

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 26 November 2019**

Case Number: T 0650/15 - 3.2.05

Application Number: 07804695.0

Publication Number: 2052177

IPC: F16K31/00, F16K11/08, F01P7/16

Language of the proceedings: EN

Title of invention:
Thermostat valve

Patent Proprietor:
ITW Automotive Products GmbH

Opponents:
MAHLE International GmbH
WOCO Industrietechnik GmbH

Relevant legal provisions:
EPC 1973 Art. 100(b)
EPC Art. 123(3)

Keyword:

Sufficiency of disclosure - main request and first, fourth and fifth auxiliary requests (no)
Amendments - extension of scope of protection - second, third, sixth and seventh auxiliary requests (yes)



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0650/15 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 26 November 2019

Appellant: ITW Automotive Products GmbH
(Patent Proprietor) Bahnhofstrasse 50a
29693 Hodenhagen (DE)

Representative: Meissner Bolte Partnerschaft mbB
Patentanwälte Rechtsanwälte
Bahnhofstraße 18 1/2
86150 Augsburg (DE)

Respondent I: MAHLE International GmbH
(Opponent 1) Pragstrasse 26-46
70376 Stuttgart (DE)

Representative: BRP Renaud & Partner mbB
Rechtsanwälte Patentanwälte
Steuerberater
Königstraße 28
70173 Stuttgart (DE)

Respondent II: WOCO Industrietechnik GmbH
(Opponent 2) Hanauer Landstrasse 16
63628 Bad Soden-Salmünster (DE)

Representative: Nils T.F. Schmid
Boehmert & Boehmert
Anwaltspartnerschaft mbB
Pettenkoferstrasse 22
80336 München (DE)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 28 January 2015
revoking European patent No. 2052177 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman S. Bridge
Members: P. Lanz
 T. Karamanli

Summary of Facts and Submissions

- I. The appeal by the patent proprietor is against the decision of the opposition division posted on 28 January 2015 revoking European patent No. 2 052 177.
- II. During the opposition proceedings, the opponents had raised the grounds for opposition according to Article 100(b) and (c) EPC as well as Article 100(a) EPC in combination with Article 54 or Article 56 EPC (lack of novelty and lack of inventive step).
- III. All parties requested oral proceedings as an auxiliary measure. Accordingly, the parties were summoned to attend oral proceedings before the board of appeal on 17 October 2019.
- IV. By a communication under Article 15(1) RPBA dated 10 September 2019, the board provided a preliminary opinion on the issues to be decided.
- V. By letter dated 14 October 2019, the appellant (patent proprietor) withdrew their previous auxiliary request for oral proceedings.
- VI. By a communication of the board's registrar dated 16 October 2019 and sent in advance by fax, the parties were informed that the oral proceedings appointed for 17 October 2019 had been cancelled.
- VII. The appellant requests that the decision under appeal be set aside and that the patent be maintained as granted (main request) or that the patent be maintained in amended form on the basis of the claims of any of the first to seventh auxiliary requests filed together

with the statement setting out the grounds of appeal dated 28 May 2015.

- VIII. The respondents (opponents) request that the appeal be dismissed.
- IX. The documents referred to during the appeal proceedings include the following:

Annex P7: "Kraftfahrtechnisches Taschenbuch", Robert Bosch GmbH, 18th edition 1976, pages 304 and 305;

Annex P8: "Handbuch Verbrennungsmotoren", edited by Richard van Basshuysen and Fred Schäfer, 2nd edition 2002, Friedr. Vieweg & Sohn Verlagsgesellschaft mbH, Braunschweig/Wiesbaden, pages 616 to 618.

- X. Claim 1 as granted (main request) has the following wording (using the parties' feature designations in square brackets):

