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Case Number: T 2758/18 - 3.2.04

Application Number: 12176400.5

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IPC: A47L15/24

Language of the proceedings: EN

Title of invention:
Improved multistage rinsing module for tunnel dishwashers, and a tunnel dishwasher provided with such a module

Patent Proprietor:
Ali Group S.r.l.

Opponents:
WINTERHALTER GASTRONOM GMBH
Hobart GmbH

Headword:

Relevant legal provisions:
EPC Art. 83, 54, 56

Keyword:
Sufficiency of disclosure - (yes)
Novelty - (yes)
Inventive step - (yes)

Decisions cited:
T 0986/96, T 1188/00, T 0681/01, T 1408/04, T 2110/16

Catchword:

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Case Number: T 2758/18 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 9 June 2021

Appellant: (Opponent 1)	WINTERHALTER GASTRONOM GMBH Winterhalterstraße 2 - 12 88074 Meckenbeuren (DE)
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Respondent: (Patent Proprietor)	Ali Group S.r.l. Via Gobetti, 2/A 20063 Cernusco sul Naviglio (MI) (IT)
Representative:	Biallo, Dario Barzanò & Zanardo Milano S.p.A. Via Borgonuovo, 10 20121 Milano (IT)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 20 August 2018 concerning maintenance of the European Patent No. 2545839 in amended form.**

Composition of the Board:

Chairman	A. de Vries
Members:	J. Wright
	T. Bokor

Summary of Facts and Submissions

I. The appeals were filed by the appellant (opponent 1) and appellant (opponent 2) against the interlocutory decision of the opposition division finding that the patent in suit in an amended form according to the main request before the opposition division met the requirements of the EPC.

II. The opposition division decided that

(1) the patent disclosed the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, and

(2) the subject-matter of the claims as amended during the opposition proceedings was novel and involved an inventive step.

III. Oral proceedings were duly held per videoconference on 9 June 2021 before the Board.

IV. The appellants (opponents 1 and 2) request that the decision under appeal be set aside and that the patent be revoked.

The respondent (patent proprietor) requests that the appeals be dismissed. Additionally, they request the non-admission of documents E7-1 and E8-1, as well as non-admission of last submissions of the opponent 1 dated 20 April 2021.

V. The independent claims 1 and 9 of the main request (granted claims 1 and 10) read as follows:

"1. Multistage rinsing module (10) for tunnel dishwashers (100) of the type comprising in succession from upstream to downstream following the movement of the dishes three independent zones, respectively:
- a draining zone (11) of the dishes full of detergent supplied in said module (10),
- a pre-rinsing zone (12) of said drained dishes,
- a final rinsing zone (13) of said drained and pre-rinsed dishes; wherein
- said final rinsing zone (13) being provided with rinsing nozzles (14) for delivering net water (15) and a pre-rinsing tank (18) for exclusively collecting said net water (15) delivered by said rinsing nozzles (14);
- said pre-rinsing zone (12) being provided with pre-rinsing nozzles (16) for delivering a pre-rinsing solution (17) collected in said pre-rinsing tank (18) and a draining tank (21) for exclusively collecting said pre-rinsing solution (17) delivered by said pre-rinsing nozzles (16),
- said draining zone (11) being provided with draining nozzles (19) for delivering the draining solution (20) collected in a draining tank (21) and a discharge tank (31) for exclusively collecting said draining solution (20) delivered by said draining nozzles (19);
- said discharge tank (31) only being connected to the net (32) for discharging the discharge solution (30);
barrier elements (33, 34) being foreseen between said separation zones of said tanks (18, 21, 31);
said draining nozzles (19) being configured so as to deliver said draining solution (20) at a flow-rate and a speed that are greater with respect to the pre-rinsing solution (17) and to the net water (15) delivered by said pre-rinsing nozzles (16) and by said rinsing nozzles (14)".

"9. Tunnel dishwasher (100) comprising in succession from upstream to downstream following the movement of the dishes a pre-washing module (101), at least one washing module (102, 103) and a multistage rinsing module (10) according to any one of the previous claims."

