

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 July 2004 (15.07.2004)

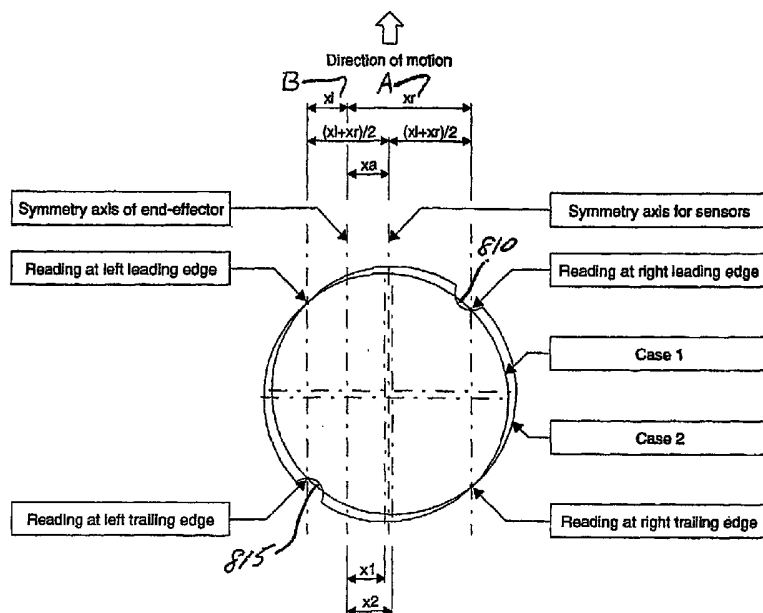
PCT

(10) International Publication Number
WO 2004/059699 A3

- (51) International Patent Classification⁷: **G05B 19/18** (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.
- (21) International Application Number: PCT/US2003/040410
- (22) International Filing Date: 18 December 2003 (18.12.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/435,552 20 December 2002 (20.12.2002) US
- (71) Applicant: **BROOKS AUTOMATION, INC.** [US/US]; 15 Elizabeth Drive, Chelmsford, MA 01824 (US).
- (72) Inventor: **HOSEK, Martin**; 68 Mammoth Road, Lowell, MA 01854 (US).
- (74) Agents: **GREEN, Clarence, A.** et al.; Perman & Green, LLP, 425 Post Road, Fairfield, CT 06824 (US).
- Published: — with international search report

[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR ON-THE-FLY ECCENTRICITY RECOGNITION



(57) Abstract: A method for substrate eccentricity detection (815) for determining positions on a perimeter of a first substrate (810) by grouping at least three perimeter positions defining one or more circles in case 1 and case 2 and estimating the location of a center of the first substrate as the location of a center of a predetermined circle approximated from the at least three perimeter positions by determining the eccentricity vector as a difference between the estimated location and a reference position on a substrate transport mechanism.

Nomenclature:

xr = distance of right sensor from path of end-effector center

x1 = distance of left sensor from path of end-effector center

xa = asymmetry of sensors, xa = (xr-x1)/2

x1 = x-component of wafer eccentricity in case 1

x2 = x-component of wafer eccentricity in case 2



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

1 September 2005

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/40410

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G05B 19/18
US CL : 700/059, 121; 702/155

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 700/059, 121; 702/155

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
EIC for documents and publications in substrate handling.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
East for key words and terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,198,976 A (Sundar et al.) 6 March 2001 (6.03.2001), see entire patent document.	1-39
A	US 5,933,351 A (Balamurugan) 3 August 1999 (3.08.1999), see entire document and element 10 in figure 3-A.	1-39

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

14 April 2005 (14.04.2005)

Date of mailing of the international search report

05 JUL 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Victor J. Taylor

DEBORAH A. THOMAS
PARALEGAL SPECIALIST

Telephone No. 571-272-1750

GROUP 1300

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