"A thermostatted valve used in an internal combustion engine **[feature M1]** and comprising a housing (10) fitted with at least three ports (20, 22, 24) **[feature M2]** namely an engine port (20) to communicate with the engine cooling system, a radiator port (24) to communicate with the radiator, and a bypass port (22) to communicate with a bypass **[feature M3]**, further comprising a hollow, spherical valve element (26) supported pivotably about a pivot axis within the housing (10) between two end positions **[feature M4]**, said valve element (26) being fitted with at least two apertures of which one permanently communicates with the engine port (20) and the other is situated in a plane substantially perpendicular to said pivot axis **[feature M5]**, further comprising a temperature sensor

controlled valve element drive (42) **[feature M6]**, wherein the axes of all ports (20, 22, 24) are configured in planes that are approximately perpendicular to the pivot axis of the valve element (26) **[feature M7]**, characterized in that the valve element (26) is approximately a spherical segment or a laminar sphere of which the open side communicates permanently with the engine port (20) **[feature M8]**, further that the valve element (26) is fitted with at least one feedthrough (34) which in one of the end positions of said valve element (26) is disconnected from the radiator port (24) while in the other end position it faces this radiator port (24) **[feature M9]**, in that an approximately spherical sealing system is configured in the zone of the radiator port (24) **[feature M10]** and in that said drive (42) acts on the valve element (26) excentrically relative to the pivot axis **[feature M11]**, wherein the sealing system is fitted with a slideable ring (60) made of a solid, low-friction plastic prestressed by an elastomeric sealing annulus (62) against the valve element (26) **[feature M12]**, and the sealing annulus (62), on the outside of the valve element (26) relative to the engine port (20), sealing the inside (18) of the housing (10) **[feature M13]** and wherein the elastomeric annulus (62) is designed in a manner that its spring force rises only minimally when a force is applied to it **[feature M14]**."

XI. Compared with the main request, claim 1 of the first auxiliary request is amended as follows:

"... further comprising a hollow, spherical valve element (26) supported pivotably about a pivot axis within the housing (10) between two end positions, ~~said valve element (26) being fitted with at least two~~

~~apertures of which one permanently communicates with the engine port (20) and the other is situated in a plane substantially perpendicular to said pivot axis,~~ further comprising a temperature sensor controlled valve element drive (42), wherein the axes of all ports (20, 22, 24) are configured in planes that are approximately perpendicular to the pivot axis of the valve element (26), characterized in that the valve element (26) is approximately a spherical segment or a laminar sphere, said valve element (26) being fitted with at least two apertures, namely the open side of the valve element (26) and at least one feedthrough (34), of which the open side permanently communicates with the engine port (20) and the at least one feedthrough (34) is situated in a plane substantially perpendicular to said pivot axis, ~~of which the open side communicates permanently with the engine port (20), further that the valve element (26) is fitted with at least one feedthrough (34) which~~ such that the at least one feedthrough (34) in one of the end positions of said valve element (26) is disconnected from the radiator port (24) while in the other end position it faces this radiator port (24) ..."

XII. Compared with the main request, claim 1 of the second auxiliary request is amended as follows:

"... said valve element (26) being fitted with at least two apertures of which one permanently communicates with the engine port (20) and the axis of the other aperture is situated in a plane substantially perpendicular to said pivot axis ..."

XIII. Compared with the main request, claim 1 of the third auxiliary request is amended as follows:

"... further comprising a hollow, spherical valve element (26) supported pivotably about a pivot axis within the housing (10) between two end positions, ~~said valve element (26) being fitted with at least two apertures of which one permanently communicates with the engine port (20) and the other is situated in a plane substantially perpendicular to said pivot axis,~~ further comprising a temperature sensor controlled valve element drive (42), wherein the axes of all ports (20, 22, 24) are configured in planes that are approximately perpendicular to the pivot axis of the valve element (26), characterized in that the valve element (26) is approximately a spherical segment or a laminar sphere, said valve element (26) being fitted with at least two apertures, namely the open side of the valve element (26) and at least one feedthrough (34), of which the open side permanently communicates with the engine port (20) and the axis of the at least one feedthrough (34) is situated in a plane substantially perpendicular to said pivot axis, of which the open side communicates permanently with the engine port (20), further that the valve element (26) is fitted with at least one feedthrough (34) which such that the at least one feedthrough (34) in one of the end positions of said valve element (26) is disconnected from the radiator port (24) while in the other end position it faces this radiator port (24) ..."

XIV. Compared with the main request, claim 1 of the fourth auxiliary request is amended as follows:

"... wherein the sealing system is fitted with a slideable ring (60) made of a solid, low-friction plastic prestressed by an elastomeric sealing annulus (62) against the valve element (26), and the sealing

annulus (62), arranged on the outside of the valve element (26) opposite relative to the engine port (20), sealing the inside (18) of the housing (10) relative to the radiator port (24) and wherein the elastomeric annulus (62) is designed in a manner that its spring force rises only minimally when a force is applied to it."