VI. In the present decision, reference is made to the following documents:

D2-1 DE 41 00 164 C1
D3-2 DE 10 2004 030 003 A1
D4-2 EP 1 042 983 A1
D7-2 Merkblatt "Gewerbliches Geschirrspulen & Spulmaschinen" Arbeitsgemeinschaft Gewerbliches Geschirrspülen, Hagen, Germany, January 2008
D9-2 Merkblatt "Gewerbliches Geschirrspulen & Wasser" Arbeitsgemeinschaft Gewerbliches Geschirrspülen, Hagen, Germany, January 2008
D10-2 Merkblatt "Gewerbliches Geschirrspulen & Begriffe" Arbeitsgemeinschaft Gewerbliches Geschirrspülen, Hagen, Germany, January 2008
E3-1 WO 2006/081914 A1
E4-1 WO 2009/092404 A1
E7-1 WO 2011/062790 A2
E8-1 WO 2012/020392 A2

VII. The appellant-opponents' arguments can be summarised as follows:

The last feature of granted claim 1, is to be interpreted broadly. It includes the possibility that the flow-rate and speed referred to there are parameters of the whole draining zone compared to other zones.

According to this broad interpretation the invention is impossible to carry out because it contradicts the fact that overall flow-rate in each zone must be the same. Also when this feature is interpreted more narrowly, the invention according to claims 1 and 9 is insufficiently disclosed.

The subject matter of claim 1 is not novel with respect to D2-1 and D4-2. Moreover, it lacks inventive step starting from D2-1 with the skilled person's general knowledge or with D3-2, or starting from D4-2, E3-1 or E4-1.

VIII. The respondent proprietor's arguments can be summarised as follows:

The skilled person understands that flow-rate and speed in the last claim feature relates to the jets from individual nozzles as is evident from the description.

The invention is sufficiently disclosed. It is new and inventive with respect to the cited prior art.

Reasons for the Decision

1. The appeals are admissible.

2. Background

The invention concerns a multistage rinsing module for tunnel dishwashers and a tunnel dishwasher that is provided with such a module (see published patent specification, paragraph [0001] and granted claims 1 and 10). A tunnel dishwasher is one in which dishes are transported through a tunnel [made up of a succession of modules] in which the dishes are subjected to

different operations (see published patent specification, paragraph [0005]). A rinsing module rinses dishes that have been washed.

3. Main request, claim 1, interpretation of the last claim feature

3.1 In accordance with established jurisprudence (see Case Law of the Boards of Appeal, 9th edition, 2019 (CLBA), II.A.6.1) the skilled person should try, with synthetical propensity, i.e. building up rather than tearing down, to arrive at an interpretation of the claim which is technically sensible and takes into account the whole disclosure of the patent. Moreover, when considering a claim, the skilled person should rule out interpretations which are illogical or which do not make technical sense (see for example T 0190/99, reasons 2.4).

3.2 Furthermore, when faced with an ambiguity in the claim wording, the skilled person, who is intent on making technical sense of the claims, will look to the entire specification (description, drawings and claims) to interpret the feature in a technically meaningful way.

3.3 The last claim feature, which the parties have referred to as M1-10, reads as follows: "*said draining nozzles being configured so as to deliver said draining solution at a flowrate and a speed that are greater with respect to the pre-rinsing solution and to the net water (15) delivered by said pre-rinsing nozzles and by said rinsing nozzles*".

3.4 Interpreting this feature warrants particular attention because it plays a pivotal role in the present decision. The appellant-opponents have argued that the

wording and clear linguistic structure of feature M1-10 defines the relative speed and flow-rate of the *total* flow of draining solution in the draining zone to be greater than in the other zones. They argue that the feature, being clear, cannot be interpreted differently in the light of the description. However, they also argue that, according to this interpretation, the claimed subject matter is contrary to physical laws, since the only water input to the system is in the final rinse zone and this is cascaded backwards to the pre-rinse and then the draining zone. Therefore, so they conclude, it is physically impossible for (total) flow-rate in the draining zone to be greater than in the other zones.

3.5 In the Board's view, feature M1-10 is not ideally formulated. In particular, whilst a *plurality* of draining nozzles are defined, these deliver *draining solution* in the singular, having a greater flow-rate and speed with respect to the pre-rinsing solution and net water (again in the singular) delivered by the nozzles in the other zones. Therefore rather than the linguistic structure of the feature having a clear single meaning, it is ambiguous whether the flow-rate and speed of draining solution relates to the *total* draining solution delivered in the draining zone or alternatively to that delivered by *individual* draining nozzles.

