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**Datasheet for the decision
of 27 March 2026**

Case Number: T 0958/25 - 3.2.01

Application Number: 18774159.0

Publication Number: 3829971

IPC: B63B43/32, B63B19/00

Language of the proceedings: EN

Title of invention:

INNER EXPLOSION RESISTANT MEMBRANE DOOR FOR A MARINE VESSEL

Applicant:

Nederlandse Organisatie voor toegepast-
natuurwetenschappelijk onderzoek TNO

Headword:

Relevant legal provisions:

EPC Art. 56, 113(1)
EPC R. 103(1)(a)

Keyword:

Inventive step - (yes)
Right to be heard - substantial procedural violation (yes)
General principles - protection of legitimate expectations

Decisions cited:

G 0002/97, J 0003/24, T 0279/89, T 1588/22

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

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Case Number: T 0958/25 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 27 March 2026

Appellant: Nederlandse Organisatie voor toegepast-
(Applicant) natuurwetenschappelijk onderzoek TNO
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted/electronically
transmitted on 27 March 2025 refusing European
patent application No. 18774159.0 pursuant to
Article 97(2) EPC.**

Composition of the Board:

Chairwoman S. Fernández de Córdoba
Members: J. J. de Acha González
M. Geisenhofer

Summary of Facts and Submissions

- I. The appeal of the applicant lies against the decision of the Examining Division to refuse European patent application No. 18774159.0.
- II. The following documents are relevant for the present decision:
- D1:** EP 1 144 783 B1;
 - D2:** US 2 060 608 A;
 - D3:** KR 2014 0001424 A;
 - D4:** AUSTENITIC CHROMIUM-NICKEL STAINLESS STEELS AT AMBIENT TEMPERATURES - MECHANICAL AND PHYSICAL PROPERTIES - A practical guide to the use of nickel-containing alloys N°2978, Nickel Institute, 1962; and
 - D5:** printscreen of <https://steelprogroup.com/automotive-steel/qste420/> - properties of QSTE420.
- III. In its decision the Examining Division held that the subject-matter of the claim of the sole request did not involve an inventive step over the disclosure of document D1 and common general knowledge of the skilled person.
- IV. With the statement of grounds of appeal, the appellant requested that the decision under appeal be set aside and a patent be granted on the basis of the sole request filed with the statement of grounds of appeal (which is a refiling of the request filed on 7 November 2024 in the examination proceedings). The appellant further requested that the appeal fee be

refunded by reason of a substantial procedural violation.

V. The claim of the sole request reads as follows:

Inner explosion resistant membrane door (31) for a marine vessel, comprising:

a fixed frame comprising a first plate (32) with an opening (34) enclosed by a peripheral edge (33);

a door (37) connected pivotally to said first plate (32) by at least one hinge construction (35, 36) such that with its peripheral zone (38) the door (37) sealingly co-acts with said peripheral edge (33), said peripheral edge (33) comprising a plate part (51) having a wave shape with at least one wave;

said door (37) comprising a second plate or door leaf (45) of steel which is received in a framework (46) which co-acts sealingly with the peripheral edge (33) in a closed position;

said first plate (32) carrying a number of peripherally arranged clamps (39) arranged on rotation shafts (47),

which clamps (39) are simultaneously rotatable by a collective operating mechanism (40) with an operating handle (41) and through rotation can coact with the peripheral surfaces (42) of corresponding non-round through holes (43) in the door (37);

said peripheral edge (33) being deformable under the influence of a predetermined pressure load on the inner membrane door (31) in the closed position such that at least the door (37) can be pressed out of the main plane it occupies when at rest while maintaining the co-action between the framework (46) and the peripheral edge (33) and the mechanical integrity of the membrane door (31), characterized in that the second plate or door leaf (45) is made of weldable 316L

low carbon, austenitic stainless steel, and in that the second plate or door leaf (45) has a thickness of 4-5 mm.

Reasons for the Decision

1. The sole claim is a combination of claims 1, 3, 4 and 5 of the application as originally filed. The subject-matter of claim 1 does not therefore extend beyond the content of the application as originally filed (Article 123(2) EPC).

