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**Datasheet for the decision  
of 5 June 2023**

**Case Number:** T 0615/22 - 3.3.05

**Application Number:** 11841061.2

**Publication Number:** 2641648

**IPC:** B01D53/26, F04B39/16,  
B60T17/00, B01D53/04

**Language of the proceedings:** EN

**Title of invention:**

SILENCER, EXHAUST VALVE, VALVE DEVICE, AIR DRYER, COMPRESSED  
AIR SUPPLY DEVICE FOR VEHICLE, AND COMPRESSED AIR SUPPLY  
SYSTEM

**Patent Proprietor:**

Nabtesco Automotive Corporation

**Opponent:**

Knorr-Bremse  
Systeme für Nutzfahrzeuge GmbH

**Headword:**

AIR DRYER/Nabtesco

**Relevant legal provisions:**

EPC R. 80  
EPC Art. 123(2), 123(3), 84, 54, 56  
RPBA 2020 Art. 12(4), 13(2)

**Keyword:**

Amendment occasioned by ground for opposition - (yes)  
Amendments - added subject-matter (no) - broadening of claim  
(no)  
Claims - clarity after amendment (yes)  
Novelty - (yes)  
Inventive step - (yes)  
Amendment to case - amendment within meaning of Art. 12(4) RPBA  
2020  
Amendment after summons - exceptional circumstances (no)

**Decisions cited:**

G 0003/14

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
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Case Number: T 0615/22 - 3.3.05

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.05**  
**of 5 June 2023**

**Appellant 2:**

(Patent Proprietor)

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**Decision under appeal:**

**Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
11 January 2022 concerning maintenance of the  
European Patent No. 2641648 in amended form.**

**Composition of the Board:**

<b>Chair</b>	R. Winkelhofer
<b>Members:</b>	J. Roider
	S. Besselmann

## Summary of Facts and Submissions

I. The appeals of appellant 1 (opponent) and appellant 2 (patent proprietor) lie from the decision of the opposition division to maintain patent EP 2 641 648 B1 on the basis of the then auxiliary request 1, which is auxiliary request 2 in the appeal proceedings.

II. The following documents, which were cited in the opposition proceedings, are relevant here:

D1	WO 95/07831
D2	WO 2005/091783 A2
D4	EP 1 920 983 A2
D7	DE 35 14989 A1
D9	DE 100 47 469 A1
D10	Bosch Kraftfahrttechnisches Taschenbuch, Robert Bosch GmbH, 26, revised and supplemented edition, January 2007, 874-5

III. Claim 1 of the main (and only remaining) request, filed as auxiliary request 5 with the statement of grounds of appeal, reads as follows (additions compared to claim 1 as originally filed are underlined; additions compared to granted claim 1, in bold):

*An air dryer (10) comprising:  
a supporting base (12) including an inlet (14, 14A, 14B) for receiving compressed air to be subject to a drying process and an outlet (16) for delivering the processed compressed air that has undergone the drying process;  
a drying agent container (50), which is a container*

supported on the supporting base (12), contains a drying agent (58) in the interior, and enables the drying process to be performed by passing the compressed air from the inlet (14, 14A, 14B) through the drying agent (58); and an outer cover (70), which surrounds the outer side of the drying agent container on the supporting base and defines a chamber (75) for storing the compressed air between itself and the drying agent container, the air dryer (10) being characterized in that the supporting base (12) includes first and second mounting surfaces (122, 123) used for mounting the air dryer (10) to a mounting target member (80), which are oriented in different directions, and a plurality of inlets (14A, 14B) **to the supporting base (12)**, which are oriented in different directions and receive the compressed air **to be subject to the drying process, whereby selection of one of the first and second mounting surfaces (122,123) and any of the plurality of inlets (14A, 14B) allows mounting of the air dryer (10) to the mounting target member (80) on diverse mounting positions.**

Claims 2 to 4 concern particular embodiments.

