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**Datasheet for the decision  
of 28 February 2023**

**Case Number:** T 3280/19 - 3.2.03

**Application Number:** 09804262.5

**Publication Number:** 2370774

**IPC:** F28D9/00

**Language of the proceedings:** EN

**Title of invention:**  
Braze plate heat exchanger

**Patent Proprietor:**  
SWEP International AB

**Opponent:**  
Alfa Laval Corporate AB

**Headword:**

**Relevant legal provisions:**  
EPC Art. 100(a), 100(b), 100(c), 54, 56  
RPBA 2020 Art. 12(4), 12(6)

**Keyword:**

Sufficiency of disclosure - (yes)

Amendments - added subject-matter (no)

Novelty - (yes)

Inventive step - (yes)

Amendment to case - reasons for submitting amendment in appeal proceedings (no)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**

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**Case Number: T 3280/19 - 3.2.03**

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.03**  
**of 28 February 2023**

**Appellant:** Alfa Laval Corporate AB  
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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 21 October 2019  
rejecting the opposition filed against European  
patent No. 2370774 pursuant to Article 101(2)  
EPC.**

**Composition of the Board:**

**Chairwoman** D. Prietzel-Funk  
**Members:** B. Goers  
R. Baltanás y Jorge

## **Summary of Facts and Submissions**

- I. European patent 2 370 774 concerns a brazed plate heat exchanger.
- II. An opposition was filed against the patent based on the grounds under Article 100(c) EPC, Article 100(b) EPC and Article 100(a) EPC in conjunction with Articles 54 and 56 EPC. The Opposition Division decided to reject the opposition. That decision was appealed by the opponent ("appellant").
- III. At the end of the oral proceedings before the Board, the parties confirmed the following requests.
- The appellant requested that the decision under appeal be set aside and that the patent be revoked.
- The patent proprietor ("respondent") requested that the appeal be dismissed or, alternatively, that the patent be maintained in amended form on the basis of one of auxiliary requests 1 and 2 submitted with the reply to the statement setting out the grounds of appeal.
- IV. The following evidence relevant to this decision was cited in the opposition proceedings.

D1: WO 2006/110090 A1  
D2: GB 134,277 A  
D3: DE 199 39 264 A1  
D4: JP 2000-320986 A (and translation)  
D5: US 2004/134637 A1  
D6: GB 2 056 648 A  
D7: DE 197 22 074 A1  
D8: US 5,125,453 A

D9: JPS 61-89681 U (and translation)  
D10: US 7,007,749 B2  
D11: RU 2 137 076 C1 (and translation)  
D12: RU 2 366 879 C1 (and translation)  
D13: RU 2 059 186 C1 (and translation)

The following documents were filed with the statement setting out the grounds of appeal for the first time:

D14: WO 98/48230 A1  
D15: GB 2 026 676 A  
D16: DE 854 363 C

V. Claim 1 of the main request (patent as granted) reads as follows (amendments versus claim 1 as originally filed marked in bold and strike-through; feature numbering added in "[ ]"):

"[a] **A** brazed plate heat exchanger (100; 200) for exchanging heat between fluids,  
[b] the heat exchanger (100; 200) comprising a number of heat exchanging plates (110; 210) provided with a pressed pattern of ridges (120; 220) and grooves (130; 230),  
[c] said heat exchanger plates (110; 210) being stacked onto one another such that flow channels (211, 212) are formed between said plates (110; 210),  
[d] said flow channels (211, 212) being in selective communication with port openings (140, 240),  
[e] ~~characterized by~~ **wherein** port skirts (170; 250, 260) **are** arranged on the heat exchanging plates (**110; 210**),  
[f] said port skirts (**170; 250; 260**) at least partly surrounding the port openings (**140;240**)~~;~~ **and** extending in a generally perpendicular direction as compared to a plane of the heat exchanger plates (**110; 210**),