- XV. Claim 1 of the fifth auxiliary request contains a combination of the amendments according to the first and fourth auxiliary requests.
- XVI. Claim 1 of the sixth auxiliary request contains a combination of the amendments according to the second and fourth auxiliary requests.
- XVII. Claim 1 of the seventh auxiliary request contains a combination of the amendments according to the third and fourth auxiliary requests.
- XVIII. The submissions by the appellant may be summarised as follows:

Contrary to the case law, the opposition division interpreted the features of claim 1 of the main request in a way which, when taking into account the whole disclosure of the patent, was illogical and did not make technical sense. It constructed contradictions and acted with a mind willing to misunderstand.

In feature M5 of claim 1 of the main request, the term "*plane*" had to be understood as a flat, two-dimensional surface, which has indefinite width and length, zero thickness and zero curvature. The opposition division's interpretation of feature M5 that the feedthrough (34) was arranged at one of the axial end faces of the valve

element (26) was in contradiction to the remaining disclosure of the opposed patent and therefore wrong. On the basis of the function of the feedthrough (34) to selectively connect and disconnect the bypass port and the radiator port from the engine port through rotation of the valve element between its end positions (cf. for example features M4, M7, M8, M9) and in the light of the further information given in the description and the drawings of the opposed patent, the skilled person, in the course of his interpretation of feature M5, would come to the result that the feedthrough (34) was arranged on the shell surface of the valve element moving past the bypass port and radiator port upon rotation of the valve element between its end positions. In this arrangement both the axis and the longitudinal extension of the aperture (34) were situated in a plane that was perpendicular to the pivot axis of the valve element. The same was true for the delimiting surfaces of the feedthrough (34) according to Figure 4 of the patent. Possibly, feature M5 could have been worded more clearly, for example by stating that the axis of the other aperture was situated in a plane perpendicular to the pivot axis of the valve element. However, this merely constituted an issue of clarity under Article 84 EPC which was not relevant in the opposition proceeding. Even if present, such an alleged lack of clarity clearly did not lead to an insufficient disclosure for the above reasons. Annexes P7 and P8 represented the skilled person's common general knowledge in the field of thermostat valves.

Concerning feature M7, the opposition division took the view that the term "port" referred to the entire fluid pipes of the housing. However, this interpretation did not make sense from a technical point of view because the fluid pipes had bends as shown in the drawings and

thus each had several axes. In accordance with the established jurisdiction of the boards of appeal, the skilled person would exclude the interpretation of the opposition division. Rather, the skilled person would adopt an interpretation that made sense from a technical point of view, namely that the term "port" of feature M7 referred to the immediate connection of the pipe to the valve space accommodating the rotating valve element, because it was the fluid flow into and out of this valve space that mattered. Based on this understanding, the axes of all ports lay in planes that were perpendicular to the pivot axis. It was noted that even if the opposition division's interpretation of feature M7 and the drawings of the opposed patent was correct and the axis of the bypass port (22) was parallel to the pivot axis of the valve element, then this would still not lead to the patent being insufficiently disclosed for the skilled person. In that case, all the person skilled in the art had to do in order to carry out the invention was to change the orientation of the fluid pipe forming the bypass port (22) by 90 degrees such that the fluid pipe, starting from opening (68), leads straight into the drawing plane in Figure 1 of the patent. It could not be seen how this would require an inventive effort by, or place an undue burden on, the skilled person.

For the skilled person it was clear that reference sign 22 at the right port in Figure 2 was wrong and that this port was not the bypass port but a fourth port. However, feature M3 specifically mentioned the at least three ports of feature M2, *"namely an engine port (20) to communicate with the engine cooling system, a radiator port (24) to communicate with the radiator, and a bypass port (22) to communicate with a bypass"*. Feature M7 had to be seen in connection with feature

M3. Thus, feature M7, when referring to "*the axes of all ports (20, 22, 24)*", clearly referred to the specific ports mentioned in feature M3, namely the engine port, the radiator port, and the bypass port. Claim 1 did not mention a further port. The existence of such a further port and its possible orientation therefore were of no relevance to the invention.