IV. The appellants' essential arguments are summarised here. Details are included in the reasons below.

(a) Appellant 1

Consideration of the main request

Filed as auxiliary request 5, the main request should not be considered because it was one of nine auxiliary requests with non-converging amendments.

Amendments, Rule 80 EPC

Some amendments did not concern the ground for opposition under Article 100(a) EPC and introduced clarity issues.

Clarity, Article 84 EPC

In addition, all inlets had to receive the air to be dried such that a selection from among the inlets was not possible. It was thus not possible to establish diverse mounting positions.

Amendments, Article 123(2) EPC

It was not originally disclosed that the air dryer might also be mounted via more than one mounting surface to the mounting target member. It was also not disclosed that there may also be a selection of a plurality of inlets for the air to be dried. Finally, the claim did not define that the variation of combinations of the mounting surface and the inlet constituted the diverse mounting positions.

Amendments, Article 123(3) EPC

The possibility of selecting a plurality of inlets for the air to be dried was not encompassed by the granted patent.

Novelty, Article 54(1) and (2) EPC

The subject-matter of claim 1 was anticipated by D1, D4 and D10.

Inventive Step, Article 56 EPC

The subject-matter of claim 1 was rendered obvious starting from one of D1, D2, D4, D7 and D9.

Consideration of objections starting from D2 or D9

The interpretation of the scope of claim 1 by

appellant 2 was surprising and justified the consideration of an inventive-step objection starting from D2 or D9.

(b) Appellant 2

Consideration of the main request

The main request was filed as auxiliary request 3 in the opposition proceedings and as auxiliary request 5 with the statement of grounds of appeal. It was filed in response to the objections raised by the opponent.

Amendments, Rule 80 EPC

The amendments in the main request added structural features in response to objections under Article 100(a) EPC.

Clarity, Article 84 EPC

The feature "*and receive*" in claim 1 as granted had to be interpreted as "*and suitable to receive*". The claim was clear.

Amendments, Article 123(2) EPC

The amendments were taken literally from page 8, lines 14 to 17. Omitting the "*combination*" was justified because it was the effect which resulted from the selection of the mounting surface from one list and the inlet(s) from another list.

Amendments, Article 123(3) EPC

Compared to claim 1 as granted, the amendments in the main request only added structural features.

Novelty, Article 54(1) and (2) EPC

No document allegedly anticipating the novelty of claim 1 disclosed a plurality of inlets for the air



to be dried.

Inventive Step, Article 56 EPC

Starting from D1, D4 or D7, the problem the patent aimed to solve was to provide a more versatile air dryer (page 18 of the reply to the opponent's appeal and paragraph [0012] of the patent in suit). No document cited gave the skilled person an incentive to provide a plurality of inlets for air to be dried.

Consideration of objections starting from D2 or D9

The inventive-step objections starting from D2 or D9 were first raised during the oral proceedings in appeal. There were no exceptional circumstances within the meaning of Article 13(2) RPBA 2020.

V. Requests as to the substance

- (a) Appellant 1 requests that the decision under appeal be set aside and amended such that the patent be revoked.
- (b) Appellant 2 requests that the decision under appeal be set aside and amended such that the patent be maintained on the basis of the main request.

**Reasons for the Decision**

1. Consideration of the main request

The main request was filed in the opposition

proceedings as auxiliary request 3. It was resubmitted with the statement of grounds of appeal as auxiliary request 5. The opposition division did not have to decide on it as then auxiliary request 1 was found patentable. Thus, its decision was not based on this request, and it is not "automatically" part of the appeal proceedings (see Article 12(2) and (4) RPBA 2020). However, the board may still consider this request if it was admissibly raised and maintained in the opposition proceedings (Article 12(4) RPBA 2020).

Appellant 1 argued that the nine auxiliary requests which were in total filed during the proceedings did not follow a convergent approach since they covered three different fallback positions, with auxiliary request 5, the current main request, being directed to the second.