3.6 The Board agrees with the appellant opponents that, if the feature were to be read as defining *total* draining solution flow-rate, then it would define the physically impossible, when read in its claim context.

Whilst it may be true that the tanks would offer some buffering of fluid in the system as the respondent-

proprietor has argued, the claim also defines that the tanks of the respective zones *exclusively* collect fluid delivered by nozzles in that zone. Since, furthermore, the claim defines that this fluid is cascaded from zone to zone until it reaches the draining zone it would indeed appear not to be possible for the total flow-rate in the zones to be different over time.

Therefore, interpreting feature M1-10 as defining the total flow-rate and speed through the draining zone to be greater than in the other zones would be technically illogical.

3.7 Applying the approach outlined above, the skilled person would exclude this interpretation (total flow-rate/speed) from the possible interpretations for being technically illogical in its claim context, even though, from a purely linguistic point of view it might make sense when the feature is read in isolation. This exclusion is therefore consistent with established jurisprudence (see CLBA, II.A.6.1, for example T 2110/16, reasons 2. 3.12 and T 1408/04, reasons 1, page 16, last paragraph) which emphasises that *only* technically illogical interpretations should be excluded.

3.8 This leaves solely the technically logical alternative interpretation (the claimed flow-rate and speed are the parameters of individual nozzles).

3.9 The description, which the skilled person will also consult to resolve any ambiguity, confirms that the latter interpretation is correct.

3.9.1 The draining nozzles are first introduced in paragraph [0033] as nozzles delivering draining solution

(references are to the published patent specification). The next paragraph explains that these nozzles are *configured so as to create a jet having speed, flow-rate, nebulization characteristics such as to generate the drawing of water with detergent present on the dishes* [...].

3.9.2 In the Board's view, whilst this paragraph speaks of a plurality of nozzles creating a jet in the singular, the skilled person will immediately realise that each nozzle produces a single jet. Therefore, here the speed and flow-rate (being those of a jet) are parameters associated with an individual nozzle.

3.9.3 Later paragraphs ([0040] to [0043]) give more details of the draining zone. In particular, paragraph [0041] explains that the draining nozzles 19 [produce] *an actual mechanical action that forces the draining through jets of solution at high speed and flow-rate*. Thus, here again, it is emphasised that the draining action of the invention is achieved by the high speed and flow-rate *of the jets* of solution, thus the high flow-rate/speed parameters delivered by individual nozzles, not the overall flow-rate and speed of draining solution in the draining zone.

In this context the skilled person reads the next paragraph, [0042], which almost mirrors the claim wording with regard to flow-rate: *In fact the flow-rate delivered by the draining nozzles 19 is greater than that of the remaining nozzles 16* [pre-rinse] *and 14* [final rinse].

3.9.4 Therefore, also in the light of the description, the skilled person understands the flow-rate/speed parameters defined in the last claim feature to be

those of the individual nozzles. This interpretation merely resolves an ambiguity. Therefore, it does not read into the claim an implicit restrictive feature not suggested by the explicit wording of the claim (cf. T 0681/01, headnote). Expressed differently, it does not introduce an *aliud*, that is a new meaning, as the appellant-opponents have argued.

3.10 Feature M1-10 also requires the draining nozzles to be configured to achieve the claimed flow-rate and speed in the draining zone. In the Board's view, the term *configured* expresses more than merely *suitable for*. The usual meaning of *to configure* (see for example Merriam-Webster on line dictionary) is *to set up for operation especially in a particular way*. Thus, feature M1-10 requires the *draining nozzles* themselves to be set up in a particular way to achieve the defined effect.

3.11 It follows from all of the above that the feature M1-10 must be interpreted to mean the draining nozzles themselves are set up in a particular way so as to deliver the draining solution at a flow-rate and a speed through the individual draining nozzles that are greater with respect to the pre-rinsing solution and to the net water (15) delivered by the individual pre-rinsing and rinsing nozzles.

