



ArF Immersion Scanner

# NSR-S622D

Proven Solutions Through Evolution



# Ultra-high Throughput with Enhanced Overlay Accuracy

The NSR-S622D ArF immersion scanner was developed for high-volume multiple patterning applications at the sub-20 nm generation through further enhancements to the accuracy and productivity of the proven *Streamalign* platform. The S622D builds upon S621D *Streamalign* technology, and delivers crucial enhancements to mix and match overlay (MMO) through improvements in lens performance and the autofocus mechanism. The S622D delivers ultra-high productivity with throughput greater than 200 wafers per hour and MMO that is 3.5 nm or less, to support chip makers' cutting-edge production lines.

# NSR-S622D

## Performance

Resolution	≤ 38 nm
NA	1.35
Exposure light source	ArF excimer laser (193 nm wavelength)
Reduction ratio	1:4
Maximum exposure field	26 mm × 33 mm
Overlay	SMO*1: ≤ 2 nm, MMO*2: ≤ 3.5 nm
Throughput	≥ 200 wafers/hour (125 shots)

\*1 Single Machine Overlay: machine-to-self overlay accuracy (NSR-S622D#1 to S622D#1)

\*2 Mix and Match Overlay: machine-to-machine overlay accuracy (NSR-S622D#1 to NSR-S622D#2)

## Key Features of the *Streamalign* Platform

### • Bird's Eye Control

#### Enabling superior yield

- Hybrid encoder/interferometer system delivers optimal stage performance.
- Dramatically improves accuracy and stability.
- Provides superior focus control.
- Overlay capabilities of 2 nm or less

### • Stream Alignment

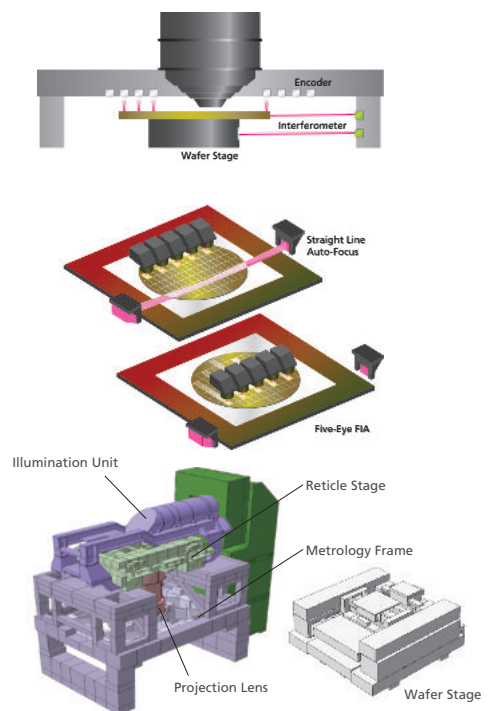
#### Enabling optimal affordability

- Straight Line Auto-Focus generates dense map of the wafer surface to enhance focus control (using a wide AF beam span).
- Enables increased alignment sites with minimal productivity impact using Five-Eye FIA.
- Greatly reduces wafer overhead time.
- Throughput capabilities of 200 WPH or more

### • Modular<sup>2</sup> Structure

#### Enabling rapid production ramps

- Modular design enables efficient installations and simplifies maintenance.
- Provides optimal uptime with modular design and replacement of individual components.
- Extendible platform enables multigenerational use.



**CLASS 1 LASER PRODUCT**



**WARNING**

TO ENSURE CORRECT USAGE, READ MANUALS CAREFULLY BEFORE USING YOUR EQUIPMENT.

The export of this product is controlled by Japanese Foreign Exchange and Foreign Trade Law and International export control regime. It shall not be exported without authorization from the appropriate governmental authorities.

Performance and equipment are subject to change without any notice or obligation on the part of the manufacturer.

Products and brand names are trademarks or registered trademarks of their respective companies. March 2016

©2016 NIKON CORPORATION

<http://www.nikon.co.jp/pec>

### NIKON CORPORATION

Semiconductor Lithography Business Unit  
Marketing Department

Shinagawa Intercity Tower C, 2-15-3, Konan, Minato-ku, Tokyo 108-6290, Japan  
Tel: +81-3-6433-3639 Fax: +81-3-6433-3759

### NIKON PRECISION INC.

1399 Shoreway Road, Belmont, CA 94002-4107, U.S.A.  
Tel: +1-(650)-508-4674 Fax: +1-(650)-508-4600

### NIKON PRECISION EUROPE GmbH

Robert-Bosch-Strasse 11, D-63225 Langen, Germany  
Tel: +49-6103-973-0 Fax: +49-6103-973-333

### NIKON PRECISION KOREA LTD.

17-24 Singal-Dong, Giheung-Gu, Yongin-Si, Gyeonggi-Do, Korea  
Tel: +82-31-288-5601 Fax: +82-31-288-5609

### NIKON PRECISION TAIWAN LTD.

3F-1, 2, 3, 5 No. 28, Tai Yuen Street, Chu Pei City, Hsin Chu Hsien, Taiwan  
Tel: +886-3-552-5888 Fax: +886-3-552-5858

### NIKON SINGAPORE PTE LTD.

Precision Division

23 Church Street, Unit #13-07, Capital Square, Singapore, 049481  
Tel: +65-6367-4020 Fax: +65-6367-4021

### NIKON PRECISION SHANGHAI CO., LTD.

RM. 601 Xin Jin Qiao Tower, No. 28 Xin Jin Qiao Road, Pudong New District, Shanghai 201206, China  
Tel: +86-21-5899-0266 Fax: +86-21-5899-1660