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**Datasheet for the decision
of 1 October 2025**

Case Number: T 1819/23 - 3.4.02

Application Number: 12729233.2

Publication Number: 2856089

IPC: G01G13/00, G01G11/08, G01G17/00

Language of the proceedings: EN

Title of invention:

Feeder Unit, a Feeder Module Comprising a Plurality of Feeder Units, and Method for Discharging a Constant Mass Flow of One or More Powders Into a Receiving Container

Patent Proprietor:

GEA Process Engineering nv

Opponent:

K-Tron Technologies Inc.

Headword:

Feeder unit with low dead weight/GEA Process Engineering

Relevant legal provisions:

RPBA 2020 Art. 12(3), 12(5)
EPC Art. 56

Keyword:

Admittance - (no) - main request - insufficient substantiation
Inventive step - (no) - first auxiliary request
Admittance - (no) - second auxiliary request - insufficient
substantiation

Decisions cited:

G 0001/24



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 1819/23 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 1 October 2025

Appellant: GEA Process Engineering nv
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
10 August 2023 concerning maintenance of the
European Patent No. 2856089 in amended form.**

Composition of the Board:

Chairman R. Bekkering
Members: F. Giesen
P. Guntz

Summary of Facts and Submissions

I. The appeals by the patent proprietor and the opponent are directed against the interlocutory decision of the opposition division to maintain the opposed patent in amended form on the basis of auxiliary request 8.

II. The following documents are referred to:

- D2 Photograph of a Weighing cell according to D14 on a scale showing its weight
- D12 K-TRON Product Specification
Volumetric Bulk Solids Pump (BSP) Feeder
- D13 K-TRON Product Information
K4G Continuous Gravimetric Blender
- D14 K-TRON Product Specification
Smart Force Transducer K-SFT-III Load Cell

III. The parties' final requests were the following:

The patent proprietor requested

that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the claims of the main request or, in the alternative, of the first or second auxiliary requests, all requests submitted with the letter dated 30 September 2025.

The opponent requested that

the decision under appeal be set aside and that the opposed patent be revoked.

IV. Claim 1 of the main request reads as follows:

F1 *"A feeder unit (2)*
F1.1 *comprising a storage hopper (21),*
F1.2 *a weighing cell (24),*
F1.3 *a conveyer [sic] (22),*
F1.4 *and a discharge end (23),*
F2 *the storage hopper (21) being*
 adapted to be connected to a refilling system,
F3 *and the discharge end (23) to a receiving*
 container (3),
F4 *the feeder unit (2) having a predefined dead*
 weight (dw) and
F5 *the storage hopper (21) having a predefined*
 volume to define a capacity of the storage
 hopper (21) below 10 liters
F6 *a working space (ws) in kgh being defined by the*
 arithmetic product of dead weight (dw) in kg of
 the feeder unit (2) and the refilling interval
 (ri) in h,
 characterised in that
F7 *the dead weight of the feeder unit (2) lies in*
 the range 5 to 8 kg, and
F8 *that the working space (ws) is below 0.2 kgh."*

Feature labels here and in the following were added by the board.

V. Claim 1 of the first auxiliary request comprises features F1 to F8 of the main request and in addition the features:

F9 *"and the feeder unit (2) comprises a refilling valve (41, 42, 43) connected to the storage hopper (21)*

F10 *and a level or weight indicator (44) above the refilling valve (41, 42, 43) for controlled predosing of a refill amount,*

F11 *and a controller adapted to store a conveying parameter together with a level or a weight is provided."*

VI. Claim 1 of the second auxiliary request comprises the features of claim 1 of auxiliary request 1 and in addition the feature:

F12 *"and one or more conveyers [sic] are twin screw conveyors (221, 222)."*

Reasons for the Decision

1. Admissibility

The appeals meet the requirements of Articles 106 to 108 EPC as well as of Rule 99 EPC. They are therefore admissible.

2. Main request - admittance

2.1 The main request was filed on the evening of 30 September 2025, the day before the oral proceedings.

It is identical to the fifth auxiliary request filed with the proprietor's statement of grounds of appeal.