4. Claim 1, sufficiency of disclosure

4.1 Article 83 EPC requires that the European patent application (in this case the patent) shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. According to established jurisprudence, an invention is sufficiently disclosed if it can be performed by a person skilled in the art in the whole

area claimed, using common general knowledge and taking into account further information given in the description of the patent or patent application, see CLBA II.C. 1.

4.2 The impugned decision (see reasons, section 5) held that the skilled person was able to perform the last feature of granted claim 1 (M1-10). The Board agrees.

4.3 The Board first notes that this question must be considered from the point of view of the skilled person who is armed with the above interpretation (draining nozzles set up in a particular way so as to deliver the draining solution at a flow-rate and a speed through the individual draining nozzles greater than for the other nozzles).

In the light of this interpretation, the appellant-opponents' objections that the invention cannot be carried out based on a different interpretation of feature M1-10 (*total* flow-rate/speed in the draining zone greater than in other zones) are moot.

4.4 The skilled person, here a mechanical engineer specialised in dishwashers and thus with knowledge of fluid dynamics, will be well aware of the factors effecting the flow-rate and speed of liquid through a nozzle. The appellant-opponent 2 has argued that these are the differential pressure across the nozzle and the cross-sectional dimensions of the narrowest part of the nozzle. This has not been disputed.

Only the latter (nozzle's narrowest cross section) is a factor belonging to the configuration of the nozzle. The former (pressure differential) is determined by factors external to the nozzle such as the selection of

a pump delivering liquid to a nozzle with a particular pressure. In the Board's view, although it is true that the whole rinsing module has different elements which must all be suitably configured to work together to rinse dishes, a factor external to the nozzles, such as the pump selected, how much solution is buffered in the various tanks and how long the dishwasher might be operated each day is not part of the *configuration*, in other words the *setup,* of the nozzles.

4.5 In the Board's view, the only remaining factor that would effect flow-rate/speed as claimed and which belongs to the configuration of the nozzles, is their number.

4.6 It is true (cf. impugned decision, point 5.3) that the patent does not disclose examples of nozzle configurations such as dimensions and numbers of nozzles. Whilst nozzles are shown in figures 3 and 4 of the patent specification, these figures are purely schematic (see published patent specification, paragraph [0014]), so can give no details of an actual nozzle configuration. However, as already noted, where sufficiency of disclosure is concerned the common general knowledge of the skilled person must be considered.

4.7 In the Board's view, since the claim implicitly requires that the overall flow-rate through each zone is the same, at least over time, the skilled person would be able, from their general knowledge, to select the two nozzle configuration factors effecting flow-rate and speed (dimensions and number) in order to carry out the invention. For example, they could provide fewer suitably dimensioned draining nozzles compared to the number of pre-rinsing nozzles and

rinsing nozzles to achieve a greater flow-rate and speed from the former.

4.8 Moreover, since both flow-rate and speed of a fluid at a draining nozzle are measurable parameters, the skilled person would know when they had achieved a result as claimed, however complex the dynamics of a fluid might be once it forms into drops on leaving a nozzle (cf. appellant-opponent 2's grounds of appeal, sections 2.8 and 2.9).

4.9 Therefore, the Board considers that the skilled person would be able to perform feature M1-10.

4.10 Further written objections regarding sufficiency of disclosure

4.10.1 In its communication in preparation for the oral proceedings, the Board gave a preliminary opinion on the remaining arguments of the opponents' objections as to why the invention according to claim 1 could not be carried out. Likewise, an opinion on the arguments pertaining to claim 9 were given. In particular the Board stated the following:

3.3 The appellant-opponent 1 argues that the skilled person would not know what is meant by the rinsing module comprising three independent zones. This argument appears to the Board to, at most, call into question the clarity of the claim, rather than its insufficiency of disclosure.

3.3.1 In this regard, the patent (see published patent specification, paragraphs [0026] to [0028]) explains what these zones are and with what they are provided, they are also depicted in figure 3. Paragraph [0038]

goes on to explain how they are to be made independent of each other with barriers. Therefore, the Board has no doubt that the skilled person would be able to carry out this aspect of the invention, whether or not paragraph [0037] might seem unclear or contradictory in other aspects as the appellant-opponent 1 argues (cf. appeal grounds, page 10).