The current main request was first submitted with the reply to the notice of opposition and has been maintained since then. It is a further development of and thus convergent with the request found allowable by the opposition division. The line of defence pursued by this request could not come as a surprise to appellant 1. Regardless of how or even if convergence was relevant, the filing of the request was therefore a legitimate response to the objections raised against the patent, and the request was thus admissibly raised within the meaning of Article 12(4) RPBA 2020.

The main request is thus to be considered in the proceedings.

2. Amendments, Rule 80 EPC

Compared to the granted patent, the main request

contains amendments which add structural features to the independent claim. This also applies to the indication "to the supporting base", which further specifies the plurality of inlets. The addition of features constitutes a possible response to, and is thus occasioned by, the ground for opposition under Article 100(a) EPC raised by appellant 1 and was a serious attempt to overcome the objections raised by appellant 1.

The requirements of Rule 80 EPC are thus fulfilled.

### 3. Clarity, Article 84 EPC

3.1 Appellant 1 argued that the amendments introduced a lack of clarity not contained in the subject-matter of claim 1 as granted. First, according to its wording, all inlets for receiving air subject to the drying process had to actually receive the air. A selection of inlets to establish diverse mounting positions was not possible. Moreover, the skilled person would not know what means enabled the diverse mounting positions and how to distinguish a base which did not enable these diverse mounting positions.

It was also not clear whether only one or also a plurality of inlets for the compressed air to be dried could be selected.

3.2 This is not convincing. Claim 1 is directed to an apparatus. However, the feature "*... a plurality of inlets ... and receive the compressed air ...*" is an activity. It was already contained in the patent as granted and is thus not open to an objection under Article 84 EPC (G 3/14, catchwords).

It expresses that the plurality of inlets must be

suitable to receive the compressed air. The description confirms that this is the essential idea of the invention.

Claim 1 is open ended because it requires selecting any of the plurality of inlets for the compressed air to be dried, meaning any number of inlets including but not limited to one. Connecting more than one inlet for the compressed air to be dried is thus encompassed by the subject-matter of claim 1.

The dryer has a plurality of inlets for receiving air subject to the drying process and at least two mounting surfaces. Mounting the dryer to the mounting target via either the first or the second mounting surface and connecting any of the plurality of inlets to the supply of compressed air to be dried necessarily implies diverse mounting positions. Whether mounting to the mounting target member via the first or the second mounting surface led to a distinguishable spatial configuration of the positions of the inlets and the mounting surfaces is not relevant under Article 84 EPC.

In conclusion, the amendments do not introduce a lack of clarity.

4. Amendments, Article 123(2) EPC

4.1 Appellant 1 further argued that this amendment was extracted from a context involving further features not included in the subject-matter of claim 1, such as the positions of the mounting surfaces at the base and the positions of the inlets on a distant corner.

However, the amendment defines the intended use of the mounting surfaces. This is independent of the

configuration. There is thus no new information presented to the skilled person by not including the orientation of the mounting surfaces or the positions of the inlets.

- 4.2 Moreover, appellant 1 argued that a *mounting target member* was different to a *mounting target* and that it was not originally disclosed that the mounting surfaces could be mounted directly to the *mounting target member*.

This overlooks that page 22, line 19 of the original application discloses that a *mounting target member* could be a *vehicle body frame*. Page 22, line 29 discloses that Figure 6A shows an air dryer mounted on the *vehicle body frame* using the rear surface, which is the first mounting surface (see original application, page 22, lines 6 to 9). Similarly, Figure 6B shows the mounting of the air dryer on the *vehicle body frame* using the right-side surface, which is the second mounting surface.

- 4.3 In addition, appellant 1 argued that the air dryer might also be mounted via more than one mounting surface to the mounting target member, this extending beyond the original disclosure.

This is also not persuasive. The dryer contains the structural features which allow mounting the air dryer to the mounting target member using either the first or the second mounting surface as the only mounting surface. If this is the case, it is irrelevant whether the dryer can also be mounted using both mounting surfaces because claim 1 is open ended in this regard.

4.4 Furthermore, appellant 1 argued that the air dryer as originally disclosed did not encompass multiple inlets for simultaneously receiving compressed air to be dried.