- 2.2 The board had indicated in its communication under Article 15(1) RPBA that this request was not sufficiently substantiated and therefore did not appear to meet the requirements of Article 12(3) RPBA. The board therefore intended not to admit this request under Article 12(5) RPBA.
- 2.3 Promoting this request to the main request does not alter this assessment. The proprietor's statement of grounds of appeal contained only a table describing the amendments made and indicating to which request in the opposition proceedings the former fifth auxiliary request corresponded. However, this does not amount to an explanation as to why the decision under appeal was to be set aside in view of this request nor why the latter met the requirements of the Convention.
- 2.4 The proprietor argued that the substantiation provided for the former eighth auxiliary request also applied to the former fifth auxiliary, and hence the present main request. Accepting this argument would, however, mean accepting that the board and the opposing party were obliged to piece together parts of the patent proprietor's submission and apply them to other requests. In the board's view, the purpose of Article 12(3) RPBA is to prevent such a situation. The present case is, in any event, not so self-explanatory that an explicit substantiation of the former fifth auxiliary request could exceptionally be dispensed with.

At the oral proceedings, the proprietor also argued that the requests were convergent. However, Article

12(3) RPBA establishes a different requirement.
Therefore this argument is not relevant.

2.5 Accordingly, the main request is not admitted into the proceedings under Article 12(5) RPBA.

3. First auxiliary request - inventive step

3.1 The claims of the first auxiliary request are identical to those of the eighth auxiliary request, which the opposition division held to meet the requirements of the EPC. The decision under appeal was therefore based on this request within the meaning of Article 12(2) RPBA. Moreover, the appeals of both the patent proprietor and the opponent were, *inter alia*, directed to this request within the meaning of that provision. Consequently, the former eighth auxiliary request has been taken into account in the appeal proceedings.

The promotion in rank of this request on the day before the oral proceedings may constitute an amendment to the patent proprietor's appeal case within the meaning of Article 13(2) RPBA. However, since this request had in substance always been considered during the appeal proceedings up to that point, and since its promotion in rank contributes positively to procedural economy, there are exceptional circumstances within the meaning of Article 13(2) RPBA. The first auxiliary request is therefore taken into account.

3.2 The subject-matter of claim 1 of the first auxiliary request does not involve an inventive step within the meaning of Article 56 EPC.

Starting point

- 3.3 The feeder unit according to D13 is an appropriate starting point for the assessment of inventive step.

The proprietor argued that the feeder according to D13, which employed the BSP-100 bulk solids pump feeder, was intended for plastics granulates in plastics production, whereas the description of the opposed patent made it clear that the feeder unit according to claim 1 was intended for conveying powder in pharmaceutical production. According to the proprietor, the feeder unit of D13 would at least have to be suitable for powder feeding. While the proprietor did not explicitly argue this, this argument could be understood as implying that D13 is not an appropriate starting point.

However, the opponent pointed out correctly that claim 1 is not limited to powder or pharmaceutical production. The board wishes to add that, in accordance with decision G 1/24, interpreting a claim means establishing its proper technical meaning. This is distinct from reading into it limitations that are not present in its wording on the basis of the description.

Distinguishing Features

- 3.4 The distinguishing features of claim 1 over the feeding unit according to D13 are features F5, F7, and F9 to F11.

- 3.4.1 Feature F5 is a distinguishing feature. The volume of the smallest storage hopper of D13 is 10 litres, 12.4 litres if the transition hopper is taken into account (see D12, page 2, tables "Configuration" and

"Asymmetrical Hoppers"). It is therefore not below 10 litres, as required by feature F5.

- 3.4.2 Feature F7 is likewise a distinguishing feature. According to D12, page 2, table "Configuration", the assembly of the BSP-100 feeding unit, the motor drive and the transition hopper weighs 4.5 kg. According to D12, page 2, table "Asymmetrical Hoppers", the smallest hopper, having a volume of 10 litres, weighs 3 kg.

The patent proprietor argued that the reference in D13 to an "SFTIII support" did not constitute a direct and unambiguous disclosure of an SFTIII weighing cell.

However, the board cannot see how the denomination "SFTIII support" could mean anything but that the support was intended for an "SFTIII weighing cell". In addition, document D13 shows photographs of what looks like an SFTIII weighing cell when compared with the photographs in D2 or D14.