2. *Inventive step*

2.1 The subject-matter of the claim is not rendered obvious in view of D1 in combination with the common general knowledge of the skilled person (Article 56 EPC).

2.2 It is undisputed that D1 discloses a door for a marine vessel with the structure defined in the claim as set out in point 11.1 of the reasons for the decision under appeal.

The subject-matter of the claim differs from the inner explosion resistant membrane door of D1 on account of the features of the characterising part of the claim, namely:

the second plate or door leaf (45) is made of weldable 316L low carbon, austenitic stainless steel, and in that the second plate or door leaf (45) has a thickness of 4-5 mm.

The objective technical problem solved by the invention can be seen as to improve the resistance to explosion.

The appellant does not dispute this either.

- 2.3 The appellant is correct in stating that the specific selection in the claim of weldable 316L low-carbon austenitic stainless steel at a thickness of 4-5 mm for the door leaf involves an inventive step over D1 and the skilled person's common general knowledge.
- 2.4 The Examining Division's refusal rests on an incorrect application of the problem-solution approach and the established criteria for selection inventions, which require the selected features to be narrow and sufficiently remote from the prior art while delivering a specific technical effect that is not arbitrary, not hinted at, and not obvious.
- 2.5 D1 discloses only a generic "steel" door leaf and expressly requires a maximum thickness of 3 mm (the explicitly exemplified QSTE 420 in the description as a high-yield structural grade with a yield strength of at least 420 Mpa is only selected for the beams of the door leaf; see D5). The claim narrows this disclosure to one particular austenitic stainless grade (316L) and requires a thicker range (4-5 mm). This represents a purposive selection that is inventive when it solves a technical problem that the prior art neither recognised nor addressed (see, for example, the principles in T 279/89 and the general guidance on selection inventions in the Case Law of the Boards of Appeal of the EPO, 11th edition, 2025, I.D.9.11).
- 2.6 The Examining Division's first error is factual: it incorrectly asserted that D1 implicitly disclosed

stainless steel (referring to claim 12 of D1, see point 11.2 of the decision). The claims and description of D1 disclose only "steel" and cite a carbon-steel grade with significantly higher yield strength than 316L for the strengthening beams of the door. The Examining Division then compounded this error by arguing that 316L is simply one routine choice among austenitic stainless steels for shipbuilding "overall properties" or corrosion resistance by making reference to D4. That reasoning misses the point since the object of the invention is to improve explosion resistance and not corrosion. For an inner membrane door there seems further to be no corrosion problem to solve - the compartment is protected from seawater - so the skilled naval designer would have no reason to choose stainless steel, which is considerably more costly than ordinary structural steel.

More importantly, the common general knowledge actually points away from 316L: its annealed yield strength (around 220 MPa, 32000 psi) is roughly half that of the QSTE 420 specifically mentioned in D1 (although for the beams of the door and not the door panel itself), and this lower strength would appear to the skilled person to risk denting, bending, or reduced blast resistance. Choosing a softer, more expensive material that runs counter to D1's only specifically mentioned high-yield steel is therefore not an obvious step.

- 2.7 The core inventive insight, which the Examining Division disregarded, is the recognition of a previously unaddressed failure mechanism: shrapnel (fragments of the exploding warhead) from an internal explosion perforates the door leaf first, creating holes that act as crack starters, after which the pressure wave arrives and propagates fractures through ordinary steel, allowing part of the door to blow open.

Only after targeted experiments did the appellant discover that 316L's superior ductility and toughness dramatically slow this crack initiation and propagation, even though its yield strength is lower. This effect is not a mere "bonus" or something the skilled person would predict; it is the very reason the selection works and why the patent describes it as unexpected. This surprising advantage in a newly recognised technical context (here, combined fragment-plus-blast loading) makes a selection non-obvious, precisely because the prior art gives no pointer to the solution and common general knowledge actually teaches away from it.

2.8 The thickness change is equally non-routine. D1 does not merely allow 3 mm, it teaches that this is the required maximum for the second plate or door leaf (see paragraph [0018] of D1). Moving to 4-5 mm contradicts that teaching, yet the application shows it provides adequate resistance for most explosion scenarios while still permitting the membrane-like deformation. The Examining Division dismissed this as "normal design procedure" but that ignored both the contrary teaching in D1 and the fact that the thickness is claimed in combination with the specific steel whose toughness makes the extra millimetres effective against crack growth.

