

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FULL-METAL-POWER B.V.,
Petitioner,

v.

INFOCUS DOWNHOLE SOLUTIONS USA LLC,
Patent Owner.

Case IPR2025-00391
Patent No. 10,676,992

PATENT OWNER'S PRELIMINARY RESPONSE

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EXHIBIT LIST

Petitioner's Exhibits

Exhibit	Description
1001	U.S. Patent No. 10,676,992 (“the ’992 Patent”)
1002	Amendment After Non-Final Rejection dated December 1, 2019, in Prosecution History of the ’992 Patent (“ROA”)
1003	Notice of Allowance, in Prosecution History of the ’992 Patent (“NOA”)
1004	CA2961629 – “the ’629 priority application”
1005	Chinese Patent Publication Number CN102501016A – Translated (“Zhilong”)
1006	Yang, F., Ren, T., Wang, H., Liu, B., & Chen, M. (2016). Analysis of Flow Field for Electrochemical Machining Metal Screw Pump Stator. <i>The International Journal of Advanced Manufacturing Technology</i> . https://doi.org/10.1007/s00170-016-9187-y ("Yang")
1007	U.S. Patent Application Publication No. 2010/0006342 (“Froehlich”)
1008	U.S. Patent Application Publication No. 2016/0168912 (“Mitchell”)
1009	U.S. Patent No. 9,976,227 (“Wangenheim”)
1010	Chinese Patent Publication Number CN201121583Y - Translated (“Jinqi”)
1011	Chinese Patent Publication Number CN102139440A – Translated (“Jinglong”)
1012	Chinese Patent Publication Number CN102051016A – Untranslated
1013	Chinese Patent Publication Number CN201121583Y – Untranslated
1014	Chinese Patent Publication Number CN102139440A – Untranslated
1015	Affidavit for Translations of CN102501016A and CN102139440A
1016	Affidavit for Translation of CN201121583Y

Patent Owner's Exhibits

Exhibit	Description
2001	Declaration of Archibald Cruz in Support of Motion for Pro Hac Vice Admission
2002	Declaration of Archibald Cruz in Support of Request for Discretionary Denial
2003	Docket Control Order (ECF No. 27), <i>InFocus Downhole Solutions USA LLC v. Full-Metal Power B.V.</i> , No. 2:24-cv-00875 (E.D. Tex.)
2004	Defendants' invalidity contentions, <i>InFocus Downhole Solutions USA LLC v. Full-Metal Power B.V.</i> , No. 2:24-cv-00875 (E.D. Tex.)
2005	File History of CA2985258
2006	Declaration of Jeffry "Jeff" Chestnut
2006A	CV of Jeff Chestnut

I. INTRODUCTION

Patent Owner InFocus Downhole Solutions USA LLC (“InFocus” or “Patent Owner”) respectfully submits this Preliminary Response to the Petition for *Inter Partes* Review (“IPR”) (“Petition”) filed by Full-Metal-Power B.V. (“Petitioner”) regarding Claims 1–19 of U.S. Patent No. 10,676,992 (the “’992 Patent”). Petitioner does not satisfy the threshold for institution of an IPR because the Petition does not show a reasonable likelihood that any challenged claim is invalid as obvious under 35 U.S.C. § 103. 37 C.F.R. § 42.104(b)(4). Accordingly, the Board should deny institution.

The Petition presents seven grounds, but only two grounds are directed against the independent claims: Ground 1 relies on Zhilong combined with Froelich while Ground 4 relies on Yang combined with Jinqi. Paper 1 at 12. Because the Petition does not show that either Ground 1 or Ground 4 presents a reasonable likelihood that either of the two independent claims is invalid as obvious, Grounds 2, 3 and 5-7 necessarily also fail. *Hartness Int’l, Inc. v. Simpimatic Egn. Co.*, 819 F.2d 1100, 1108 (Fed. Cir. 1987) (“For the reasons stated below, the district court was correct in holding that independent claim 1 was nonobvious. *A fortiori*, dependent claim 3 was nonobvious (and novel) because it contained all the limitations of claim 1 plus a further limitation.”).

