pipe for transporting a fluid substance, as meaning that its features must hold over the entire length of said pipe. This means that if an optional outside sheath is present, it should be permeable over the entire length of the pipe. This view is in conformity with the description of the patent in suit, cf paragraph [0044].

The outer plastic sheath 5 known from document D8, which is normally impermeable, does not become "permeable over the entire length of the pipe" merely because it is locally torn or damaged. The board is of the opinion that sheath 5, where is not torn or removed by accident, is still an impermeable sheath.

It follows that the subject-matter of claim 1 of the main request is new with respect to document D8.

3.4 The subject-matter of claim 1 of the main request is therefore new with respect to prior art cited by the respondent.

4. *Remittal to the department of first instance*

The opposition division has not yet decided on the ground for opposition under Article 100(a) EPC 1973 in combination with Article 56 EPC 1973 (lack of inventive step). It is thus considered appropriate to remit the case to the department of first instance for further prosecution, Article 111(1) EPC 1973.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance for further prosecution.

The Registrar: The Chairman:

D. Meyfarth M. Poock

Decision electronically authenticated