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Datasheet for the decision of 1 October 2025

Case Number: T 1213/23 - 3.2.05

Application Number: 16821954.1

Publication Number: 3320241

IPC: F16K1/32

Language of the proceedings: EN

Title of invention:
Control plate in a valve

Applicant:
Vistadeltek, LLC

Relevant legal provisions:
EPC Art. 56, 84, 123(2)

Keyword:
Clarity - (yes)
Added subject-matter - (no)
Inventive step - (yes)

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Boards of Appeal

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Case Number: T 1213/23 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 1 October 2025

Appellant: (Applicant)	Vistadeltek, LLC 5605 Vista Del Mar Yorba Linda, CA 92887 (US)
Representative:	Isarpatent Patent- und Rechtsanwälte Barth Charles Hassa Peckmann & Partner mbB Friedrichstraße 31 80801 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 15 February 2023 refusing European patent application No. 16821954.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	M. Holz
Members:	O. Randl
	M. Blasi

Summary of Facts and Submissions

I. The applicant (appellant) filed an appeal against the examining division's decision to refuse European patent application No. 16 821 954.1 ("the application").

II. The examining division held that the subject-matter of the claims of the appellant's main request did not involve an inventive step and that the subject-matter of both auxiliary requests contravened Article 123(2) EPC.

III. At the appellant's request, a decision according to the state of the file was taken. This occurred after eight communications pursuant to Article 94(3) EPC had been issued (on 4 July 2018, 13 March 2019, 25 November 2019, 13 January 2021, 20 April 2021, 12 October 2021, 10 June 2022 and 13 January 2023).

IV. Among the documents taken into account by the examining division, only documents D1 (US 4,732,363) and D6 (US 594,895) are cited in this decision.

V. The board summoned the appellant to oral proceedings, as requested, and subsequently, on 20 June 2025, it issued a communication pursuant to Article 15(1) RPBA.

VI. The appellant replied by letter dated 16 July 2025, requesting that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the main request or one of the two auxiliary requests, all filed with said letter.

The request for reimbursement of the appeal fee made in the notice of appeal and reiterated in the statement of

grounds of appeal was withdrawn (see page 1 of the letter dated 16 July 2025).

The statement of grounds of appeal also contained a request for interlocutory revision or remittal. The board explained in point 5 of its communication pursuant to Article 15(1) RPBA why these requests could not be granted. As this was not challenged by the appellant, the board sees no reason to depart from its conclusion in this regard.

Oral proceedings before the board were requested in the event that the board still had objections regarding the patentability of the amended main request.

VII. As there were no further objections, the oral proceedings were cancelled.

VIII. Claim 1 of the main request reads (the feature references used by the board are indicated in square brackets; the amendments with respect to the main request refused by the examining division are underlined):

"1. [**1**] A valve bonnet for use with a control valve body (619), the control valve body having a fluid conduit opening (612) surrounded by a planar orifice ridge (618), the valve bonnet comprising:
[**2**] a bonnet body (669);
[**3**] a valve diaphragm (667) in sealing engagement with the bonnet body at an outer periphery of the valve diaphragm;
[**4**] a control shaft (682) [**4.1**] secured to the valve diaphragm, the control shaft having [**4.2**] a shank (681) projecting from the control shaft;
[**5**] a metallic valve control plate body (676)

[**5.1**] secured to the shank, the valve control plate body (676) [**5.2**] having a first hardness, the valve control plate body (676) [**5.3**] being machined as a flat disc having a central thru-hole (672) and a wide shallow ring-shaped groove (675) on a side intended to face the fluid conduit opening (612), wherein [**5.4**] the wide shallow ring-shaped groove (675) enables the control plate body (676) to function as a seat housing and [**5.5**] a plurality of thru-holes(674) is defined in a flat back side of the disc configured to face away from the fluid opening (612), the thru-holes (674) penetrating the wide shallow ring-shaped groove (675); and