II. PETITIONER FAILS TO DISCLOSE THE LEVEL OF ORDINARY SKILL IN THE ART

The Petition repeatedly relies on what one of ordinary skill in the art would understand or be motivated to do. Yet, the Petition fails to be supported by an expert declaration **and** fails to define the level of ordinary skill in the art.

By way of examples only, beginning with the “claim construction” section, the Petition states “[a]s all materials flex ... one of ordinary skill in the art would recognize” Paper 1 at 13. Continuing, “[t]herefore, for the purpose of this Petition, the Petitioner interprets” Paper 1 at 13-14.

Turning to “claim 1” of “Ground 1,” the Petition states “[t]he screw pump taught in Zhilong thus includes a rotor to function with the stator even though the rotor is not explicitly mentioned in Zhilong.” Paper 1 at 17. The Petition states “[o]ne skilled in the art would understand that the screw pump disclosed in Zhilong as a rotor” and “[t]hus, Zhilong or Zhilong in combination with Froehlich make obvious the progressive cavity section” Paper 1 at 18. And “[o]ne of ordinary skill in the art would combine Zhilong and Froehlich to achieve a fully functional” *Id.* The Petition makes the same argument for claim 11. Paper 1 at 28. In addition, the Petition argues in conclusory fashion that the deficiency in Zhilong concerning the “single integral block of material” “would be merely a matter of obvious engineering choice.” Paper 1 at 19 (claim 1), 27 (claim 11). Also for claim

11, the Petition argues about “the purpose of the method disclosed in Zhilong” Paper 1 at 26. And the Petition states “Zhilong therefore discloses or at least makes obvious to one skilled in the art” Paper 1 at 20.

Further, for Ground 1 (claims 1 and 11), the Petition purports to connect different sections of prior art based only on lawyer argument. *See* Paper 1 at 17 (citing EX. 1005), Paper 1 at 18 (separately citing EX. 1005 and EX. 1007), Paper 1 at 19 (citing EX. 1005), Paper 1 at 20 (citing EX 1005), and Paper 1 at 26, 27, 28, 29, 30 (EX. 1005).

Turning to “claim 1” of “Ground 4,” the Petition argues Yang’s “all metal-screw pump” that “can be used in high temperature wells” must have rigid rotor and stator contacting surfaces. Paper 1 at 39. And, “it would be obvious to use specific dimensions disclosed in Jinqi,” and “one of ordinary skill in the art would be motivated to combine Yang and Jinqi” Paper 1 at 40. And “it would be obvious to use specific heat treatments” Paper 1 at 41. For claim 11, the Petition argues “since one skilled in the art understands” Paper 1 at 45. And “it would be obvious to use specific dimensions disclosed in Jinqi,” and “one of ordinary skill in the art would be motivated to combine Yang and Jinqi” Paper 1 at 47. And “the focus of the teachings in Yang ... such that it would be obvious” *Id.*

Because the Petition presents only lawyer argument, is permeated with unsupported conclusory assertions about what a POSITA would know or be

motivated to do, and fails to define the level of ordinary skill in the art, the Petition is fatally flawed in its entirety. *See also* EX. 2006, ¶¶ 32-34 (opinions that Petition fails to define level of ordinary skill in the art and presents only lawyer argument). The Board should refuse to institute because the Petition fails to show a reasonable likelihood that any challenged claim is invalid as obvious under 35 U.S.C. § 103. *See Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1359 (Fed. Cir. 2018) (rejecting the petitioner’s assertion of what a person having ordinary skill in the art would understand because “attorney argument is not evidence” (quoting *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017))).

The Petition is further fatally flawed because its attorney argument is wrong. Patent Owner offers the expert opinions of Jeff Chestnut to rebut several of the Petition’s global errors. *See generally* EX. 2006. In the course of offering his controverting opinions, Mr. Chestnut opines that he is a person of at least ordinary skill in the art. EX. 2006, ¶¶ 35-37. Moreover, for the purpose of expressing his opinions on claim construction and non-obviousness, Mr. Chestnut opines that a person of ordinary skill in the art as of January 1, 2017 would have had a bachelor’s degree in chemical, petroleum or mechanical engineering, two to three years of operational experience relating to the exploration and production of hydrocarbons downhole, or equivalents of the foregoing. *Id.* Mr. Chestnut was a person of at least ordinary skill in the art at the relevant time. *Id.*

There is a minor dispute as to whether, as Patent Owner contends, the priority date of the '992 Patent is March 22, 2017, the filing date of Canadian Application No. 2961629, or whether the effective date is the November 13, 2017 filing of the U.S. application. That is not a dispute the Board need address here because Patent Owner's expert, Mr. Chestnut, was a POSITA at least as early as January 1, 2017, which encompasses both dates. EX. 2006 ¶ 37.