2.9 Thus, starting from D1 the skilled person, aware of the high cost of stainless steel, the lower yield strength of 316L compared with the grade D1 recommends, and D1's explicit cap on thickness, would have no motivation to arrive at the claimed combination. The objective technical problem is to improve explosion resistance beyond what D1 already achieves, and the solution is a narrow, purposive selection that delivers a specific,

experimentally confirmed advantage in fracture resistance under a failure mode D1 never contemplated. Under established case law of the Boards of Appeal on selection inventions this cannot be regarded as obvious.

The Examining Division's analysis therefore does not withstand scrutiny, and the applicant's grounds of appeal are well founded in this respect.

2.10 The subject-matter of the claim is not rendered obvious by the cited prior art (D2 and D3) either. None of D2 or D3 are directed to explosion resistant doors for marine vessels.

3. Accordingly, the sole claim together with the adapted description and the figures as refiled with the statement of grounds of appeal form a suitable basis for the grant of a patent.

4. *Substantial procedural violation*

4.1 The Board concurs with the appellant that the Examining Division committed a substantial procedural violation by refusing the application during oral proceedings without first cancelling the communication under Article 94(3) EPC, which had given the applicant a deadline for filing submissions that had not yet expired, and without informing the applicant accordingly.

This course of action runs counter the principle of protection of legitimate expectations, which applies in proceedings before the EPO, and results in a violation of the right to be heard (Article 113(1) EPC).

- 4.2 After the applicant filed a new main request (amended sole claim) and arguments on 7 November 2024 in direct response to the summons to oral proceedings, the Division issued a formal communication under Article 94(3) EPC on 31 January 2025. That communication raised Article 56 EPC objections against the new claim, warned that refusal was to be expected, and explicitly invited to file observations within a four-month period (a standard time limit under Rule 132 EPC). The applicant was therefore entitled to rely on that invitation and to file further written comments or amendments during the given time limit before any decision was taken.
- 4.3 On the exact day of the oral proceedings (12 February 2025) and while the four-month time limit was still running, the Division cancelled that communication and replaced it with another one having identical content but "without time limit". It further conducted the oral proceedings in the appellant's absence (Rule 115(2) EPC) and decided to refuse the application at the oral proceedings on the same day. This last-minute cancellation and same-day re-issue had the practical effect of withdrawing the promised response period and preventing the applicant from commenting in writing on the objections to their amended claims before the refusal. Even though the appellant had already stated they would not attend the oral proceedings, they retained the fundamental right under Article 113(1) EPC to be heard on the grounds for refusal – including by way of written observations within the time limit formally granted.
- 4.4 This course of action violates the principle of protection of legitimate expectations. The Examining Division, by issuing the decision to refuse the application, took the applicant by surprise, thereby

depriving them of a further opportunity to present arguments. The applicant was thus denied their right to be heard.

The application of the principle of protection of legitimate expectations (also referred to as the principle of good faith) to procedures before the EPO implies that measures taken by the EPO should not violate the reasonable expectations of the parties to such proceedings (see decision G 2/97, point 1). It requires that communications addressed to applicants be clear and unambiguous, i.e. drafted in such a way as to rule out misunderstandings on the part of a reasonable addressee (see also decision J 3/24, point 3.2.2).

4.5 The Boards of Appeal have repeatedly held that such procedural manoeuvres, which result in a decision being taken at a time when the applicant could not have expected it, constitute a substantial procedural violation (see, for example, T 1588/22 and the general case law summarised in the Case Law of the Boards of Appeal of the EPO, 11th edition, 2025, III.A and III.B).

4.6 As the appeal is allowable for the reasons set out above, the Board considers reimbursement of the appeal fee equitable in view of the established substantial procedural violation. Thus, the appeal fee is to be reimbursed in accordance with Rule 103(1) (a) EPC.

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 on the basis of the claim, description and drawings as refiled with the statement of grounds of appeal of 1 July 2025.
3. The appeal fee is reimbursed.

The Registrar:

The Chairwoman:



M. Schalow

S. Fernández de
Córdoba

Decision electronically authenticated