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**Datasheet for the decision  
of 16 December 2011**

**Case Number:** T 0013/08 - 3.2.04

**Application Number:** 01918088.4

**Publication Number:** 1267608

**IPC:** A01J 5/04, G01N 1/10,  
A01J 5/017

**Language of the proceedings:** EN

**Title of invention:**  
Milk sampling apparatus and method

**Patent Proprietor:**  
DeLaval Holding AB

**Opponent:**  
Octrooibureau Van der Lely N.V.

**Headword:**  
Milk sampler/DELAVAL

**Relevant legal provisions:**  
EPC Art. 54, 56

**Relevant legal provisions (EPC 1973):**  
-

**Keyword:**  
"Lack of inventive step (no - all requests)"

**Decisions cited:**  
-

**Catchword:**  
-



Case Number: T 0013/08 - 3.2.04

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.04  
of 16 December 2011

**Appellant:** Octrooibureau Van der Lely N.V.  
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**Respondent:** DeLaval Holding AB  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 21 November 2007  
rejecting the opposition filed against European  
patent No. 1267608 pursuant to Article 102(2)  
EPC 1973.

**Composition of the Board:**

**Chairman:** A. de Vries  
**Members:** P. Petti  
T. Bokor

## Summary of Facts and Submissions

I. The opposition division, by its decision dispatched on 21 November 2007, rejected the opposition filed against the European patent No. 1 267 608.

The opposition was filed against the patent as a whole and inter alia based on Article 100(a) together with Article 52(1), 54 and 56 EPC, having regard to documents EP-564 023 (D1) and US-A-4 140 018 (D2).

II. The opponent (hereinafter appellant) lodged an appeal against this decision on 20 December 2007 and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received on 28 March 2008.

During the appeal proceedings he submitted document EP-A-448 912 (D18).

III. Oral proceedings before the board were held on 16 December 2011.

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

V. The respondent (patent proprietor) requested that the appeal be dismissed (main request), or alternatively, the decision under appeal be set aside and the patent be maintained on the basis of either the first auxiliary request or the second auxiliary request, filed by his reply dated 4 November 2008, or on the basis of the third auxiliary request filed by letter dated 16 November 2011.

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

"A milk sampling apparatus for use with a processor controlled milking system (61), said apparatus comprising a cassette (7) wherein milk sample collecting elements (9) are placed, and at least one filling member (27) capable of being placed above a selected one of said milk sample collecting elements (9) by means of a positioning system, and capable of bringing a milk sample, representatively taken from milk yielded during the milking of an animal by means of said processor controlled milking system, into said selected one of said milk sample collecting elements (9), **characterized in that** said milk sampling apparatus further comprises processing means (33) arranged for two-way communication with said processor controlled milking system."

Claim 1 of the first auxiliary request adds to claim 1 of the main request the following final feature:

"and a sensor connected to said processing means (33), wherein said processing means (33) is arranged for sending an alarm signal to the processor controlled milking system (61) in dependence on the sensing of said sensor".

Claim 1 of the second auxiliary request adds to claim 1 of the main request the following final feature:

"and at least one sensor connected to said processing means (33), wherein said processing means (33) is

arranged for sending an alarm signal to the processor controlled milking system (61) in dependence on the sensing of said at least one sensor, the at least one sensor including a sensor arranged to sense a missing or erroneously placed sample tube and the alarm signal being a sample tube error signal, and/or a sensor arranged to sense a cover being loose and the alarm signal being a loose cover alarm message."

Claim 1 of the third auxiliary request, differs from claim 1 of the second auxiliary request, in that the feature that "the milk sampling apparatus further comprises processing means (33) arranged for two-way communication ..." now specifies that communication is "with **the processor of** said processor controlled milking system" (added emphasis indicates added text) as well as in that it, immediately following this feature, inserts the following additional features:

"the processing means (33) is capable of receiving an indication of said selected one of said milk sample collecting elements (9) from said processor controlled milking system and of controlling said positioning system to move said filling member (27) such that said filling member is positioned above said selected one of said milk sample collecting elements (9) in dependence on receiving such a signal,

the processing means is arranged to control the bringing of said milk sample, representatively taken from milk yielded during the milking of an animal by means of said processor controlled milking system, into said selected one of said milk sample collecting elements (9)".