This argument is not persuasive either. Claim 1 is directed to an air dryer, an apparatus. Whether or not the compressed air to be dried is supplied to more than one inlet relates to the use of the air dryer. Appellant 1 did not identify an embodiment of the air dryer which extended beyond the original disclosure and was specified in current claim 1.

Moreover, page 8, lines 14 to 17 of the description as originally filed discloses selecting *any* of the plurality of inlets. This encompasses more than one inlet.

4.5 Appellant 1 finally argued that claim 1 did not further define the *"diverse mounting positions"* feature. According to the original description, these positions were defined by selecting a combination of mounting surfaces and inlets for compressed air to be dried (original description page 23, last paragraph to page 24, first paragraph; page 8, lines 14 to 17). The omission of this feature (underlined in the paragraph below) led to an intermediate generalisation. If the air dryer was mounted on one mounting surface, the skilled person had to be able to select from among the inlets. This was, depending on the mounting situation, perhaps not even possible because all inlets could be blocked.

However, page 8, lines 14 to 17 read: *"Therefore by selection of one of the first and second mounting surfaces and any of the plurality of inlets, the*

variation of combinations of the mounting surface and the inlet can be increased and mounting of the air dryer on diverse mounting positions can be performed easily with the same configuration."

Page 8, lines 15 to 16 discloses that the variation of combinations can be increased by selecting a mounting surface and any of the plurality of inlets. It merely states the consequence if the skilled person can select the mounting surface from one list and the inlet(s) from another list. It is inherent to the features in claim 1.

Furthermore, appellant 1 did not identify an example of an air dryer which was covered by current claim 1 but would not be covered by a claim which included the disputed omission (underlined above), nor can one be seen. There may indeed be mounting situations where not all inlets for compressed air to be dried are accessible. This does not, however, have an impact on the structural features of the air dryer. Instead, it reflects the idea of the invention. If one inlet is not accessible, another inlet can be used for supplying compressed air to be dried to the air dryer.

4.6 The requirements of Article 123(2) EPC are thus met.

5. Amendments, Article 123(3) EPC

Compared to the granted patent, the main request contains only amendments which add structural features.

This includes the features which allow for mounting the dryer to the mounting target member using only one of the mounting surfaces, as indicated. It is a restriction of scope compared to the granted claim,

which encompassed mounting the dryer to the mounting target member via the first mounting surface, the second mounting surface or both.

Moreover, the feature that the plurality of inlets receive the compressed air (i.e. must be suitable for receiving the compressed air, see the reasons regarding Article 84 EPC) has been retained in claim 1 at issue, with the addition that the compressed air is the compressed air to be subject to the drying process. This is not changed by the specified selection of any of the plurality of inlets but is the precondition for it.

The subject-matter of current claim 1 can thus not extend the protection conferred by the granted claim 1.

6. Novelty, Article 54(1) and (2) EPC

Appellant 1 argued that D1, D4 and D10 anticipated the subject-matter of claim 1.

6.1 This is also not persuasive. D1 and D4 do at least not show a plurality of inlets for air to be dried.

From some points of view, such as the pressure rating, an inlet for air to be dried may not be different from an outlet for dry air. But defining the intended use of the inlet implies structural limitations on the claimed air dryer seen as a whole.

Inlets in the base for compressed air to be dried must be located in the air path upstream of the drying agent. Similarly, inlets in the base for compressed dry air must be downstream of the drying agent. Specifying the intended use thus excludes the presence of features which prevent the normal use of the air dryer. Examples



of such features are check valves, which would block the intended flow direction or means for a diversion of the moist air flow to a vent opening.

Appellant 1 further added that D1 disclosed that the check valve in the outlet 150 was only included in the most preferred embodiment and was thus optional (D1, page 18, lines 23 to 25). A flow reversal was thus possible.