3.4 By the same token, the Board considers that the skilled person would be able to carry out the feature of the various tanks "exclusively collecting" respective fluids. In this respect, in order to carry out the invention, the skilled person approaches the claim wording with their mind willing to understand and reads its terms reasonably, with a practical mindset that is based on everyday experience and practical feasibility. Thus, to carry out the invention they need only exclusively collect solutions in the various tanks to the extent that this is practically feasible. Thus, that the patent might not teach how to prevent drops of solution sprayed on dishes in one zone from possibly belatedly falling into the tank in another zone or that barriers between zones in the schematic figure 3 might appear as being too low to prevent the crossing of drops of solution between zones does not render the invention impossible to carry out. These are practical considerations reflecting on the effectiveness of a solution, not insurmountable technical hurdles that prevent the skilled person from realizing the claimed invention and its effects.

3.5 With regard to the optional feature of a "mobile pre-rinsing nozzle" (cf. published patent specification, paragraph [0047] and claim 4), the feature has been deleted from the description and claims of the main request. Therefore, the appellant-

opponent 1's argument that a lack of sufficiency of disclosure of claim 1 might arise from this feature appears to be moot.

4. Main request, claim 9, sufficiency of disclosure

4.1 Claim 9 defines a tunnel dishwasher having the multi-stage rinsing module as defined in previous claims.

4.2 The appellant-opponent 2 argues that the skilled person could not carry out the invention according to claim 9 because the patent only describes (prior art) pre-washing and washing modules that use solutions that have previously passed through the rinsing module whereas this is impossible because the claimed rinsing module has a discharge tank that discharges to the net (as waste water).

4.3 An example dishwasher as claimed in claim 9 is shown in figure 4. In the Board's view, the skilled person would know from their general knowledge how to supply the washing zones (see figure 4, zones 101, 102 and 103) with suitable wash solutions without using a solution already used in the rinsing module. Therefore, the Board is of the opinion that the invention according to claim 9 is sufficiently disclosed.

4.10.2 Neither in written proceedings (cf. opponent 1's reply to the communication of the Board), nor at the oral proceedings did the parties comment on these aspects of the communication. In the absence of any such comments, the Board sees no reason to deviate from its previous opinion on these points. In other words, the Board is left in no doubt that the skilled person would be able

to make a rinsing module having zones as claimed and incorporate it into a tunnel dishwasher.

4.11 From all of the above, the Board concludes that the appellant opponents' arguments with regard to insufficiency of disclosure of the invention (claims 1 and 9) are not convincing.

5. Main request, claim 1, novelty with respect to D4-2

5.1 The appellant opponent-2 argued in written proceedings that the subject matter of claim 1 lacked novelty with regard to D4-2 (see its grounds of appeal, pages 17 and 18).

5.2 In its communication in preparation for the oral proceedings, the Board commented on this issue, and gave its opinion that D4-2 did not take away novelty of claim 1. The Board wrote as follows:

6.1 Main request, claim 1, novelty and inventive step with respect to D4-2 (EP1042983A1)

6.1.1 D4-2 discloses a tunnel dishwasher (see abstract and figure 1). The washing zones of the dishwasher are followed by a rinsing module (Nachspülung). In the Board's view, the rinsing module appears only to have one zone with one associated tank 6 and not separate draining zone, pre-rinse zone and final rinse zones with respective tanks as claimed.

6.1.2 In this respect the appellant-opponent 2 appears to argue that the zones associated with tanks 12, 13 and 14 are part of the rinsing module. The Board disagrees. These are rather described as pre-cleaning and washing zones. Moreover, none of these tanks

exclusively collect fluid from the zone where they are located (cf. claim 1) because liquid also overflows from successive tanks (see sentence bridging columns 7 and 8 with figure 1, guide-plates 9, 10 and 11).

6.1.3 Therefore, D4-2 appears not to take away novelty of claim 1.

5.3 Following the communication, the appellant-opponents made no comment on this issue in writing. At the oral proceedings before the Board, the appellant-opponent 2's only comment was to refer the Board to its written submissions, which the Board had already considered in arriving at its provisional opinion. In view of the above, the Board sees no reason to deviate from its preliminary opinion on this issue.