**characterized in that**

~~and being arranged to overlap one another.~~

**[g] the port skirts (170; 250; 260) are arranged such that a port skirt (170; 250; 260) of one heat exchanging plate (110; 210) overlaps port skirts (170; 250; 260) of neighbouring plates (110; 210) to form a pipe like configuration or a part thereof,**

**[h] wherein the port skirts (170; 250, 260) of neighbouring heat exchanging plates (110, 210) stacked onto one another all extend in the same direction."**

VI. The appellant's arguments relevant to the present decision can be summarised as follows.

(a) Main request - Sufficiency of disclosure

The subject-matter of claim 1 was not disclosed in a manner sufficiently clear and complete given the lack of information in the patent about the necessary overlap between the claimed port skirts.

(b) Main request - Added subject-matter

The subject-matter of claim 1 was unallowably extended beyond the application as filed. The added features were not disclosed for the option "part of a pipe-like configuration". Furthermore, the inclusion of features [g] and [h] constituted an unallowable intermediate generalisation since the following characteristics disclosed in context with the added features were omitted: openings provided in the port skirts, every other flow channel being in fluid communication with a port opening, each heat exchanger plate comprising a port skirt and being in mutual overlap with all neighbouring plates, the downward extension of the port

skirts and the further details of the embodiments of Figures 1 and 2.

(c) Admission of documents D14 to D16

Documents D14 to D16 should be admitted into the proceedings since special circumstances presented themselves. On the one hand D14 to D16 were very similar to the disclosure of D2 such that they allowed understanding the features of D2 in a clearer way and were thus *prima facie* relevant for the understanding of D2. On the other hand, D14 to D16 were *prima facie* relevant on their own for patentability of the main request and were thus suitable for addressing the issues which led to the decision under appeal.

D14 to D16 were filed under the previous RPBA and the related case law, under which *prima facie* relevance played an important role when deciding on admittance.

(d) Main request - Novelty

The heat exchanger disclosed in the embodiment shown in, *inter alia*, Figure 5 of D2 was novelty-destroying for the subject-matter of claim 1.

(e) Main request - Inventive step

The subject-matter of claim 1 was not inventive in view of the embodiments of Figures 5 or 6 of D1 as the starting point in combination with any of the teachings of D2 to D13. The sole distinguishing feature was feature [h]. However, an arrangement of port skirts according to features [g] and [h] was a known principle for the skilled person and was obvious in view of any of D2 to D13.

VII. The respondent's arguments relevant to the present decision can be summarised as follows.

(a) Main request - Sufficiency of disclosure

The subject-matter of claim 1 was disclosed in a manner sufficiently clear and complete. Furthermore, the new arguments filed for the first time with the statement setting out the grounds of appeal should not be admitted into the appeal proceedings.

(b) Main request - Added subject-matter

The subject-matter of claim 1 of the main request was not unallowably extended. The amendments made were mere clarifications which did not restrict the subject-matter of claim 1 as filed. Even if the amendments made were considered a restriction, these had sufficient basis in the embodiments of Figures 1 and 2.

(c) Admission of documents D14 to D16

Documents D14 to D16 and the objections based on them were submitted late without justifying circumstances being present and should not be admitted into the appeal proceedings. They were further *prima facie* not suitable for challenging the patentability of the subject-matter of claim 1.

(d) Main request - Novelty

D2 was not novelty destroying for claim 1. *Inter alia*, it disclosed neither a brazed heat exchanger nor a selective communication of port holes and flow channels.



(e) Main request - Inventive step

The subject-matter of claim 1 involved an inventive step. The arguments based on D9 and D10 brought forward by the appellant only during oral proceedings should not be considered under Article 13(2) RPBA 2020. None of the combinations of D1 with any of D2 to D8 rendered the subject-matter of claim 1 obvious.

