

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
25 September 2025 (25.09.2025)



(10) International Publication Number
WO 2025/196231 A1

- (51) International Patent Classification:
H01L 21/67 (2006.01) *H01L 21/687* (2006.01)
- (21) International Application Number:
PCT/EP2025/057717
- (22) International Filing Date:
20 March 2025 (20.03.2025)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
24164978.9 20 March 2024 (20.03.2024) EP
- (71) Applicant: **LEUVEN AIR BEARINGS N.V.** [BE/BE];
Langerode 9, 3460 Bekkevoort (BE).
- (72) Inventors: **MELLAERTS, Arne**; Heikneuterlaan 30, 3010
Kessel-Lo (BE). **GORDTS, Gilles**; Putsebaan 147a, 3140

- Keerbergen (BE). **DE MOERLOOZE, Kris**; Papestraat
17, 9320 Nieuwerkerken (BE). **SMETS, Kurt**; De gaer 35,
3510 Spalbeek (BE). **SMITH, Rex**; Pieter Coutereelstraat
2A/0204, 3000 Leuven (BE). **DOCKX, Sten**; Brusselsse-
teenweg 56, 1980 Zemst (BE). **VAN DE VIJVER, Wim**;
Linkhoutstraat 263, 3560 Lummen (BE).
- (74) Agent: **IPLODGE BV**; Technologielaan 9, 3001 Heverlee
(BE).
- (81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG,
KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY,
MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA,
NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO,

(54) Title: IMPROVED POSITIONING DEVICE AND METHOD

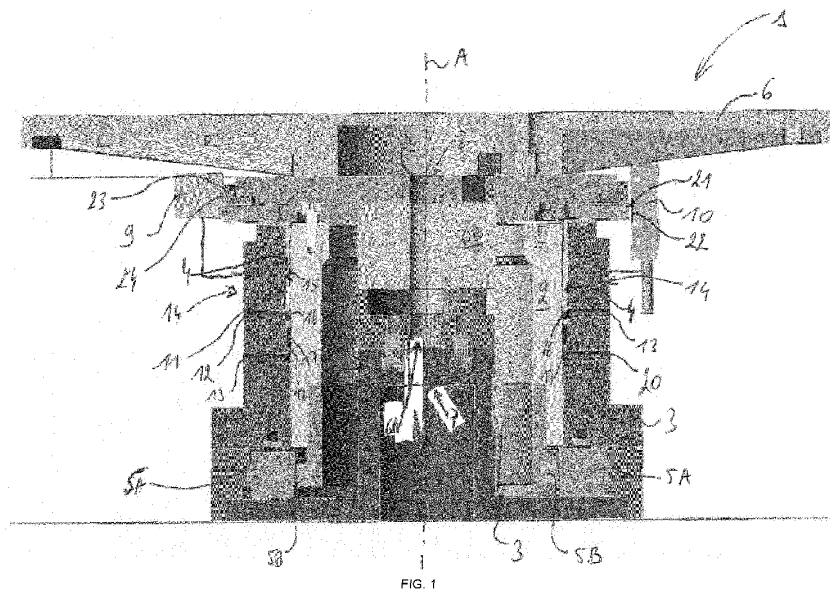


FIG. 1

(57) Abstract: The present invention concerns a positioning device (1) for inspection of wafers and chips, comprising a rotor (2) and a stator (3), the rotor comprising a rotor axis (A) defining a height direction, whereby the rotor (2) is engaged with the stator (3) by a bearing (4) which is configured to allow rotational movement of the rotor (2) around the rotor axis and axial movement along the rotor axis, whereby the device (1) comprises a rotary (RT) actuator (5A, 5B) configured to induce a rotational movement on the rotor, whereby the rotary actuator (5A, 5B) comprises a static actuator component (5A) attached to the stator, and a mobile actuator component (5B) attached to the rotor and configured to interact with the static actuator component to induce a rotational movement of the rotor with respect to the stator, whereby the device (1) comprises a linear height actuator (6A, 6B) provided along the rotor axis and configured to induce a linear movement on the rotor in the height direction, whereby the linear height actuator (6A, 6B)

[Continued on next page]

WO 2025/196231 A1

RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UY, UZ, VC, VN,
WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*
— *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

comprises a static linear component (6A) attached to the stator and a mobile linear component (6B) attached to the rotor and configured to interact with the static linear component to induce an axial movement of the rotor with respect to the stator, whereby the device comprises an RT position measurement component (9) configured for obtaining an angular position of the rotor with respect to the stator and a Z position measurement component (10) configured for obtaining a height position of the rotor with respect to the stator, whereby the device comprises a processor configured for: - receiving a measured height value of the height position obtained by the Z position measurement component; - compare the measured height value with a predefined target height value, and - steer the linear height actuator to compensate for differences between the measured height value and the target height value, thereby steering the height position of the rotor.