[**6**] a valve seat insert (670) [**6.1**] formed as a polymer material insert (670) which is retained in the seat housing [**6.2**] having a second hardness being less than the first hardness, the valve seat insert (670) having [**6.3**] a planar first surface flush with the side of the metallic valve control plate body (676) intended to face the fluid conduit opening (612), [**6.4**] the first surface being configured to face toward the fluid conduit opening (612) and sealingly engage the planar orifice ridge (618), the valve seat insert (670) [**6.5**] being molded into the control plate body (676), wherein [**6.6**] by molding the polymer material fills the plurality of thru-holes thereby frictionally locking the molded polymer insert (670) into the wide shallow ring-shaped groove defined in the control plate body (676)."

Claims 2 to 9 of the main request all depend on claim 1 of the main request.

IX. The appellant's arguments regarding the issues decisive for the outcome of the appeal may be summarised as follows.

(a) Main request – allowability of the amendments

The amendments made to claim 1 have nearly verbatim support in the application as filed and thus are suitable to overcome the board's concerns regarding a possible unallowable intermediate generalisation (see point 8.1.2(d) of the board's communication pursuant to Article 15(1) RPBA).

(b) Main request – clarity

The structure and in particular the syntax of the whole feature complex [5] to [5.5] has been rectified so that it can no longer be interpreted to mean that the control plate body functions as both a seat housing and a plurality of thru-holes. Thus, the meaning of feature [5.5] is now unambiguous and technically sensible, and the amendments are suitable to overcome the board's objection under Article 84 EPC (see point 8.1.2(d) of the board's communication pursuant to Article 15(1) RPBA).

(c) Main request – inventive step

Under item 2.1 of the communication of 13 January 2023, the examining division asserted that the only distinguishing feature of claim 1 of the main request considered in the decision under appeal over prior-art document D6 was that of a valve diaphragm in sealing engagement with the bonnet body at an outer periphery of the valve diaphragm. However, this assessment by the

examining division is wrong, and claim 1 has more distinguishing features over document D6, as follows.

- Document D6 fails to disclose a valve bonnet for use with a control valve body. It merely discloses discs in a valve body.
- Consequently, document D6 fails to disclose a bonnet body, a control shaft and a control plate body as parts of the valve bonnet.
- The disc *a* of document D6 does not have a flat back side configured to face away from the fluid opening. Instead, the surface *c* of the disc *a* is "chambered upon opposite sides" (page 1, lines 31 to 32, as well as the first two lines of claim 1 of document D6).
- The polymer material insert of document D6 does not frictionally lock due to moulding the polymer material within the plurality of thru-holes, but instead "the packing in one cavity [on one side] will anchor that in the other [on the opposite side]" (see page 1, lines 66 to 67).

Due to this great number of distinguishing features, the identified technical effect and the objective technical problem formulated by the examining division are not appropriate. The examining division suggested, in item 2.3 of its communication of 13 January 2023, that the objective technical problem to be solved could be regarded as "to make the valve bonnet fluid tight". This is not correct because providing a diaphragm in a sliding stem valve would turn the control valve into a completely different type of valve, requiring the whole valve to be entirely re-designed. This is particularly true for document D1, which discloses diaphragm valves that are fundamentally incompatible with the sliding stem valve of document D6. The skilled person would have recognised this incompatibility and would not have

even considered combining any of the teachings of document D1 with document D6. As such, it cannot be held that the teachings of document D6 disclose or render obvious the distinguishing features of claim 1. The subject-matter of claim 1 thus involves an inventive step over a combination of document D6 with any of the other cited prior-art documents.

Reasons for the Decision

1. Main request

1.1 Admittance

The amended main request was filed as a reaction to objections raised for the first time in the board's communication pursuant to Article 15(1) RPBA. The request was filed shortly after receipt of the board's communication. The amendment is suitable to overcome the board's objections (see below) and does not give rise to new objections. Consequently, the request can be taken into account under Article 13(2) RPBA.