III. PETITIONER'S UNSUPPORTED CLAIM CONSTRUCTIONS ARE FUNDAMENTALLY FLAWED

As already discussed in Patent Owner's Request for Discretionary Denial (Paper 11), the Petition lacks expert support for *any* of its arguments. The absence of such critical evidence first surfaces with respect to claim construction. *See* Paper 1 at 13–15. Petitioner conjures up several constructions allegedly using the “ordinary and customary meaning of such claim *as understood by one of ordinary skill in the art* and the prosecution history pertaining to the patent.” *Id.* at 13 (quoting 37 C.F.R. § 42.100(b)) (emphasis added).

Yet, instead of providing expert evidence supporting what “one of ordinary skill in the art” would understand, Petitioner offers these constructions based on Petitioner's *ipse dixit*. These unsupported arguments cannot sustain Petitioner's proposed constructions. *See, e.g., Elbit*, 881 F.3d at 1359 (“attorney argument is not evidence”).

Patent Owner focuses in its Preliminary Response on one limitation because Petitioner's proposed construction is not only incorrect, but is essential to the Petition's obviousness analysis for every claim. The Petition presents argument based only on the incorrect construction.

A. “the stator is formed ... to achieve a sufficiently narrow clearance or negative interference with ... to form an efficient pumping seal without seizing the progressive cavity section in use”

The Petition discusses the limitation in both independent claims of “in which the stator is formed by electrochemical machining (ECM) to structure the rotor contacting surfaces of the stator to achieve a sufficiently narrow clearance or negative interference fit with the rotor to form an efficient pumping seal without seizing the progressive cavity section in use.” EX. 1001, 30:59-62 and 32:3-6. Patent Owner contends the claim limitation requires no construction beyond its plain and ordinary meaning. Accord Ex. 2006, ¶ 45.

The Petition argues that “**Petitioner is unable to determine** the breadth for the limitations in claims 1 and 11 of ‘a sufficiently narrow clearance’ and ‘an efficient pumping seal without seizing the progressive cavity section in use.’” Paper 1 at 14-15 (emphasis added). So the Petition proposes that the claim language be construed as “an operable stator/rotor arrangement.” Paper 1 at 15.

The Petition offers only attorney argument. The Petition incorrectly contends the claims provide no assistance. Paper 1 at 14. By contrast, the Petition concedes

the specification provides some assistance. Paper 1 at 14 (the specification “provides no **further** assistance....”) (emphasis added).

Elsewhere, the Petition identifies as “relevant prosecution history,” the Examiner’s statement in the Notice of Allowance that the prior art “did not disclose ECM ‘to structure the rotor contacting surfaces of the stator to achieve a sufficiently narrow clearance or negative interference fit with the rotor to form an efficient pumping seal without seizing the progressive cavity section in use.’” Paper 1 at 8. However, the Petition’s claim construction discussion is devoid of any mention of this “relevant prosecution history.”

The Petition fails to state the legal criteria for what makes a claim definite or indefinite. Ex. 2006, ¶ 41. Not surprisingly, the argument on which the Petition relies for claim indefiniteness fails as a matter of law. That “Petitioner is unable to determine ..,” Paper 1 at 14, carries no legal weight. The Supreme Court requires that “a patent’s claims, viewed in light of the specification and prosecution history, **inform those skilled in the art** about the scope of the invention with reasonable certainty.” *Nautilus v. Biosig Instruments, Inc.*, 134 S.Ct. 2120, 2129 (2014) (emphasis added).