In any event, this discussion is of limited relevance for the question as to whether feature F7 is a distinguishing feature. Document D2 discloses that the K-SFT-III load cell weighs 0.9437 kg. Assuming that D13 discloses an SFTIII weighing cell according to D2 or D14, the total weight of the assembly consisting of the BSP-100 feeding unit, the motor drive, the transition hopper, the 10-litre hopper and the K-SFT-III load cell would amount to 8.4437 kg, which may be very close to the claimed upper limit but lies outside of the range of 5 kg to 8 kg.

- 3.4.3 Feature F8 is not a distinguishing feature. According to claim 1, the working space is defined as the product of the dead weight and the refilling interval.

Paragraph [0045] of the description discloses a similar physical quantity, namely the product of the maximum refilling interval and the dead weight, without, however, designating this product as the working space. The expression "maximum refilling interval" refers to the time required to empty the storage hopper filled to its maximum, given a certain maximum feed rate of the conveyor. This can be seen as an intrinsic property of a feeder unit.

By contrast, a "refilling interval", as opposed to a "maximum refilling interval", is an operational parameter of a feeder rather than an intrinsic property. It can be set to any value between 0 (continuous refilling) and any upper limit, by adjusting the feed rate or by making a decision as to the level at which the hopper is refilled. If the upper limit exceeds the maximum refilling interval, the storage hopper will run empty before being refilled (see also the opponent's statement of grounds of appeal, point 5.2). This indefinite definition carries over to the working space as defined in the claim. In principle, its value may range from 0 (in the case of continuous refilling) to an arbitrary upper limit. The definition of this parameter in the claim is therefore not suitable to distinguish the claimed subject-matter from the prior art.

The proprietor argued that feature F8 had to be interpreted in the light of the description as referring to the product of the maximum refilling interval and the dead weight. However, the definition of "working space" in the claims is not given a different meaning when interpreted in the light of the description. The description merely confirms the claim definition and carefully avoids the use of the term

"working space" whenever the maximum refilling interval is mentioned. This corroborates that the broad definition adopted in the claim was intentional.

- 3.4.4 Features F9 and F10 are distinguishing features. The feeder according to D13 shows a refilling hopper with a refilling valve and a level indicator mounted on a separate post. This refilling system is not shown directly and unambiguously in combination with the BSP-100 pump feeder. Moreover, document D13 does not show a refilling valve connected to the storage hopper.
- 3.4.5 Feature F11 is a distinguishing feature since document D13 does not show a controller adapted to store a conveying parameter together with a level or weight.
- 3.4.6 In summary, features F5, F7 and F9 to F11 are the distinguishing features.

Technical Effects

- 3.5 The technical effects associated with the above distinguishing features, as derivable from the application as filed, relate to a feeder operating mainly in a loss-in-weight feeding mode. In such a case, the amounts to be fed into a mixing container are very small compared to the dead weight of other components, such as the conveyor and the storage hopper.

According to page 4, line 31 to page 5, line 9 of the application as filed, a working space of below 0.2 kgh enabled the dispensed amount to be more precise. The application as filed further states that prior-art loss-in-weight feeders weighed between 20 kg and

100 kg, whereas the weight loss during dispensing a desired amount was on the order of 0.01 to 0.5 g.

It is a well-established principle in all fields of metrology, and hence part of the common general knowledge of the skilled person in the field of feeder units, that it is difficult to measure small variations against a large background, that is, small relative changes of a measured quantity. Therefore, a skilled person understands that it may be advantageous to reduce the dead weight of all parts contributing to the weight in a loss-in-weight feeding process.

The opponent's argument that feature F7 should be disregarded entirely in the assessment of inventive step (opponent's statement of grounds, point 5.1) is not persuasive. Even if the weight of the weighing cell were considered irrelevant to the reduction of dead weight, the feature as a whole nevertheless produces the technical effect of improved accuracy. Furthermore, the opponent argued that an assembly comprising a hopper, a conveyor and a weighing cell known before the filing date of the patent, could in the future fall within the scope of the claim if a lighter weighing cell were invented and used together with the remaining known components. This argument does not demonstrate that feature F7 should be ignored; it merely shows that the prior art assembly would have to be modified to fall within the wording of the claim.