1.2 Amendments (Article 123(2) EPC)

In the decision under appeal, the examining division did not raise any objections under Article 123(2) EPC against the claims of the main request considered in the decision under appeal.

The amendments to feature 5.5 are based on the sentence bridging pages 17 and 18 of the application as filed. The board is satisfied that they do not generate subject-matter extending beyond the content of the application as filed.

1.3 Clarity (Article 84 EPC)

The amendments overcome the sole clarity objection raised in point 8.1.2(d) of the board's communication pursuant to Article 15(1) RPBA. The set of claims of the main request satisfies the requirements of Article 84 EPC.

1.4 Main request – inventive step

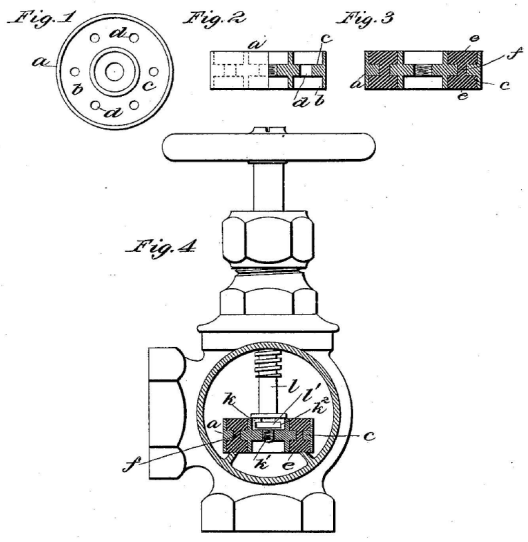
The decision under appeal is based on the communication pursuant to Article 94(3) EPC dated 13 January 2023, according to which the subject-matter of claim 1 of the main request pending at that time lacked inventive step in view of the combination of documents D6 and D1.

In its preceding communication under Article 94(3) EPC dated 10 June 2022, the examining division had found the subject-matter of claim 1 of the main request pending at that time to lack inventive step in view of the reverse combination of documents (i.e. D1 and D6). Although this objection was not reiterated against the amended main request in the communication of 13 January 2023, the board will examine whether the objection applies to that request.

1.4.1 Document D6 as the starting point

1.4.2 Disclosure of document D6

Document D6 discloses a valve (Fig. 4) with a valve-disc *a* (Fig. 2) provided with chambers *b* on opposite faces and suitable packing *e* in the chambers (Fig. 3).



1.4.3 Differences

As can be seen from sections 2.1 and 2.2 of the communication pursuant to Article 94(3) EPC dated 13 January 2023, the examining division was of the opinion that document D6 did not disclose that:

- the valve bonnet comprises a valve diaphragm in sealing engagement with the bonnet body at an outer periphery of the diaphragm (feature 3)
- the control shaft is secured to the valve diaphragm (feature 4.1)

The appellant argues that the following features are not disclosed either:

- a valve bonnet for use with a control valve body (feature 1): document D6 merely discloses discs in a valve body
- a control shaft and a control plate body as parts of the valve bonnet (features 4 and 5)

- a disc with a flat back side configured to face away from the fluid opening (feature 5.5): the surface *c* of the disc *a* is "chambered upon opposite sides" (document D6, claim 1 and page 1, line 33)
- frictional locking of the polymer material insert due to moulding the polymer material within the plurality of thru-holes (feature 6.6): instead, "the packing in one cavity [on one side] will anchor that in the other [on the opposite side]"

(a) Feature 1: valve bonnet

The application does not provide a definition of a valve bonnet. The expression normally designates the pressure-retaining part of a valve connecting the valve body to the actuator. The valve in Fig. 4 of document D6 comprises a part of this kind. The fact that document D6 concentrates on valve discs does not alter this fact.

(b) Feature 4: control shaft

The examining division identified valve stem *1* (see Fig. 4 and 7 of document D1) as the control shaft. The board concurs with this finding. The stem arguably is part of the valve bonnet.