Yet, the Petition does **not** argue that those **skilled in the art** would fail to be informed about the scope of the claimed invention with reasonable certainty. Because the Petition incorrectly focuses only on what the “Petitioner” understands,

rather than on what a skilled artisan would understand, the Petition's indefiniteness attack fails as a matter of law. *Nautilus, supra*. In addition, the Petition fails because it is nothing more than unsupported lawyer argument. *Elbit*, 881 F.3d at 1359 (“attorney argument is not evidence”). There is no reasoned basis for adopting Petitioner's construction of “an operable stator/rotor arrangement” for the claim language. EX. 2006, ¶¶ 43-44.

While it is not Patent Owner's burden, the intrinsic and extrinsic evidence show a skilled artisan would, with reasonable certainty, be informed about the scope of the claims. All claims require as an end result “an efficient pumping seal without seizing the progressive cavity section in use.” EX. 1001, 30:59-62, 32:3-6; EX. 2006 ¶ 44. Especially in the context of a downhole tool, this language provides enough certainty to one of skill in the art when read in the context of the invention. The Examiner understood this provided sufficient guidance for a person of ordinary skill in the art, expressly relying on that claim language in allowing the '992 Patent. EX. 1003, 3:4-7; EX. 2006, ¶¶ 42, 45.

The Petition ignores that the “sufficiently narrow clearance” is recited in the context of rotor contacting surfaces of the stator achieving “a sufficiently narrow clearance or negative interference fit with the rotor” to reach a specified result, namely, an efficient pumping seal without seizing the progressive cavity section in use.” EX. 1001, 30:59-62, 32:3-6; EX. 2006, ¶¶ 42-45. Further, the specification

teaches the interference fit being sufficiently tight to transmit torque between stator 32 and reamer part 14. EX. 1001, 14:27-29; EX. 2006, ¶¶ 42-45. And even the Petition concedes this is for the purpose of achieving the claimed result. Paper 1 at 14.

Accordingly, the Board should reject the Petition's proposed construction of "an operable stator/rotor arrangement" and conclude the limitation does not need to be construed. Plain and ordinary meaning will suffice for those skilled in the art. EX. 2006, ¶¶ 42-45.

IV. PETITIONER FAILS TO SHOW A REASONABLE LIKELIHOOD OF UNPATENTABILITY

Patent Owner now explains why Petitioner fails to show a reasonable likelihood of unpatentability for either of the independent claims. As a reminder only Grounds 1 and 4 address independent claims 1 and 11. Consequently, the Petition also fails as to all of the dependent claims. In particular, the prior art on which the Petition relies in Grounds 1 and 4 at least fails to disclose or suggest the limitation "in which the stator is formed by electrochemical machining (ECM) to structure the rotor contacting surfaces of the stator to achieve a sufficiently narrow clearance or negative interference fit with the rotor to form an efficient pumping seal without seizing the progressive cavity section in use." EX. 1001, 30:59-62 and 32:3-6. Because this limitation is in both independent claims (and thus all claims

dependent thereon), the Petition fails to meet its institution burden for any claim.

EX. 2006, ¶ 53.

A. Ground 1 fails

In Ground 1, Petitioner relies on the combination of Zhilong and Froelich for its obviousness arguments as to independent claims 1 and 11 (and dependent claims 3–6, 8–10, 13–16, and 18–19). Paper 1 at 16.

For Ground 1, the Petition relies **only** on its “operable stator/rotor arrangement” construction for obviousness invalidity for the two independent claims. *See* Paper 1 at 20, 29 (“The screw pump disclosed in Zhilong formed by this ECM makes an operable stator/rotor arrangement.”); EX. 2006, ¶ 47. Both independent claims 1 and 11, however, recite “in which the stator is formed by electrochemical machining (ECM) to structure the rotor contacting surfaces of the stator to achieve a sufficiently narrow clearance or negative interference fit with the rotor to form an efficient pumping seal without seizing the progressive cavity section in use.” EX. 1001 30:59-62, 32:3-6.

The Petition uses an incorrect construction. And that is harmful error because something which is an “operable stator/rotor arrangement” does not teach the claimed “efficient pumping seal that avoids seizing the progressive cavity section in use.” EX. 2006, ¶ 44 (“The claim language requires a seal that is more than merely operable.”).