VII. The appellant submitted inter alia that the subject-matter of claim 1 as granted did not involve an inventive step over document D1 in combination with document D2. He further submitted that the subject-matter of claim 1 of the first auxiliary request lacked inventive step over D1 in combination with either D2 or D2 and D18 and that the subject-matter of claim 1 of second and third auxiliary requests did not involve an inventive step over D1 in combination with D2 and D18.

VIII. The respondent essentially contested the appellant's arguments.

### **Reasons for the Decision**

1. The appeal is admissible.
2. *Admissibility of document D18*

This document was filed by the appellant's letter dated 1 July 2009 in reply to the respondent's letter dated 4 November 2008 by which first and second auxiliary requests were filed. Therefore, the board admitted this document into the proceedings since its filing represented a response of the appellant to the auxiliary requests filed by the respondent.

In this respect, it is also to be noted that the respondent did not object to the admission of D18 into the proceedings.

3. *Main request (claim 1): inventive step*

3.1 The closest prior art is disclosed in D1. This document discloses (see particularly Figures 3 to 5), a milk sampling apparatus (35) for use with a milking system controlled by a processor (15), said apparatus comprising a cassette ("rotary carrier" 49) in which milk sample collecting elements ("test tubes" 55) are placed, and at least one filling member ("injection member" 59), the cassette (49) being movable under said at least one filling member so that the filling member can be placed above a selected one of said milk sample collecting elements (55) by means of a positioning system, the filling member being capable of bringing a milk sample, representatively taken from milk yielded during the milking of an animals by means of said milking system, into said selected one of said milk sample collecting elements.

Furthermore, the positioning system of the milk sampling apparatus of D1 comprises a step motor (43) for moving the cassette (49) and an optical sensor (48) capable of reading the identification codes (47) associated with the sample collecting elements, wherein the optical sensor is capable of sending to the processor (15) a signal indicating the identification code of a sample collecting element and the processor (15) is capable of sending a control signal to the step motor (43) in order to place the filling member above a selected milk sample collecting element. Thus, the positioning system of this milk sampling apparatus is arranged for sending and receiving signals to and from the processor (15) of the milking system, which controls its operations.

3.1.1 However, the positioning system is not a "processing means arranged for two-way communication with the processor controlled milking system", as required by claim 1.

Here, "processing" is to be understood in its normal computing sense as operating on information or data by means of a program, so that "processing means" in claim 1 in fact designates a programmable processor. This follows in part from the term's context in the claim and in part from the patent specification, see e.g. paragraph [0023].

In D1, the set of stepper motor and optical sensor, which has no such programmable capabilities does not represent a processing means within the meaning of the patent.

In D1, it is stated that "the data of the sampled cow 2 are stored together with ... the identification code 47 associated with the relevant sample **in a memory of the computer 15** and in the memory unit 54" (column 8, lines 35 to 41; emphasis added). This statement certainly implies that the memory unit 54 receives data from the computer 15. However, D1 does not describe the memory unit as being capable of sending data to the computer.

3.2 The subject-matter of claim 1 thus differs from D1 in that the milk sampling apparatus comprises a processing means arranged in a two-way communication with the processor controlled milking system.



The milk sampling apparatus of D1 is connected to the processor (15) of the milking system, which controls not only the operations of the milking system but also those of the positioning system of the milk sampling apparatus, in so far as the processor (15) receives a signal from the optical sensor (48) and sends a signal to the step motor. In other words, if the milk sampling apparatus were not to be connected to the processor of a milking system, its positioning system would not work.

In D1 a central processor (15) in the milking system thus carries out all control and processing tasks, both those of the milking system itself and of the sampling apparatus.

- 3.3 The patent specification does not state expressly what effects or benefits are associated with having a separate processing means of the sampling apparatus that communicates with the milking system, nor what problem these features might address. Specification paragraphs [0006] to [0014] mention various problems and drawbacks of existing systems relating inter alia to different standards of cassettes and test tubes, inefficient use of space in the apparatus, non-flexible fixed paths, risk of mixing samples, but none of these are solved by the features of claim 1 (in any of its forms). Nonetheless, the inherent benefits of a distributed over a central processor scheme in the present context will be apparent to the skilled person. With a separate processing means in communication with the milking system some of the overall control and processing tasks are redistributed or delegated locally to the sampling apparatus. With local control and

processing capability the sampling apparatus operates more independently and need thus no longer rely on the central processor. This means, for example, that its location is no longer necessarily tied to that of the milking system; it could even operate as a stand-alone device.

The objective technical problem to be solved can then be formulated accordingly as how to realize a sampling apparatus as in D1 which operates more independently of the milking system and its central processor.