5.4 Therefore, the Board concludes that the subject matter of claim 1 is new with respect to D4-2.

6. Main request, claim 1, novelty with respect to D2-1

6.1 D2-1 discloses (see figure 1 and column 3, lines 44 to 65 with figure 1) a tunnel dishwasher with three independent zones through which dishes sequentially pass.

6.2 Each zone has respective nozzles (Düsen) for delivering water/solution to that zone and a collection tank 11 for exclusively collecting solution delivered in that zone: a zone 5 (Reiniger-Umwälzzone 5), in which solution implicitly drains off the dishes (if this were not so it would not collect in the underlying tank 11). Thus zone 5 is a draining zone. This is followed by an [intermediate] zone 6/7 (Klarwaschzone 6 / Klarspülzone 7) and a final rinse zone (Frischwasser Klarspülzone

8). The nozzles in the latter zone deliver water from the [fresh water] net 16. The nozzles in the other two zones deliver water collected in the tank of the adjacent downstream zone (in the direction of travel of the dishes). Solution collected in the draining zone 5 is discharged (see line 5a) to the [used water] net 15.

6.3 Whether or not D2-1's (Reiniger-Umwälzzone) draining zone 5 is a draining zone *of dishes full of detergent* as claimed, and whether or not its [intermediate] zone 6/7 can be considered to be a *pre-rinsing* zone, D2-1's underlying structure (fresh water being input at a final rinse zone 8 and cascaded back via an intermediate zone to be discharged from a draining zone 5) corresponds to that of the claimed multistage rinsing module.

6.4 However, in the Board's view, D2-1 does not disclose the last claim feature (M1-10).

6.5 In the light of the Board's interpretation of the feature (the draining nozzles themselves are set up in a particular way to achieve the claimed flow-rate/speed through individual nozzles), the appellant-opponents' argument that any nozzles (including those of D2-1) would anticipate the claimed nozzles because they would be suitable for supplying a solution at the rate and speed claimed (if suitably driven), is moot.

6.6 D2-1 gives no information about flow-rate and speed of solution through the various nozzles, let alone that these parameters should be greatest in the draining zone. Nor has this been argued. At most, D2-1 merely discloses (see column 3, lines 10 to 12) that nozzles in each zone are arranged on upper and lower bars.

6.7 Therefore, at least for this reason, the subject matter of claim 1 is new with respect to D2-1.

7. Main request, claim 1, inventive step starting from D2-1

7.1 It follows from the discussion of novelty that the subject matter of claim 1 differs from D2-1 at least in feature M1-10 (as summarised by the Board: draining nozzles configured to deliver draining solution at a greater flow-rate and a speed than nozzles in the other zones).

7.2 Applying the problem solution approach, the Board must first identify the technical effect of the invention.

7.3 The Board agrees with the appellant-opponents that the skilled person will be well aware from their general knowledge that, amongst other factors, mechanical cleaning by jets of water/solution effect a dishwasher-rinsing module's cleaning result (see D7-2, page 4, points 3, 3.1) and that water is the basis of such machine dishwashing (see D9-2, page 2, first paragraph and D10-2, page 10, left hand column, penultimate paragraph).

7.4 In the light of this, the admittance of documents E7-1 and E8-2, which should also demonstrate the same (cf. appellant-opponent 1's appeal grounds, pages 16 and 17), can be left undecided.

7.5 The Board also agrees with the appellant-opponents that, in a dishwasher, the rinsing process involves not only removing detergent but also dirt (see D7-2, points 2.3). Moreover, the Board finds it plausible that the skilled person, here a mechanical engineer working in

dishwasher development, knows from their general knowledge and everyday experience that a solution being delivered at a higher flow-rate and speed will more effectively remove whatever is on the dishes, be this detergent or food deposits. In other words, the higher the flow-rate/speed, the greater the cleaning effect. It follows that the technical effect of the invention is a more intense cleaning action of the draining nozzles compared to the nozzles in the other zones.

7.6 Formulating the objective technical problem

7.6.1 In accordance with established jurisprudence (see CLBA, I.D.4.3.2), an objective technical problem should normally start from the problem described in the patent. If, however, examination shows, amongst other things, that the problem is formulated with respect to inappropriate prior art, then it is necessary to investigate what other problem objectively exists.