## **Reasons for the Decision**

1. Since the statement of grounds of appeal and the reply were submitted after the date specified in Article 25(1) RPBA 2020, the transitional provisions of Article 25(2) RPBA 2020 do not apply to the case at hand.

2. Article 100(b) EPC

The patent discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

- 2.1 The appellant argued that the required extent of the claimed overlap was not disclosed in the patent. Furthermore, the term "overlap" did not require a contact between the port skirts of neighbouring heat exchanger plates in the area of overlap but it was not disclosed in the patent how a heat exchanger without contacting port skirts could be embodied.

This is not persuasive.

- 2.2 According to the usual technical understanding of a skilled person, an overlap of two skirts having a defined direction of extension (as in claim 1 according to feature [f]) is established along an axis parallel to their direction of extension, and not as well perpendicular thereto as suggested by the appellant. A skirt which is pointing with its end tip towards another skirt is thus not considered to form an overlap with this other skirt.

2.3 The appellant is correct in that the term "overlap" in general encompasses overlapping structures not being in physical contact. However, this is not the case for the term as used in the context of the features of claim 1. Claim 1 defines that a port skirt overlaps with port skirts of neighbouring heat exchanger plates **to form a pipe-like configuration or part thereof**. The skilled person would thus not consider a series of overlapping skirt sections forming gaps in between the skirts to form a pipe-like configuration as meant by feature [g].

Even assuming - for the sake of the argument - that the claim was ambiguous and the skilled person construed the claim in the light of the whole specification, this would not lead to a different conclusion. Paragraph [0019] of the specification clarifies that the overlap is in the form of a contact ("port skirts ... will contact, i. e. overlap"). Also, paragraph [0012] confirms this understanding ("contact one another to form a pipe"), and nothing else is shown in Figures 1 and 2.

To conclude, a contact of the skirts in the area of their overlap is implied by the features of claim 1 and thus forms part of its subject-matter.

2.4 As to the extent of the overlap, it is true that there is no restriction defined in the claim. As long as there is a lateral contact between skirts of neighbouring heat exchanger plates, this falls within the scope of the overlap defined by feature [g]. It might be difficult to decide in particular cases - e.g. with a very small overlap region - whether this still falls within the scope of the claim. However, this is an issue related to Article 84 EPC and not sufficiency of disclosure (see Case Law of the Boards of Appeal,

10th edition 2022, II.C.6.6.4). Thus, this is not open to be discussed in opposition proceedings, including the appeal proceedings (see G 3/14).

2.5 In view of this conclusion, the respondent's request not to admit new arguments filed for the first time in the appeal proceedings on the ground for opposition under Article 100(b) EPC can be left undecided.

3. Article 100(c) EPC

The subject-matter of claim 1 does not extend beyond the application as filed.

3.1 Contrary to the appellant's view, the fact that features [g] and [h] do not (necessarily) address all heat exchanger plates within the claimed heat exchanger is not an issue of added subject-matter.

3.1.1 It is undisputed that the overlap between a port skirt and the port skirts of neighbouring plates defined in feature [g] has a literal basis in the description of both embodiments of Figures 1 and 2 (see page 3, line 34 to page 4, line 2 and page 4, lines 26 to 28). It is also common ground that the "same direction" of the extension of the port skirts according to added feature [h] has - though not literally disclosed in the description - a basis in the embodiments shown in Figures 1 and 2.

3.1.2 Features [b] to [h] of claim 1 define certain heat exchanger plates. Since feature [b] is not limited to all heat exchanger plates of the heat exchanger claimed ("**comprising** a number of heat exchanger plates", emphasis added), features [b] to [h] are, *inter alia*,

directed to a sub-assembly of heat exchanger plates of the heat exchanger. According to feature [e], in this sub-assembly every heat exchanger plate has a port skirt which comprises the further features [f] to [h].