- 3.4 The distribution at local level of control and processing tasks is a well-known alternative to centrally organized systems. It is known in particular also in the field of sampling devices, see D2.

The sampling apparatus of D2 referred to as a programmable action sampling system (PASS) comprises a cassette (6), in which sample collecting elements (12) are placed, and a moveable filling member (18) capable of being moved above a selected one of the sample collecting elements (12) by means of a positioning system and capable of bringing a sample into said selected sample collecting element (see particularly Figures 1 and 2). The positioning system comprises control elements (such as X-drive and Y-drive) capable of moving the filling element (18) in two perpendicular directions (X and Y) and optical position sensors (122 and 54), wherein the first processing means (344) receives signals from optical position sensors (122 and 54) and sends signals to the control elements (X-drive and Y-drive). The processing means (344) of the sampling apparatus is in two-way communication with a

main or central processing means in the form of computer or calculator (340) via "IEEE 488" connecting bus (342), see in particular Figure 13. This main processing means controls via the bus (342) the entire system and the controller (344), see column 10, lines 9 to 27.

- 3.5 The skilled person confronted with the problem of realizing a more independently operable milk sampling apparatus would draw upon D2 to adopt a similar architecture with local processor in the sampling apparatus in two-way communication with an external main or central processor. He would then arrive at the milk sampling apparatus of claim 1 as granted without the exercise of inventive skill.
- 3.6 That the PASS sampling apparatus described in detail in D2 is specifically for use with a bacterial sample analyzer is of no import. In column 15, lines 34 to 43, D2 states that its teaching is not limited to that specific use, but that many other applications are contemplated. D2's teaching is thus more general than that of its detailed embodiment, and for this reason the skilled person would take it into consideration.
- 3.7 The respondent submitted that the claimed subject-matter involves an inventive step over D1 essentially because D2 cannot suggest to the skilled person to provide the milk sampling apparatus of D1 with an own processing means controlling the positioning system and being in two-way communication with the processor of the milking system because according to D2 (column 12, lines 42 to 44) the main processing means (340) is the heart of the system in so far as it "contains all

operating programs of the system and controls all test functions" and acts thus as a master controller. In other words, in D2 the main processing means (340) controls not only the bacterial analyser but also the sampling apparatus as indicated in column 10, lines 9 to 11 ("In the preferred embodiment, the sampler is controlled by a computer 340 ..."). Even if the skilled person were to combine D1 with D2, he would keep the main processing means (340) as a controller for the milk sampling apparatus without connecting it in a two-way communication with the processor controlled milking system.

The board cannot accept these arguments for the following reasons:

According to D2, "the calculator 340 [i.e. the main processing means] drives the PASS system [i.e. the sampling apparatus] through controller 344 [i.e. the processing means associated with the sampling apparatus], the controller supplying various drive and controlling signals to the PASS, such as ... X-drive, Y-drive ... ", and "the PASS supplies 'X' and 'Y' position information to the controller" (see column 13, lines 48 to 53 in conjunction with Figure 13; emphasis added). The controller of the sampling apparatus includes inter alia a "general purpose microcomputer element 344" and an interface ensuring a two-way communication with the calculator 340, i.e. main processing means (340), which controls inter alia the components of the bacterial analyser, such as a "Technicon sampler 303" and a "Technicon proportioning pump 300". Even if it were to be assumed that "calculator 340" and "general microcomputer element

344" communicate according to the master/slave model, the communication between these two processors would be a two-way communication allowing exchange of information. In this respect, it is observed that neither the claims nor the description of the patent exclude the possibility that the processor (59) of the milking system and that (33) of the milk sampling apparatus communicate between each other according to the master/slave model.

3.8 Therefore, the subject-matter of claim 1 of the main request lacks an inventive step (Article 56 EPC) over D1 in combination with D2.

4. *First auxiliary request (claim 1): inventive step*

4.1 The subject-matter of claim 1 of this request differs from the milk sampling apparatus of D1 by the further feature that the milk sampling apparatus also comprises "a sensor connected to said processing means (33), wherein said processing means (33) is arranged for sending an alarm signal to the processor controlled milking system (61) in dependence on the sensing of said sensor".

4.2 This feature addresses a second technical problem which can be seen as that of providing a milk sampling apparatus capable of notifying (an operator) of possible errors or malfunctions of the apparatus (see paragraph [0021] of the patent specification).