7.6.2 Moreover, the technical problem addressed by an invention has to be formulated in such a way that it does not contain pointers to the solution or partially anticipate the solution, since including part of a solution offered by an invention in the statement of the problem necessarily results in an *ex post facto* view being taken of inventive step when the state of the art was assessed in terms of that problem. See for example, T 0986/96, reasons 3.1.4. It must also be considered whether the problem formulated achieves the effect over the whole range claimed (cf. CLBA I.D. 4.4.1, and for example T 1188/00, reasons 4.5).

7.6.3 In the present case, the opposition division (see impugned decision, II.7.3 with reference to the published patent specification, paragraphs [0034] and

[0041]) found that the differing feature increased the draining effect in the draining zone. From this, it concluded that the problem formulated in the patent (see paragraph [0022]) was solved: decreasing consumption of net water without jeopardising washing cycle efficiency. The Board disagrees with this finding and conclusion.

7.6.4 Paragraph [0034] explains that using nozzles increases a draining effect compared to (prior art) gravity draining with no nozzles. However, D2-1 discloses a draining zone having nozzles. Similarly, paragraph [0041] compares the action of draining nozzles that do not use recirculated water from the draining tank to a prior art recirculating arrangement (cf. foregoing paragraphs [0038] to [0040]). However this non-recirculated feature is also known from D2-1. Nor does the Board see how the claimed higher flow-rate/speed through the draining nozzles might save water. Therefore, in the present case, a less ambitious problem must be formulated.

7.6.5 The appellant-opponents have argued that, based on the differing feature (M1-10), the objective technical problem can be formulated as how to improve mechanical cleaning in the draining zone compared to the other zones. The Board also disagrees with this formulation. As already explained, the problem may not have pointers to the solution. By including the idea of greater cleaning in the one zone compared to the others, this formulation at least implies modification of the draining zone compared to the other zones and thus points to the claimed solution. Therefore it must be rejected.

7.6.6 In the Board's view, the more intense cleaning action of the draining nozzles in the draining zone means that dishes will be transported into the subsequent zones in a cleaner state, thus improving the cleaning process in the rinsing module overall. Therefore, in the Board's view, the objective technical problem can be formulated as: how to modify the arrangement of D2-1 to improve overall cleaning performance. This formulation does not contain pointers to the solution.

7.6.7 In this regard, the Board is not convinced by the appellant-opponents' argument that the problem is not solved by the invention over the whole ranged claimed. Whether the invention solves the objective technical problem must be considered from the point of view of comparing like for like. In the present case, the feature of different flow-rate/speeds in the different zones must be considered compared to where this is not the case, whilst everything else stays the same. Therefore, although it might be that some hypothetical embodiment could clean worse than a hypothetical non-embodiment, for example when overall flow-rate in each zone of the latter was higher compared to the former, this is not to compare like for like but to hypothetically change other parameters. Therefore, the hypothesis has no relevance for considering whether the invention solves the objective technical problem over the claimed range. Nor does the Board see any other reason as to why the problem would not be solved over the whole range of the claim.

7.7 In the light of the objective technical problem developed above (improving overall cleaning performance), it must be considered whether the claimed solution is obvious in the light of the prior art.

7.7.1 The appellant-opponents have argued that, in applying their general knowledge to solve this problem, the skilled person would arrive at the subject matter of claim 1. They argue that, because the skilled person also knows that a higher flow-rate and speed of a solution coming from a nozzle the more powerful its cleaning effect will be and that the dirtiest stage will be the draining zone, it would be obvious for the skilled person to modify the arrangement of D2-1 by taking the step of stronger mechanical cleaning in this zone, in order to solve the objective technical problem. Therefore, so the argument goes, the skilled person would arrive at the subject matter of claim 1 as a matter of obviousness. The Board disagrees.

7.7.2 It stands to reason that dishes in D2-1's draining zone 5 will have the most dirt; however, it appears not to be where they have the most detergent, which also needs to be removed in the rinsing process. Rather, this is added by a line 17 directly into the intermediate zone 7 (see column 3, lines 49 to 53 with figure 1). Thus it is ambiguous as to which zone, if any, the skilled person might want to focus their efforts when presented with the problem of improving cleaning overall.

