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**Datasheet for the decision
of 20 January 2011**

Case Number: T 1041/08 - 3.2.03

Application Number: 01117852.2

Publication Number: 1279911

IPC: F25B 41/06, F16L 9/19,
B60H 1/32

Language of the proceedings: EN

Title of invention:

Refrigerant tubing for a vehicle air conditioning system

Patentee:

Zexel Valeo Climate Control Corporation

Opponent:

NORSK HYDRO a.s.a.

Headword:

-

Relevant legal provisions:

EPC Art. 56

Relevant legal provisions (EPC 1973):

-

Keyword:

"Inventive step (yes)"

"Admissibility of late request (yes)"

Decisions cited:

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Catchword:

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Case Number: T 1041/08 - 3.2.03

D E C I S I O N
of the Technical Board of Appeal 3.2.03
of 20 January 2011

Appellant: NORSK HYDRO a.s.a.
(Opponent) Drammensveien 213
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Representative: Hofseth, Svein
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Respondent: Zexel Valeo Climate Control Corporation
(Patent Proprietor) 39, Oaza-Sendai
Kohnan-machi
Ohsato-gun
Saitama 360-0193 (JP)

Representative: Popp, Eugen
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 20 March 2008
rejecting the opposition filed against European
patent No. 1279911 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: U. Krause
Members: C. Donnelly
K. Garnett

Summary of Facts and Submissions

- I. The present appeal lies from the decision of the opposition division, dated 20 March 2008, rejecting the opposition against European patent No. EP-B-1279911
- II. The opponent (hereinafter the "appellant") filed a notice of appeal against this decision on 30 May 2008 and paid the fee the same day. In the grounds of appeal filed on 22 July 2008 the appellant referred explicitly to the following state of the art:
- D1: GB-A-838070;
D2: US-A-3747632;
D3: WO-A-0020807;
- III. In a communication dated 19 July 2010, pursuant to Article 15(1) RPBA annexed to the summons to oral proceedings, the board informed the parties of its provisional opinion.
- IV. In its letter of 16 December 2010 the patent proprietor (hereinafter "the respondent") filed auxiliary requests 1 to 3.
- V. Oral proceedings were held on 20 January 2011. During the oral proceedings the respondent filed a new request comprising claims 1 and 2 and withdrew all other requests.
- VI. In conclusion of their cases the parties made the following requests:

The appellant (opponent) requested that the decision under appeal be set aside and that the European patent No. 127991 be revoked.

The respondent (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained on the basis of the request filed during the oral proceedings.

VII. Claim 1 according to the sole request reads:

"Use of a tubing for carrying a refrigerant in a vehicle air conditioning system wherein the tubing comprises a flexible bundle of metal capillary tubes (2) and each of the capillary tubes (2) has an internal diameter in the range of 1.0 to 4.0mm inclusive in a heat exchanger."

Claim 2 according to the sole request reads:

"Use of a tubing as part of the coolant discharge tubing from the compressor of a vehicle air conditioning system in a gas cooler to cool the discharge gas of the compressor, wherein the tubing comprises a flexible bundle of metal capillary tubes (2) and each of the capillary tubes (2) has an internal diameter in the range of 1.0 to 4.0mm inclusive."

VIII. The arguments of the parties can be summarised as follows:

(a) Appellant's case

(i) Admissibility

The request is late filed and should not be allowed for this reason alone.

(ii) Inventive step

The new request does not alter the situation as regards the inventive step arguments brought against claim 1 as granted.

The patent relates to flexible tubing for high pressure fluids, and the skilled person is a tubing engineer familiar with tubing patent specifications such as D1. This document shows a bundle of small diameter metal tubes bundled together as in claim 1. The selection of the particular diameter range does not require any inventive skill since this would be calculated in a routine manner by the skilled person as a function of the operating conditions. The respondent has not shown that there is any particular surprising or unexpected effect obtained by using the claimed diameter range. Thus, the tubing used in claim 1 can be derived in an obvious manner from the prior art and its use in a heat exchanger or a gas-cooler of an automobile air conditioning system is equally obvious since this type of tubing is always used in such components.