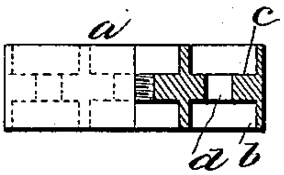
(c) Feature 5: control plate body

In the examining division's opinion, the disc *a* qualified as the control plate body. The board agrees. The disc arguably is part of the valve bonnet.

(d) Feature 5.5

The examining division identified the perforations *d* (see Fig. 2) as thru-holes and the side to which reference *c* points in Fig. 2 as the flat back side of the disc configured to face away from the fluid opening.

Fig. 2



The appellant argues that the surface *c* of the disc *a* is "chambered upon opposite sides" (page 1, line 33 of document D6). This passage indicates that the disc is chambered on both sides, i.e. that chambers designed to contain the packing are provided on both sides. This disclosure does not contradict the examining division's finding. The chambers on the back side of the disc in Fig. 2 can be considered to be part of the thru-holes.

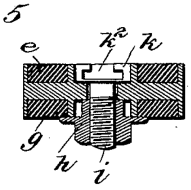
(e) Feature 6.6

According to this feature, the polymer material fills the thru-holes such that the moulded polymer insert is frictionally locked into the wide shallow ring-shaped groove defined in the control plate body.

Frictional locking is commonly understood as a way of securing two components together by increasing the friction between their contacting surfaces.

The examining division referred to page 1, lines 82 and 83, of document D6 in this context. According to this passage, which describes

Fig. 5



the embodiment of Fig. 5, the packing *e* may be made of rubber and pressed into the cavity of the disc while in a plastic condition. Here, the moulded polymer material appears to be frictionally locked into the groove. However, this embodiment discloses a plurality of blind holes, not a plurality of thru-holes.

As far as the embodiment of Fig. 1 to 4 is concerned, the appellant correctly argues that document D6 discloses that "the packing in one cavity [on one side] will anchor that in the other [on the opposite side]" (D6, page 1, lines 65 to 67). In other words, although most probably there is friction between the packing *e* and the walls of cavity *c* in the device of Fig. 1 to 4 (withstanding rotation of the packing in the cavity), the packing is secured in the cavity by geometry rather than friction.

(f) Conclusion regarding the distinctive features

The subject-matter of claim 1 differs from the disclosure of document D6 on account of features 3, 4.1 and 6.6.

1.4.4 Objective technical problem(s)

Features 3 and 4.1 in combination require the valve bonnet to comprise a valve diaphragm that is in sealing engagement with the bonnet body and secured to the control shaft.

The examining division was of the opinion that the technical effect of features 3 and 4.1 was making the valve bonnet fluid tight.

The technical effect of feature 6.6 is not disclosed in the application as filed, but it appears to be unrelated to making the valve bonnet fluid tight.

Even if it were accepted (to the appellant's disadvantage) that there is no synergistic effect between features 3 and 4.1 and feature 6.6, the subject-matter of claim 1 of the main request would involve an inventive step for the following reasons.

1.4.5 Obviousness to the skilled person

The examining division argued that features 3 and 4.1 related to a simple structural measure in line with the customary practice of persons skilled in the art. It referred to document D1, Fig. 1, 2, 5, 6 and 7, and diaphragm 36. The examining division was of the opinion that the skilled person seeking to solve the problem of making the valve bonnet fluid tight would have regarded it as a normal option to include said features in the valve bonnet described in document D6 (see section 2.5 of the communication pursuant to Article 94(3) EPC dated 13 January 2023).

Document D1 concerns diaphragm-type valves and discloses an improved arrangement that prevents the diaphragm from being subjected to undesirable stresses and extends its lifetime (see column 1, lines 29 to 33).

It is not apparent to the board why the skilled person would have considered document D1 when seeking to make the valve of document D6 fluid tight, even more so given that the valves in documents D6 and D1 are of different types. The examining division's reasoning is based on hindsight.