7.7.3 Moreover, whilst the Board agrees with the appellants that the skilled person would know of the importance of flow-rate and speed of solution to achieve a good cleaning effect, the Board is unconvinced that it would be common general knowledge in the field to more intensely clean in zones located higher upstream in a cascaded multi-zoned rinsing module.

7.7.4 Otherwise, the Board considers increasing the relative flow-rate/speed of solution leaving the draining nozzles not to be obvious for the skilled person. This

is all the more true, since intensity of fluid flow appears to be just one of several factors effecting cleaning (see D7-2, page 4, section 3), so there may be many ways in which overall cleaning could be improved.

7.8 To sum up, the arguments of the appellant-opponents have not convinced the Board that the opposition division was wrong to conclude (see impugned decision, reasons 7.4) that the combination of D2-1 and the skilled person's general knowledge does not take away inventive step of claim 1.

8. Main request, claim 1, inventive step starting from D2-1 with D3-2

8.1 Without prejudice to the admissibility of this argument, first made with the appellant-opponent 1's letter of 20 April 2021 (see pages 11 and 12), the Board finds it not convincing.

8.2 D3-2 discloses a tunnel dishwasher (see abstract and paragraph [0015]). In the Board's view, like D2-1, D3-2 does not disclose feature M1-10 (higher flow-rate and speed in draining nozzles). Therefore, however obvious the combination of D2-1 and D3-2 might be, it would not lead the skilled person to the subject matter of claim 1.

8.3 At most, D3-2 teaches (see paragraph [0021]) that the *amount* of solution used in an upstream hot rinse stage should be higher than that in the final (Klarspülen) rinse stage. Therefore, whatever paragraph [0080] might say about flow-rate from its final stage nozzles being relatively low, this is not in the context of an arrangement where solution is cascaded back. Nor does the paragraph disclose relative to what flow-rate might

be low, let alone specify flow-rate relative to nozzles in other zones. Moreover, D3-2 says nothing about the speed of solution through any nozzles.

9. Main request, claim 1, inventive step starting from E3-1 or E4-1

9.1 In its communication in preparation for the oral proceedings, the Board gave a preliminary opinion on these issues. In particular the Board stated the following:

6.2 Main request, claim 1 starting from E3-1 (WO2006/081914A) or E4-1 (WO2009/092404A1)

6.2.1 As has already been explained, the Board sees the last feature of claim 1 (configuration of the draining nozzles) as limiting the claim to particular arrangements/form of draining nozzles compared to nozzles in the other zones of the rinsing module and not merely as reciting a feature that all nozzles implicitly fulfil. Therefore, the appellant-opponent 1's argument that these documents disclose draining nozzles as claimed merely because they are nozzles (cf. appellant-opponent 1, appeal grounds, pages 3, 4 and the last row of respective tables on pages 22, 23 and 27) appears to be moot.

6.2.2 In the absence of any other argument of the appellants in this regard, the Board considers that (as with D2-1) neither E3-1 nor E4-1 discloses the last feature of claim 1.

6.2.3 This is not the sole differing feature for E3-1 and E4-1 (unlike D2-1). According to the appellant-opponent 1, each misses a further claim feature.

Therefore, they appear to be less relevant than D2-1. Put differently, if starting from D2-1 the subject matter of claim 1 is found to involve an inventive step, then the same conclusion is likely to be reached starting from E3-1 or E4-1.

9.2 Neither in writing nor at the oral proceedings did the parties comment on this opinion. Nor does the Board see any reason to deviate from it. Since, furthermore, the Board finds that claim 1 involves an inventive step when starting from D2-1, the Board finds the same starting from E3-1 or E4-1.

10. Main request, claim 1, inventive step starting from D4-2

The appellant-opponent 2's assertion that the subject matter of claim 1 lacks inventive step starting from D4-2 (see appeal grounds, penultimate page) has not been substantiated with arguments. Therefore, the Board will not take it into account, Articles 12(2) and 12(4) RPBA 2007.

11. From all of the above, the Board is of the opinion that the opposition division correctly concluded (see impugned decision, II.10) that the patent as amended according to the main request during the opposition proceedings, meets the requirements of the EPC. Therefore, the Board must dismiss the appeals.

Order

For these reasons it is decided that:

The appeals are dismissed.

The Registrar: The Chairman:

G. Magouliotis A. de Vries

Decision electronically authenticated