3.1.3 The characterising part of claim 1 defines that "the port skirts are arranged such ... to form a (part of a) pipe-like configuration" (feature [g]). This is achieved by overlaps of the port skirts or neighbouring heat exchanger plates ("to form a"). Even though the claim addressed here **a** port skirt, it is directly and unambiguously clear from the context that all "the port skirts" of the heat exchanger plates defined in claim 1 mutually overlap those of the neighbouring plates since otherwise they cannot form the claimed pipe-like configuration. This interpretation is further supported by feature [e], which defines that "port skirts are arranged on **the** heat exchange plates" (emphasis added). By use of the definite article for the heat exchanger plates, this wording is equivalent to "port skirts arranged on **each** of the heat exchange plates" of the sub-assembly of heat exchanger plates addressed in feature [b]. Thus, features [g] and [h] apply to all heat exchanging plates defined in claim 1.

3.1.4 Feature [b] - directed only to a sub-assembly of plates as demonstrated above - was already present in claim 1 as filed. Also Figures 1 and 2 show only sub-assemblies of heat exchanger plates and not a complete heat exchanger. Thus, contrary to the appellant's argument, the original disclosure did not require that features [g] and [h] apply to all heat exchanger plates within the claimed heat exchanger (i.e. including those not defined in claim 1) since they were originally disclosed only in connection with a sub-assembly of heat exchanging plates.

3.2 For the same reason also the appellant's argument that the added features [g] and [h] were not disclosed in combination with the option "to form **a part of** a pipe like configuration" is not persuasive. It is apparent to a skilled person that the port skirt(s) of the sub-assemblies of plates shown in Figures 1 and 2 require a further fluid connection (e.g. in the header plate) to extend or finalise the pipe-like structure formed by the skirts.

3.3 The appellant further argued that the inclusion of features [g] and [h] resulted in an unallowable intermediate generalisation. In its view, the following features were inextricably linked to the added features and were thus unallowably omitted.

(a) Both embodiments required **openings** in the port skirts.

(b) In both embodiments, **every other** flow channel was disclosed in fluid communication with a port opening.

(c) Both embodiments had further specific and different details (such as a uniform vs. changing overlap), all of which were omitted in claim 1.

(d) The specific "downward" extension direction of the port skirts disclosed in Figures 1 and 2 was also omitted.

This is also not persuasive.

3.3.1 Concerning point a)

The port openings are an implicit part of the subject-matter of claim 1.

As explained above, the wording "overlaps ... to form a [part of a] pipe like configuration" requires that the overlapping sections of the skirts also be in contact with each other. In view of this interpretation and the requirement of feature [d] that the flow channels be in selective fluid communication with the port openings in the port skirts, openings have to be provided in the skirts (such as the bores in Figure 1 or the cut-outs in Figure 2). The openings are therefore an implicit part of the subject-matter of claim 1.

### 3.3.2 Concerning point b)

Feature [d] requires "selective communication" between flow channels and port openings. Contrary to the appellant's view, this excludes configurations in which every flow channel is in fluid contact with every port opening. It is true that in Figures 1 and 2 this selective communication is embodied by providing fluid connection with every other flow channel. However, it is not a necessary requirement inextricably linked to the added features [g] and [h]. E.g. in the description of the embodiment of Figure 2, this is only described as a preferred configuration (see e.g. page 4, lines 22 to 25: "usually such that"). Therefore, the omission of this restriction does not constitute an unallowable intermediate generalisation.

### 3.3.3 Concerning point c)

While it is true that the embodiments of Figures 1 and 2 comprise further (partly different) details, it was not substantiated by the appellant why their omission constitutes an unallowable intermediate generalisation, i.e. why each of the details was inextricably linked to the invention that its omission resulted in subject-

matter which the skilled person could have not foreseen when reading the original disclosure.

3.3.4 Concerning point d)

The extension of the port skirts is not disclosed as being "downward" in the application as filed. A "downward" direction of the port skirts is not derivable from the embodiments of Figures 1 and 2 since their "absolute" direction depends on the orientation of the plates with regard to gravity, and this is not defined in the original disclosure.