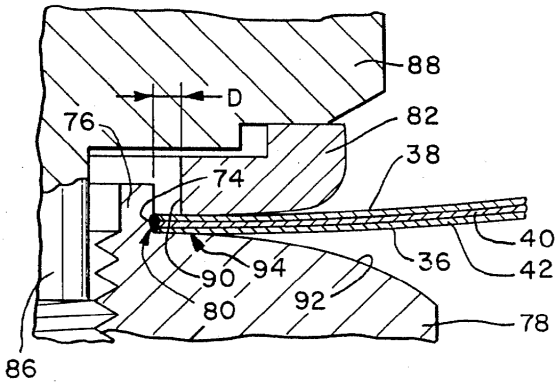
In view of this, it can be left unanswered whether feature 6.6 can also establish an inventive step.

1.5 Document D1 as the starting point

1.5.1 Disclosure of document D1

Document D1 concerns diaphragm-type valves using a multiple annular metal diaphragm 36 welded about its inner periphery to a valve operating stem 76. The diaphragm is sealingly clamped about its outer periphery to the valve body and is also clamped about its inner periphery at a location spaced outwardly of the weld to prevent the weld from being subjected to flexure stresses during valve actuation.

FIG.5



In section 3.1 of its communication pursuant to Article 94(3) EPC issued on 10 June 2022, the examining division concluded that claim 1 of the former main request differed from the disclosure of document D1 on account of features 5.3, 5.5, 6.3, 6.5 and 6.6. The amendment of feature 5.5 in the current main request does not call this finding into question.

1.5.2 Objective technical problem

In section 3.3 of the same communication, the examining division defined the objective technical problem as

simplifying the construction of the valve control plate while enhancing the fixation of the valve seat insert to the valve control plate body.

In its response dated 7 October 2022, the appellant disputed this formulation on the grounds that it failed to account for the technical effects of the distinguishing features whereby the volume of polymer material that was disadvantageous for high-purity fluid control applications was reduced. Accordingly, the objective technical problem was not merely that of enhancing fixation of the valve seat insert, but instead that of enhancing fixation while reducing the amount of insert material necessary. The board does not endorse this formulation because claim 1 does not specify the amount of insert material.

1.5.3 Obviousness to the skilled person

The examining division then noted that document D6 disclosed the distinguishing features as providing the same advantages as in the application as filed. Consequently, the skilled person would have considered it a normal option to include these features in the valve control plate of the valve bonnet described in document D1 in order to simplify the construction of the valve control plate while enhancing the fixation of the valve seat insert to the valve control plate body (see sections 3.4 and 3.5 of the communication pursuant to Article 94(3) EPC of 10 June 2022).

The examining division's reasoning is not persuasive. Document D6 concerns valves of a different type; it is not concerned with the simplicity of valve construction. Consequently, the skilled person starting from document D1 and seeking to solve the objective

technical problem had no incentive to consult document D6. Even if the skilled person had consulted document D6, it is not apparent to the board why they would have selected features 5.3, 5.5, 6.3, 6.5 and 6.6. Moreover, as mentioned above (see point 1.4.3(e)), the embodiment of document D6 referred to by the examining division (Fig. 1 and 2) does not disclose feature 6.6. The examining division's reasoning is based on hindsight.

1.5.4 Conclusion regarding inventive step

The subject-matter of claim 1 of the current main request involves an inventive step within the meaning of Article 56 EPC.

Dependent claims 2 to 9 of the main request each contain all the features of claim 1 and therefore also involve an inventive step for the reasons given above.

1.6 Overall conclusion regarding the set of claims of the main request

It is possible to grant a patent on the basis of the claims of the main request.

2. Decision in written proceedings

As the board grants the appellant's main request, the condition for the appellant's auxiliary request for oral proceedings is not met, and the decision can be taken in the written proceedings.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division with the order to grant a patent with the following claims and a description and drawings to be adapted if necessary:

claims 1 to 9 of the main request filed by letter dated 16 July 2025

The Registrar: The Chairman:

N. Schneider M. Holz

Decision electronically authenticated