The benefit of a reduced working space of less than 0.2 kgh does not go beyond that of a reduced dead weight. A feeder unit having a small dead weight necessarily has a relatively small storage hopper volume. To maintain a continuous feed at maximum feed rate, the storage hopper therefore needs to be refilled

at shorter intervals. The shorter refilling interval is thus merely a consequence of the desired small dead weight. The patent does not provide any additional explanation. Moreover, according to the opposed patent itself, the feeder cannot be operated in a loss-in-weight feeding mode during refilling, which is the most accurate mode. A shorter refill interval results in more frequent refills and thus in a reduced accuracy.

The board concedes that distinguishing features F5 and F7 would be recognised by the skilled person as improving the accuracy of a loss-in-weight feeder. The board can accept that the presence of a weighing cell implies this mode of operation.

3.6 Features F9 and F10 relate to a refilling valve and to a level or weight indicator above the refilling valve.

Feature F9 defines an alternative construction of the feeder unit compared with that disclosed in D13. In D13, the refilling hopper, level indicator and refilling valve are mounted on a separate post ("refill support stand"; see section "Design", page 1, right-hand column, second paragraph, and the figures). Their weight is not borne by the weighing cell and is therefore entirely irrelevant for the accuracy of the feeding process. In contrast, claim 1 defines in feature F9 that the refilling valve is connected to the storage hopper. According to paragraph [0052] of the opposed patent, this arrangement allows the refill material to be contained. However, the construction runs counter to the aim of improving the accuracy by keeping the dead weight small. Moreover, the board is not persuaded that the claim formulation "refilling valve (41, 42, 43) connected to the storage hopper" expresses containment of the refill material.

A level or weight indicator above a refilling valve enables refilling a predefined amount. This effect is already achieved in D13.

Features F9 and F10 therefore represent a technically disadvantageous alternative construction.

3.7 Feature F11 relates to the storage of a conveying parameter together with a level or weight.

Feature F11 does not produce any technical effect across the entire scope of the claim. Paragraphs [0059] to [0063] of the opposed patent indicate that the feeder can be operated in a volumetric mode during a refill. On the assumption that the amount of powder during the refill is small, the period during which volumetric feeding has to be used can be brief. If this period is sufficiently short, inaccuracies caused by compacted powder in the hopper can be avoided, provided that the refilling period is shorter than the time required for the powder in the conveyor to be discharged. The patent further states that, according to the invention, the refill system always refills the same amount, thereby reducing inaccuracies. Paragraph [0062] discloses that the number of revolutions of an impeller of the prefeeding system, i.e. the refill system in the claim, is stored together with a level or weight.

Claim 1 of the first auxiliary request, however, contains no limitation reflecting these considerations. It is not limited to a feeder that is operated in volumetric mode during refilling. Feature F11 specifies the storage of a conveying parameter, which implies that a parameter of the conveyor defined in feature

F1.3, i.e. of the main feeding system, not of the refilling system, is stored. By contrast, paragraph [0062] of the patent merely states that the refill system is operated by rotating an impeller a defined number of turns as a function of the fill height in the refilling hopper; this is not reflected in claim 1. The claim also does not define that the same amount of powder is refilled under the same conditions each time.

Furthermore, the board does not see how this description of an operating *mode* could distinguish the claimed refill *system* from any other prior art refilling system. No advantageous technical effect of feature F11 can therefore be derived from the application as filed, particularly since claim 1 leaves entirely open which parameter is stored and whether, or how, this parameter is used in operating the feeder.

Objective Technical Problem

- 3.8 The objective technical problem is therefore to provide a feeder unit that can achieve better accuracy on the one hand and of alternative construction in some aspects on the other hand.

Assessment of the Solution

- 3.9 The solution to the objective technical problem is considered to be obvious.
- 3.9.1 Firstly, the board considers it obvious for a skilled person, starting from D13, which is a brochure for commercially available modular feeding units, to select any modular combination. It is difficult to see how the choice of components disclosed to be combinable in any desired manner in a commercial brochure ("The system is

completely modular; feeders and conveyors can be exchanged or removed as needed", D13, right column, fourth paragraph) could involve an inventive step, as the opposition division appears to have argued in point 40.2 of the decision under appeal.