4. Admittance of documents D14, D15 and D16

Documents D14 to D16 and the objections of lack of patentability based on these documents are not admitted into the appeal procedure under Articles 12(4) and (6) RPBA 2020.

4.1 Contrary to the allegations of the appellant, the statement of grounds of appeal did not benefit from the transitional provisions of the RPBA 2020 on the application of Article 12, paragraphs 2 to 6 RPBA 2020 (see point 1. above).

4.2 Documents D14 to D16 were submitted by the appellant for the first time with the statement setting out the grounds of appeal and are thus an amendment within the meaning of Article 12(4) RPBA 2020. Their admittance is thus subject to the discretion of the Board. Furthermore, these documents are used in support of further objections of lack of patentability against the main request, which is - as in the opposition proceedings - the patent as granted. For this reason



also the requirements of Article 12(6) RPBA 2020 are to be considered. Under these requirements, the Board shall not admit evidence and objections which should have been submitted in the proceedings leading to the decision under appeal unless the circumstances of the appeal case justify it.

This is, however, not the case.

- 4.3 The appellant argued that documents D14 to D16 were relevant for the understanding of D2.

However, it was not further substantiated which aspects of D2 were clarified in view of these disclosures. It was further not substantiated by the appellant or apparent from the appealed decision that there was any surprising development in the opposition proceedings, and in particular in the oral proceedings before the Opposition Division, that justified the submission of this new evidence.

- 4.4 Instead, the appellant raised new objections of lack of patentability based on D14 to D16 against the main request, which is still the patent as granted. These objections could and should have been raised already with the notice of opposition.

- 4.5 In addition - contrary to the view of the appellant - none of documents D14 to D16 is *prima facie* novelty-destroying for the subject-matter of claim 1 of the patent.

- 4.5.1 D14 does at least not disclose a plate heat exchanger which is brazed. Concerning methods for joining the heat exchanger plates, the only information provided in D14 is found on page 2, last paragraph: "joined

pressure-tightly to one another, for example by soldering". Undisputedly, it is common general knowledge that the terms "soldering" and "brazing" are not synonyms for the same process. Compared to soldering brazing is e.g. performed at higher temperatures and with other joining metals. The appellant's argument that the patent does not distinguish between brazing and soldering is not relevant since the patent always refers to brazing only, thus unambiguously referring to the specific process generally known in the art. Whether the term "soldering" in D14 was in fact intended to mean "brazing" is mere speculation and not a basis for a clear and unambiguous anticipation of feature [a] of claim 1.

4.5.2 The heat exchanger in D15 also at least does not disclose brazing as a manufacturing method (feature [a]). The only joining method for the heat exchanger parts mentioned in D15 is welding (see page 3, lines 1 to 16).

4.5.3 D16 does at least not disclose port openings with port skirts forming a pipe-like configuration by means of overlaps. Instead, in D16 the stacked heat exchanger plates form lateral side openings (7,8,9,10) which can be connected to flow channels arranged at the lateral sides of the stack (see Figures 1 and 2).

## 5. Novelty

The subject-matter of claim 1 is novel over the disclosure of D2. D2 does at least not disclose features [a] and [d].

5.1 Feature "brazed heat exchanger"

D2 discloses as a "principal object" not to use soldering as the method for connecting the elements of the heat exchanger, not mentioning brazing (see page 1, lines 19 to 24). While it is mentioned that the edges of the tubular elements may be jointed by soldering (and not by brazing, see point 4.5.1 above), this method is excluded for joining the elements together (see page 3, lines 39 to 42). Therefore, D2 does not disclose a brazed plate heat exchanger as required by feature [a].