This second problem of notifying an alarm is not linked to the problem identified previously of realizing a more independent operable sampling apparatus capable of

working as a "stand-alone system". The respective solutions of these two partial problems can be assessed separately for inventive step.

- 4.3 As already explained above, starting from the milk sampling apparatus of D1, the skilled person confronted with the first technical problem would arrive with the aid of D2 at a milking apparatus provided with its own processing means which is in two-way communication with the processor of the milking system. Some of the tasks which in D1 are performed by the processor of the milking system will then be performed by the separate processing means.

D2 also suggests the idea of providing an alarm system in a system provided with a sampling apparatus as it proposes to program the system so as "to warn the operator of ... any detectable error or other system malfunctions, real or potential" (see column 11, lines 7 to 11).

- 4.4 The skilled person confronted with the second technical problem would again draw on D2 as a matter of course to provide the milk sampling apparatus of D1 with a warning system which comprises at least a sensor detecting a malfunction and is suitable for generating an alarm signal. By implementing such a warning system in the milk sampling apparatus of D1, the skilled person would necessarily have to choose how to distribute the tasks between the processing means of the sampling apparatus and the processor of the milking system. One of his obvious choices is to process the alarm signal locally in processing means of the milk sampling apparatus but to notify the alarm centrally

via the two-way communication and the milking system processor.

It is observed that the milk sampling apparatus of D1 is not only provided with an optical position sensor (48) but also with a further sensor (66) detecting the level of milk in sample collecting element (55). Said further sensor (66) is connected to processor (15) of the milking system and is arranged for sending a signal to the processor controlled milking system. Therefore, when the skilled person decides to provide the milk sampling apparatus with its own processing means in a two-way communication with the processor of the milking system he would not only connect any further sensor detecting a parameter of the sampling apparatus to processing means of the sampling apparatus but also arrange the processing means for sending the corresponding signal to the processor of the milking signal. In this way, the skilled person would arrive at the subject-matter of claim 1 of the first auxiliary request without exercising any inventive skill.

- 4.4.1 In this respect, the respondent essentially submitted that in D2 (column 11, lines 7 to 11) the statement concerning a warning system does not relate to the malfunctions of the sampling apparatus but to those of the bacterial analyser system which is controlled by the main processor (340) and thus the skilled person confronted with a problem concerning the sampling apparatus would not take this statement into consideration. Furthermore, even if the skilled person were to consider this statement, he would not connect a sensor generating an alarm signal to the processor of

the sampling apparatus but to the main processor of the system.

The board is unconvinced by this argument for the following reasons:

In D2 the suggestion to provide a warning system is unspecific to the source of error or malfunction and indeed covers any error of the entire analyser, with a pump 300 and a sampler 303, all *directly* controlled by the main computer 340, or of the sampling apparatus (PASS) controlled by the computer (340) *through the microprocessor* (344). The skilled person reading this statement would immediately realize that the detection of a malfunction concerning the sampling apparatus should be carried out by means of a sensor provided *in* the sampling apparatus and that the alarm signal generated by the sensor should be processed analogously as the signals produced by the position sensors of the sampling apparatus.

4.5 Therefore, the subject-matter of claim 1 of the first auxiliary request does not involve an inventive step (Article 56 EPC) over D1 in combination with D2.

5. *Second auxiliary request (claim 1): inventive step*

5.1 With respect to claim 1 of the first auxiliary request claim 1 of the second auxiliary request, other than allowing for more than one sensor, now specifies the particular sensor concerned, which may be a sensor arranged to sense a missing or erroneously placed tube, the alarm signal being a sample tube error signal,



and/or a sensor arranged to sense a cover being loose, the alarm signal being a loose alarm signal.

5.1.1 These features encompass three separate alternatives. The first of these alternatives concerns sensing an erroneously placed sample tube and producing a sample tube error signal.

5.2 These features represent further differences in addition to those previously discussed of the subject-matter of claim 1 of the second auxiliary request over D1.

These further differences allow the second problem above to be formulated more specifically as notifying (an operator) of a missing or erroneously placed sample tube.

As noted above, D2 may teach the general idea of sensing errors and generating a warning signal but it gives no specific examples.

5.3 Both the problem of missing and misplaced sample tubes as well as the claimed solution are already known in the filed of sampling. D18 discloses a sampling device for a bioreactor-fermenter including a sample storage container containing sample collecting elements shown at R in Figure 2. As described in column 4, lines 25 to 38, the sampling device comprises a sensor (61, 62) arranged for sensing a missing sample tube and for sending an alarm signal in dependence on the sensing of a missing tube.