It is considered obvious to a skilled person wishing to improve the accuracy of the feeder of D13 that the dead weight should be reduced further for the reasons given above in section 3.5. D13 discloses a feeder unit comprising a storage and a transition hopper with a combined volume of 12.4 litres, resulting in a total weight slightly above 8 kg. Even if D13 does not explicitly disclose exactly 8.4437 kg, it suggests this dead weight. There is no evidence, nor has the proprietor provided any, that SFTIII weighing cells exist in versions of significantly different weight. Hence, D13 suggests an assembly that is very close in weight to the claimed upper range, irrespective of the exact numerical value. It is considered obvious for the skilled person, when seeking to reduce the total weight further, to lower it to below 8 kg and to modify the smallest hopper so that its volume is below 10 litres. The exact claimed numerical values do not provide any unexpected technical advantage but merely represent an implementation choice of an obvious concept.

The patent proprietor argued that claim 1 defined a stand-alone feeder unit, whereas D13 only concerned modules that worked in combination. This argument is not persuasive. D13 discloses that the feeders can operate in any combination, which implies that they can also operate individually. D13 does not contain any information suggesting that the feeder units could not function as stand-alone devices, and claim 1 does not

include any feature which could be seen as a prerequisite to enable stand-alone operation.

- 3.9.2 Secondly, as to the aspect of attaching the refilling valve and level indicator (and consequently the refill hopper) directly to the storage hopper, thereby adding to the dead weight, this constitutes a non-functional modification of the prior art that runs counter to solving the objective technical problem. Since gravity is used to fill the hopper, the refilling valve has to be located above it, as is already the case in D13. As claim 1 is not limited to a contained feeder, there is also no surprising technical effect that could compensate for this disadvantageous modification.

The opponent is correct in submitting that feature F8 makes no contribution to any non-obvious solution. It does not limit the subject-matter of claim 1 in any way. In any event, even if feature F8 were interpreted, in the patent proprietor's sense, as referring to the maximum refill interval, the board has already explained that a smaller dead weight would automatically lead to a smaller hopper and, consequently, to a shorter maximum refilling interval. The definition of a "working space" as claimed does not reflect any technical insight beyond the realisation that a reduction in dead weight improves accuracy.

The same reasoning applies to feature F11, in the absence of any clear claim definition indicating which element of the feeder the parameter concerns, or whether and how the machine is operated on the basis of this parameter. As defined, feature F11 is merely a non-functional modification of the prior art.

Given the opponent's explanations concerning the difficulty of scaling down the size of feeders (build-up of powder bridges), the skilled person's common general knowledge that small relative changes of a physical quantity are difficult to measure, and the conceptual nature of the patent which offers no detailed embodiment explaining how the claimed low dead weight could realistically be achieved, the board concludes that no inventive step can be acknowledged for solving the above problem in the manner claimed.

3.10 The subject-matter of claim 1 therefore does not involve an inventive step.

4. Second auxiliary request - admittance

4.1 Claim 1 of the second auxiliary request is identical to claim 1 of the former fourth auxiliary request filed with the statement of grounds of appeal.

As in the case of the present main request (former fifth auxiliary request), neither the proprietor's statement of grounds of appeal nor its reply contains a substantiation sufficient to meet the requirements of Article 12(3) RPBA. In particular, they do not provide any explanation as to why the limitation of the conveyor to twin screw feeders would involve an inventive step. The assessment of inventive step over document D13 was one of the key issues to be addressed at the outset and throughout the appeal proceedings. Given that D13 already discloses twin screw feeders (see page 1, right-hand column, section "Design": "KT20 Twin Screw Feeders for Powder"), it is not self-evident why this request would fulfil the requirements of Article 56 EPC. Consequently, for the substantiation to

be sufficient, specific arguments in this respect would have been required.

4.2 Accordingly, the second auxiliary request is not admitted into the proceedings under Article 12(5) RPBA for lack of substantiation in accordance with Article 12(3) RPBA.

5. Since there is no allowable request, the board has to dismiss the proprietor's appeal and accede to the opponent's main request.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



L. Gabor

R. Bekkering

Decision electronically authenticated