5.2 Feature "flow channels in selective communication with port openings"

In D2, the flow channels formed by the skirts of the heat exchanger plates (A) comprise openings (A6) connected to any of the first set of flow channels (i.e. the closed vertical channels defined within the A elements) but to none of the second flow channels formed at the outside of the heat exchanger plates of the radiator (i.e. the open channels defined between each two A elements, where air flows). In other words, the port openings are only provided for a first fluid, while the second fluid is outside the radiator (see D2, Figure 1 or 7).

However, feature [d] requires that the flow channels formed between the plates (see feature [c]) be in "selective communication" with the port openings. The Board construes this feature - in line with the decision under appeal - such that any flow channel has to be in fluid contact with a given port opening. Therefore, the appellant's interpretation of feature [d] that the term "selective" encompasses also the

option that only any second flow channel is in connection with a port opening is not persuasive. The selective communication according to feature [d] defines - according to the usual technical understanding - an option of being connected to either one or the other port opening and not the option between "connection" and "no connection". Even if - for the sake of the argument - the term were considered ambiguous, the whole patent specification supports only the usual understanding (see e.g. paragraphs [0016] and [0022]). Thus, feature [d] is not disclosed in D2.

6. Inventive step

The subject-matter of claim 1 involves an inventive step.

6.1 In its statement of grounds of appeal the appellant has raised objections of lack of inventive step based on D1 as the starting point in combination with any of D2 to D13.

6.2 Objections based on D1 in combination with any of D2 to D8

6.2.1 Distinguishing features over D1

It is common ground that D1 discloses at least features [a] to [f] of claim 1 and does not disclose feature [h]. It was only contested by the respondent that feature [g] was disclosed in D1.

According to feature [g], the port skirts are arranged such that a port skirt of one heat exchanging plate overlaps with the port skirts of neighbouring plates,

i.e. with both, if present (the respective top and bottom plates can only form an overlap with one neighbouring plate). Furthermore, claim 1 clearly defines that the "port skirts" are only those parts of the plates "extending in a generally perpendicular direction as compared to a plane of the heat exchanger plates" (see feature [f]).

Although the appellant referred to paragraph [0014] of the patent specification to demonstrate the contrary, this is not convincing. Even though in the embodiment of Figure 1 of the contested patent an additional sealing surface 150 is specified in the plane of the heat exchanger plates, the port skirts in claim 1 are defined as the parts extending generally perpendicularly to the plates. Sealing surfaces in port skirts falling under this definition are also disclosed in the embodiments of the patent (see Figure 2 "sealing portion 280"). Furthermore, as outlined above (see point 2.1), feature [g] requires an overlap in the direction of extension of the port skirts.

Such a mutual overlap with the neighbouring port skirts ("collars 23") is not shown in Figures 5 and 6 of D1. Each skirt disclosed in Figure 6 of D1 overlaps **only with one** neighbouring skirt. In the embodiment of Figure 5 of D1, no overlap between the vertically extending port skirts is present at all. Even if - for the sake of the argument - the contact point or the projection of the vertically extending skirts in Figure 5 was considered an overlap by the skilled person, this overlap is formed only with one neighbouring skirt, contrary to the requirements of feature [g].

Accordingly, the embodiment of Figure 6 of D1 is the most promising starting point for the assessment of the

requirements of Article 56 EPC, and features [g] and [h] are the distinguishing features, as was also concluded in the decision under appeal.

#### 6.2.2 Objective technical problem

The appellant argued that feature [h] is not linked to a particular effect and does not contribute to solve the objective technical problem, since it was originally filed as an optional feature only. This is not persuasive. First, feature [h] is not the only distinguishing feature. Second, the effect of increased strength of the stack of heat exchanger plates due to the overlaps (with contact) of the port skirts extending in one direction when compared to the embodiment of Figure 6 in D1 is persuasive even in the absence of further supporting evidence. Therefore, the objective technical problem linked to the distinguishing features is to provide a heat exchanger with increased strength to withstand higher internal pressure, as also disclosed in paragraph [0011] of the patent.