What the Petition **does not state** is also important. The Petition never states that the prior art in Ground 1 (Zhilong or Froelich) discloses or suggests what the claim actually recites. EX. 2006, ¶ 51. That is not surprising because neither Zhilong nor Froelich, taken alone or in combination, discloses or suggests “an efficient pumping seal that avoids seizing the progressive cavity section in use.” EX. 2006, ¶ 48.

More broadly, in like fashion the Petition fails to assert, and the prior art on which the Petition relies for Ground 1 does not disclose or suggest, a stator “formed by an ECM to structure the rotor contacting surfaces of the stator to achieve a sufficiently narrow clearance or negative interference fit with the rotor to form an efficient pumping seal without seizing the progressive cavity section in use.” EX. 1001 30:59-62, 32:3-6; EX. 2006, ¶¶ 47-48, 51, 52. For the foregoing reasons, the Board should deny institution of the independent claims based on Ground 1. EX. 2006, ¶ 53.

B. Ground 4 fails

In Ground 4, Petitioner relies on the combination of Yang and Jinqi for its allegations that independent claims 1 and 11 (and dependent claims 4, 5, 8–10, 14, 15, 18, and 19) are invalid as obvious. Paper 1 at 37.

For Ground 4, the Petition relies on its “operable stator/rotor arrangement” construction for obviousness invalidity for the two independent claims for Yang.

See Paper 1 at 40, 46 (“The screw pump disclosed in Yang formed by this ECM makes an operable stator/rotor arrangement.”); EX. 2006, ¶ 47. Both independent claims 1 and 11 recite “in which the stator is formed by electrochemical machining (ECM) to structure the rotor contacting surfaces of the stator to achieve a sufficiently narrow clearance or negative interference fit with the rotor to form an efficient pumping seal without seizing the progressive cavity section in use.” EX. 1001 30:59-62, 32:3-6.

Once again, the Petition uses an incorrect construction. And that is harmful error because something which is an “operable stator/rotor arrangement” does not teach the claimed “efficient pumping seal that avoids seizing the progressive cavity section in use.” EX. 2006, ¶ 44 (“The claim language requires a seal that is more than merely operable.”).

Here also, what the Petition **does not state** is important. The Petition never states that Yang in Ground 4 discloses or suggests what the claim actually recites. EX. 2006, ¶ 51. Perhaps that is because Yang is very different from the “downhole tool” disclosed and claimed in the ’992 Patent. EX. 2006, ¶ 46 (expert explanation); EX. 1006 at 1 (Yang uses electrochemical machining “to solve the difficult problem of metal screw pump stator inner hole.”).

Alternatively, the Petition argues Jinqi teaches “a sufficiently narrow clearance or negative fit” if that claim language “might mean something more than

an operable stator/rotor arrangement,” because Jinqi “discloses specific dimensions.” Paper 1 at 40, 46. This argument is beside the point because what the claim language requires is “an efficient pumping seal that avoids seizing.” Jinqi says nothing about that. EX. 2006, ¶¶ 49, 50. The Petition does not state that Jinqi discloses or suggests an efficient pumping seal that avoids seizing the progressive cavity section in use. Ex. 2006, ¶ 51.

Again, and as for Ground 1, the Petition fails to assert, and the prior art on which the Petition relies for Ground 4 does not disclose or suggest, a stator “formed by an ECM to structure the rotor contacting surfaces of the stator to achieve a sufficiently narrow clearance or negative interference fit with the rotor to form an efficient pumping seal without seizing the progressive cavity section in use.” EX. 1001 30:59-62, 32:3-6; EX. 2006, ¶¶ 47, 49-52. For the foregoing reasons, the Board should deny institution of the independent claims based on Ground 1. EX. 2006, ¶ 53.

V. CONCLUSION

For the foregoing reasons, the Board should deny institution.

Dated: April 30, 2025

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CERTIFICATE OF COMPLIANCE

This Brief complies with the type-volume limitation of 14,000 words, comprising 3,052 words, as counted using the Microsoft Word software that was used to prepare this paper, excluding the parts exempted by 37 C.F.R. § 42.24(a).

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the above document was served on April 30, 2025, by filing this document through the Patent Trial and Appeal Case Tracking System (P-TACTS) as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

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