It is not convincing that by the mere omission of the check valve at the outlet, the air flow direction through the dryer could be reversed. There is no such indication in D1, which by contrast identifies a dedicated inlet and a dedicated outlet. The dryer has no symmetric set-up either. It is not apparent that the canister containing the drying agent allowed the reversal of the air flow to an extent which the skilled person considered suitable for a regular drying operation.

Similarly, with regard to D4, appellant 1 did not demonstrate that the skilled person had any other choice for the inlet for the compressed air to be dried than the dedicated inlet 14 while achieving the desired drying function.

6.2 With reference to D10, appellant 1 argued that the outlet for dry air could be used for regenerating the drying agent by flowing compressed dry air from the outlet through the drying agent. During the drying step, the air to be dried could thus be supplied from either side such that both openings of any dryer were to be considered inlets.

However, D10 discloses reversing the process for the

regeneration of the drying agent. For this operation, compressed dry air is supplied to an orifice for expanding the air to atmospheric pressure, through the drying agent, and is eventually directed to the exhaust port. Therefore, the air dryer in D10 cannot reverse the flow direction for drying air.

Also in view of D10, the skilled person would not consider an outlet for dry compressed air exchangeable with an inlet for air to be dried.

6.3 The objections of lack of novelty are thus not convincing.

7. Inventive step, Article 56 EPC

The patent is directed to an air dryer.

Appellant 1 cited D1, D2, D4, D7 and D9 as starting points for an inventive-step objection.

7.1 Consideration of objections starting from D2 or D9

Appellant 2 requested that the attacks based on D2 and D9 not be admitted into the proceedings under Article 13(2) RPBA 2020. Inventive-step objections based on these documents were first raised in the oral proceedings in appeal. It was an amendment of appellant 1's appeal case.

Appellant 1 argued that in view of appellant 2's interpretation of the inlets, these documents should be admitted. Appellant 2 changed its case because of its interpretation that more than one inlet for the air to be dried may be selected and by the statement that the flow paths through the inlets were fluidly connected

inside the base. A response to this should be allowable.

The current main request was filed in the opposition proceedings as auxiliary request 3, including the wording in claim 1, which covered the selection of more than one inlet ("*any of the plurality of inlets*"). The fact that the flow paths through the plurality of inlets are fluidly connected inside the base is immediately apparent from the patent in suit because the air dryer comprises only one drying compartment.

Therefore, no exceptional circumstances can be seen for submitting these objections only at this stage. The new attacks based on D2 and D9 are not to be taken into account (Article 13(2) RPBA 2020).

7.2 Documents D1, D4 and D7 are directed to an air dryer.

D1 discloses mounting the air dryer on a bracket of a frame of a truck. The air dryer can be mounted to the bracket at a number of positions.

D4 apparently shows in Figure 3 a mounting bracket around the cartridge and a bracket similar to D1. Not only is none of these features described such that their exact function is clear, it is also unclear whether each mounting point can be used alone.

D7 shows a mounting flange 7. There is no disclosure in D7 suggesting that the mounting flange did not have a fixed position on the base. The suggestion to use other faces of the base for mounting can only originate from an *ex-post facto* consideration.

For these reasons, D1 qualifies as the most promising

starting point for an inventive-step objection.

- 7.3 D1 does not show at least a plurality of inlets for air to be dried.

Appellant 1 did not demonstrate that it is possible to reverse the flow through the device disclosed in D1. It must thus be assumed that the outlet for the dried air cannot be used as an inlet for air to be dried.

- 7.4 The technical problem to be solved by this difference is, according to appellant 2, to provide a more versatile air dryer (page 18 of the statement of grounds of appeal and paragraph [0012] of the patent in suit).

There is no doubt that the distinguishing features solve this problem.

- 7.5 There is no incentive in the prior art cited by appellant 1 that would prompt the skilled person to provide the device in D1 with more than one inlet for compressed air to be dried.

An inventive step is hence to be acknowledged.

## **Order**

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

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent on the basis of the main request, submitted as auxiliary request 5 with the grounds of appeal, and the description to be adapted.

The Registrar:

The Chair:



C. Vodz

R. Winkelhofer

Decision electronically authenticated