#### 6.2.3 Obviousness of features [g] and [h]

As set out in the following paragraphs, none of the prior art documents D2 to D8 provides a teaching which points the skilled person towards a modification including features [g] and [h]. Moreover, the individual patent documents D2 to D8 do not provide sufficient evidence for the alleged underlying common general knowledge which would lead the skilled person towards the modification of the heat exchanger in Figure 6 of D1 towards that of claim 1, in particular not in view of the objective technical problem.

- 6.2.4 **D2** discloses a heat exchanger with port skirts ("inwardly bent flanges") all oriented in one direction (see Figure 5). However, one skirt **only contacts the next skirt** with its edge. This solution is disclosed in D2 as essential for forming "distance pieces" in order to achieve a "light and strong construction". Apart from whether the edges of these flanges form, together with the opposite bent wall, an "overlap" as in feature [g], this arrangement contradicts the intention of the arrangement in D1 to avoid interference with the edges (see D1, page 11, line 28 to page 12, line 9). For this reason alone, the skilled person starting from D1 would not consider the teaching of D2 and, even if they did, they would not arrive at the claimed subject-matter.
- 6.2.5 **D5** discloses a tube-like structure formed by overlapping skirts of the same orientation ("collars/flanges 31", see Figures 5 to 7). However, as also concluded in the decision under appeal, these tube-like structures are only meant to form a closed space housing a pressure sensor not in fluid communication with the flow channels (see paragraphs [0030] and [0040]). No openings are therefore provided in the skirts. There is thus no pointer for the skilled person to consider such a design for fluid ports in selective communication with the flow channels.
- 6.2.6 **D6** discloses in the embodiment of Figure 6 overlapping port skirts ("tube portions 15a") having the same orientation and having holes formed in them. This configuration is disclosed in D6 only to render the structure suitable for seawater applications by providing a filtration effect (see page 2, lines 11 to 19). It is not apparent why the skilled person would - based on this teaching - consider a redesign of the

heat exchangers of D1 to solve the objective technical problem.

- 6.2.7 The tube-like structure in the embodiment of Figure 2 of **D7** formed by overlapping skirts ("Kragen 7") of the same orientation is intended to form through-holes for receiving connector bolts (16) and not for providing ports in selective communication with flow channels. This structure does not contribute to solving the problem (since this is achieved by compression bolts and gaskets: "Dichtringe 10"). Furthermore, similarly to D5, the through-holes are not intended or even suitable to be in fluid communication with the flow channels.
- 6.2.8 Neither document **D3, D4 nor D8** discloses port skirts with mutual overlap with the port skirts of the neighboring heat exchanger plates as according to the understanding of feature [g]. This was also acknowledged by the appellant (see statement of grounds, page 19, point "Document D1+D3/D4/D8"). Therefore, at least feature [g] cannot be made obvious from any of these documents.
- 6.3 Lack of substantiation of objections based on D1 in combination with any of D9 to D12
  - 6.3.1 In the written appeal proceedings the appellant has not provided any arguments for the combination of D1 with the teaching of any of the documents D9 to D13, in particular about how they would point the skilled person towards features [g] and [h].
  - 6.3.2 The arguments for the combination of D1 with D9 or D10 submitted for the first time in oral proceedings before the Board are not admitted into the appeal proceedings



since no exceptional circumstances justifying this late submission were presented with cogent reasons by the appellant (see Article 13(2) RPBA 2020).

6.3.3 Therefore, the objections based on D1 in combination with any of D9 to D13 are not sufficiently substantiated and are not further considered in the decision.

7. Since none of the grounds for opposition held against the patent as granted prejudices its maintenance, the impugned decision is correct. Thus, the appeal is not allowable.

## Order

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

The appeal is dismissed.

The Registrar:

The Chairwoman:



H. Jenney

D. Prietzel-Funk

Decision electronically authenticated