In summary, the disclosure of the subject-matter of claim 1 according to the main request in the contested patent was sufficiently clear and complete for it to be carried out by the person skilled in the art.

Concerning the second, third, sixth and seventh auxiliary requests, it was argued that an (allegedly) insufficiently disclosed feature did not have a scope of protection and that an amendment of such a feature therefore could not constitute an extension of the scope of protection.

XIX. The respondents' submissions were essentially as follows:

Concerning feature M5 of claim 1 of the main request, the respondents submit that the drawings of the opposed patent, in particular Figure 4, clearly disclosed that aperture (34) lay in a plane which was parallel and not perpendicular to the pivot axis. The definition of the orientation of the plane in the claim and in the drawings was thus contradictory. Even if the appellant defined a plane formed by the axis and the longitudinal extension of the aperture which was perpendicular to the pivot axis, this was not the plane of aperture (34) according to claim 1. However, it could be deduced from the drawings that, if aperture (34) lay in a plane which was perpendicular to the pivot axis (as defined

in feature M5), the hollow spherical valve could not selectively open and close ports (20, 22 and 24), the axes of which were situated in planes oriented perpendicular to the pivot axis as defined in feature M7. For these reason, the disclosure of the patent was insufficient for the skilled person to reproduce a working thermostat valve including features M5 and M7. Annexes P7 and P8 were of no assistance in this regard.

Moreover, feature M5 as such made technical sense as the skilled person could implement it by providing a circular or kidney-shaped aperture in the hollow spherical valve. It was therefore not apparent why the skilled person would understand the feature of aperture (34) lying in a plane perpendicular to the pivot axis as meaning that the plane was in fact parallel to the pivot axis, as suggested by the appellant.

As regards the meaning of the term "port" in feature M7, ports (20, 22 and 24) of claim 1 did not relate to the immediate connection of the pipe to the valve space accommodating the rotating valve element but referred to the entire fluid pipes of the housing. The patent specification (see paragraph [0026]) clearly distinguished between aperture (68), which defined the immediate connection of the pipe to the valve space, and the corresponding port (22), which related to the pipe. However, according to Figure 1 the axis of port (22) was parallel to the pivot axis. In fact, the patent did not contain any indication on how an arrangement could be realised, in which the axes of all ports were configured in planes perpendicular to the pivot axis.

Finally, it was observed that neither claim 1 nor the description clearly specified that the "other aperture"

of feature M5 was the same element as the *"at least one feedthrough (34)"* of feature M9.

For these reasons, the disclosure of the subject-matter of claim 1 according to the main request in the contested patent was not sufficiently clear and complete for it to be carried out by the person skilled in the art.

Reasons for the Decision

1. *Main request - sufficiency of disclosure*

1.1 Regarding feature M7 (*"wherein the axes of all ports (20, 22, 24) are configured in planes that are approximately perpendicular to the pivot axis of the valve element"*), it is contested between the parties whether the wording *"all ports"* refers only to the three ports listed in feature M3 (engine port (20) radiator port (24) and bypass port (22)) or whether it includes the fourth port shown in Figure 2, where it is erroneously designated with reference sign 22. It is also disputed whether the term *"port"* relates to the immediate connection of the pipe to the valve space accommodating the rotating valve element or to the fluid pipes of the housing leading to this immediate connection. The following assessment of sufficiency of disclosure of claim 1 is based on the appellant's understanding that according to feature M7 the axes of the approximately planar apertures of the engine port (20), the radiator port (24) and the bypass port (22) are approximately perpendicular to the pivot axis of the valve element.

1.2 The issue of sufficiency of disclosure is primarily determined by feature M5 of claim 1:

"said valve element (26) being fitted with at least two apertures of which one permanently communicates with the engine port (20) and the other is situated in a plane substantially perpendicular to said pivot axis"

This feature specifies that the hollow spherical valve element (cf. preceding feature M4) has two apertures, whereby one is positioned so as to communicate with the engine port. The *"other aperture"* is defined as being situated in a plane oriented substantially perpendicular to the pivot axis. As such, the wording of feature M5 is clear. In particular, it explicitly defines the orientation of the plane in which the *"other aperture"* lies and not the orientation of its axis or its longitudinal extension, as suggested by the appellant. Moreover, from a technical point of view, it is not *per se* illogical to provide the *"other aperture"* on the hollow spherical valve element at a position close to the pivot axis so that the plane, in which the aperture is situated, is oriented perpendicular to the pivot axis. Hence, the wording of feature M5, as such, is neither unclear nor technically nonsensical.