Hence, the subject-matter of claims 1 and 2 does not involve an inventive step.

(b) Respondent's case

(i) Admissibility

The request filed during the oral proceedings should be admitted since it is based on claims 10 and 11 as granted. The opposition was made against the patent as a whole, hence the appellant cannot claim that it is surprised by and not prepared for a request limited to the use of the tubing.

(ii) Inventive step

D1 would not be consulted by the skilled person when considering the use of tubing in heat exchangers since this document deals with flexible hoses for hydraulic systems; heat exchangers are not mentioned. Further, the hoses disclosed in D1 are not suitable for use in heat exchangers since all the embodiments comprise some form of sheathing to limit bending, something which would detract from heat exchange performance.

D3, which now must be considered as the most relevant prior art, does not disclose or suggest the use of a bundle of individual metal tubes in a heat exchanger, but rather an extruded flat tube comprising channels for carrying the refrigerant. Such an arrangement is not flexible in the sense of the patent and is more difficult to manufacture.

Reasons for the decision

1. The appeal is admissible

2. *Admissibility of the respondent's request*
 - 2.1 The respondent's sole request was admitted by the Board into the proceedings. Although only filed during the oral proceedings, the sole request corresponds to the use claims 10 and 11 as granted. Under these circumstances, the Board considers that the appellant could be expected to be able to deal with the new request.

3. *Inventive step*
 - 3.1 Independent claims 1 and 2 specify the use of tubing comprising a flexible bundle of metal capillary tubes for carrying refrigerant in a heat exchanger or a gas cooler respectively.

 - 3.2 Therefore, the most relevant prior art is D3 since this is the only cited document to deal with the tubing for carrying refrigerant in heat-exchangers. This document describes:

"...the use of a tubing for carrying a refrigerant in a vehicle air-conditioning system wherein the tubing comprises a metal tube with capillary channels wherein each of the capillary channels has an internal diameter in the range of 1.0 to 4.0mm inclusive in a heat exchanger."

- 3.3 The subject-matter of claims 1 and 2 differ therefrom in at least by the use of a flexible bundle of metal capillary tubes instead of a metal tube with capillary channels formed therein.
- 3.4 These features solve the objective problem of making the tubing more flexible and easier to manufacture.
- 3.5 D1 describes similar tubing used in carrying a high pressure fluid comprising a flexible bundle of metal tubes (12 - see page 2, lines 17 to 26).
- 3.6 However, the skilled person, whether a specialist in tubing design, heat-exchanger technology or automobile air conditioning systems, would not consult D1 when tackling the above problem and considering means for carrying refrigerant in a heat exchanger since this document deals with flexible hoses in general and in particular those for hydraulic systems; heat exchangers are not mentioned at all. Further, the hose embodiments explicitly disclosed in D1 are not suitable for use in heat exchangers since all comprise some form of sheathing to limit bending, something which would detract from heat exchange performance.
- 3.7 Thus, combining D3, which deals specifically with the design of flat-tubes for heat-exchangers, with either D1 or D2, which deal with flexible tubing in general and in particular for aircraft hydraulics (D1) or in "snakes" for beverage delivery (D2), is only possible with the benefit of hindsight.

3.8 Hence, the subject-matter of claims 1 and 2 according to the respondent's sole request involves an inventive step and meets the requirements of Article 56 EPC.

4. *Consequential amendment of the description*

4.1 The amendments to the claims made by the respondent require extensive adaptation of the description. In particular, the two embodiments shown in figures 1 and 2 no longer fall within the scope of the claims since they show a form of sheathing which is excluded in the application as originally filed and granted when the tubing is used in a heat exchanging situation.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of claims 1 and 2 according to the request filed during the oral proceedings after any necessary consequential adaptation of the description.

Registrar:

Chairman:

V. Commare

U. Krause