5.4 Confronted with the problem of missing or misplaced tubes the skilled person will look towards D18 and, as a matter of course, adopt the arrangement described there for sensing that a tube is missing or misplaced and generating a warning signal. D18 does not provide any further detail as to how the warning signal is processed or routed. However, in applying D18's teaching to a sampling apparatus as in D1, which adopts in obvious manner the distributed architecture of D2 (see above), the skilled person will, also as a matter of obviousness, route the signal according to one of several obvious options available to him. As discussed above, this includes processing the signal locally but generating the warning centrally. In selecting that option he arrives at the subject-matter of claim 1 of the second auxiliary request without the exercise of inventive step.

5.5 Therefore, the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step (Article 56 EPC) over D1 in combination with D2 and D18.

6. *Third auxiliary request (claim 1): inventive step*

6.1 In D1 (see particularly column 8, line 36 to column 9, line 14), the identification codes (47) associated with the sample collecting elements are stored in a memory of the computer (15) of the milking system. When a sampled animal has to be sampled again, the computer (15) controls the positioning system of the sampling apparatus to move said cassette such that said filling member is positioned above said selected one of said milk sample collecting elements in dependence on such a signal as well as the bringing of the milk sample,

representatively taken from milk yielded during the milking of an animal by means of said processor controlled milking system, into a selected one of said milk sample collecting elements (see particularly column 8, line 36 to column 9, line 14).

6.2 In addition to the differences discussed previously, the subject-matter of claim 1 of this request then differs from the milk sampling apparatus of D1 by the further features that

- the processing means (33) is arranged in two-way communication **with the processor of** said processor controlled milking system;
- the signal concerning the indication of the selected milk sample collecting element is received **by the processing means of the milk sampling apparatus**, which is also arranged to control the positioning of the filling member above the selected milk sample collecting element and the bringing of the milk sample into said collecting element;
- the filling member is arranged **to be moved** above a selected milk sample collecting element.

6.3 The first two features define in more precise terms what the sampling apparatus processor communicates with and which tasks it is to carry out. Both features are already part of the distributed architecture taught in D2, see column 13, lines 46 to 52 and column 15, lines 19 to 25. According to this document (see particularly column 13, lines 46 to 52; column 15,

lines 19 to 25; Figure 13) the processing means (controller 344) of the sampling apparatus (incubator PASS), which is arranged in a two-way communication with the main computer (HP Calculator 340) by means of the IEEE 488 communication bus (342), receives from the computer (340) signals indicative of position of the selected milk sample collecting element ("X axis position request" and "Y axis position request") and is arranged to supply to the sampling apparatus various drive and control signals, such as "X DRIVE" and "Y DRIVE", for controlling the positioning of the filling member above the selected milk sample collecting element as well as "VACUUM on" and "CANNULA +/-" signals for bringing of the sample into said collecting element. The skilled person would adopt them without any ado when applying D2's teaching to a sampling apparatus as in D1 as discussed previously. Moreover, common sense dictates delegating tasks carried out locally to the local processor, i.e. positioning and filling control of the filling member in the sampling apparatus is best carried out by its processor. On the other hand, where actions between the milking system and the sampling apparatus need to be coordinated it is logical to carry this out centrally: e.g. the milking system should initiate sampling and issue individual milk sampling requests to the sampling apparatus, which then performs the sampling operations accordingly. The Board agrees that such an approach which applies common sense and logic is indeed "intelligent" as argued by the Respondent in reference to the patent specification, paragraph [0023]. Apart from the fact that the approach is already known from D2, the application of common sense and logic is however well within the skills and

ability of the skilled person and does not require any inventive insight on his part.

6.4 Moving the filling member relative to the cassette rather than vice versa as in D1 is a simple kinematic inversion. In any case, document D2 (see particularly Figure 1) discloses a sampling apparatus comprising a fixedly positioned cassette, in which the sample collecting elements are placed, and a filling member movable relative to the fixed cassette. Therefore, it would be obvious for the skilled person to modify the sampling apparatus of D1 in this manner based on general knowledge or on D2. Such an obvious modification is entirely independent of that involved in adopting a distributed architecture as in D2, see above.

6.5 Consequently the subject-matter of claim 1 of the third auxiliary request does not involve an inventive step (Article 56 EPC).

**Order**

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

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

The Registrar:

The Chairman:

G. Magouliotis

A. de Vries