According to feature M7 (as understood by the appellant), the axes of the port apertures of the engine port (20), the radiator port (24) and the bypass port (22) are all configured in planes that are approximately perpendicular to the pivot axis of the valve element. Therefore, the claim defines the planes of the port aperture as being oriented parallel to the pivot axis (see feature M7), while the *"other aperture"*

in the valve element is oriented perpendicular to the pivot axis (see feature M5).

With this arrangement, the "other aperture" on the valve element cannot overlap with any of the port apertures and in particular not with the radiator port. Hence, if the "other aperture" of feature M5 and the "feedthrough (34)" are understood as relating to one and the same element, as consistently argued by the appellant, it is not apparent how feature M9 ("the valve element (26) is fitted with at least one feedthrough (34) which in one of the end positions of said valve element (26) is disconnected from the radiator port (24) while in the other end position it faces this radiator port (24)") could be put into practice.

- 1.3 The appellant essentially suggests that, on the basis of the description and the drawings of the contested patent, the skilled person would resolve the above difficulties by giving to feature M5

"said valve element (26) being fitted with at least two apertures of which one permanently communicates with the engine port (20) and the other is situated in a plane substantially perpendicular to said pivot axis"

the meaning of

"said valve element (26) being fitted with at least two apertures of which one permanently communicates with the engine port (20) and the axis of the other aperture is situated in a plane substantially perpendicular to said pivot axis".

Thus, the appellant gives feature M5 a meaning which is *de facto* orthogonal to what the wording of this feature clearly expresses. Neither the EPC nor the case law of the boards of appeal provide a sufficient basis for such a post-grant redefinition of the subject-matter of an independent claim, especially as this is not necessarily the only way to resolve the above-mentioned discrepancy. In addition, the appellant refers only selectively to the description and drawings for construing the claim. With regard to other aspects of the claim, they propose interpretations which are not supported by the description or drawings. This concerns, for example, the argument that "*port (22)*" and "*aperture (68)*" designate one and the same element, which is not supported by paragraph [0026] and Figure 1.

Consequently, feature M5, as understood by the person skilled in the art, has to be interpreted in the sense which corresponds to its clear wording.

1.4 For these reasons, the disclosure of the patent is not sufficiently clear and complete for the skilled person to reproduce a working thermostatted valve as specified in claim 1 of the main request (Article 100(b) EPC 1973).

2. *First, fourth and fifth auxiliary requests*

2.1 The respective independent claim of the first, fourth and fifth auxiliary requests similarly defines that
- the axes of all ports (20, 22, 24) are configured in planes that are approximately perpendicular to the pivot axis of the valve element,

- the "other aperture"/feedthrough (34) of the valve element is situated in a plane substantially perpendicular to the pivot axis, and
- the feedthrough (34), in one of the end positions of the valve element, faces the radiator port (24).

2.2 The above conclusion that the disclosure of the patent is not sufficient clear and complete for the skilled person to reproduce a working thermostat valve as specified in the independent claim therefore also applies to claim 1 of the first, fourth and fifth auxiliary requests (Article 100(b) EPC 1973).

3. *Second, third, sixth and seventh auxiliary requests*

3.1 In the second, third, sixth and seventh auxiliary requests, feature M5 is amended in order to comply with the appellant's interpretation that the axis of the other aperture is situated in a plane substantially perpendicular to said pivot axis (see point 1.3 above).

3.2 The subject-matter of granted independent claim 1 is specified, *inter alia*, by feature M5. As explained above, the wording of granted feature M5, as such, is neither unclear nor technically nonsensical. It therefore defines, in combination with the other features of the claim, the scope of protection of claim 1 as granted. Amending feature M5 in order to give it a meaning which is orthogonal to what is clearly expressed in the claim as granted directs the claim to a different subject and thereby shifts the scope of protection of the claim, contrary to Article 123(3) EPC.

4. *Conclusion*

In summary of the above considerations, none of the appellant's requests is allowable and the appeal must therefore be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



N. Schneider

S. Bridge

Decision electronically authenticated