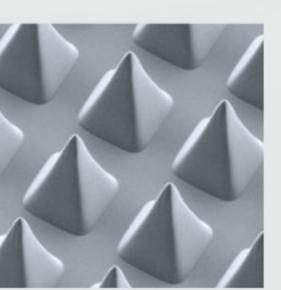


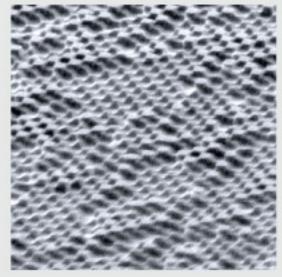
## **DWL 66**<sup>+</sup>

### THE ULTIMATE LITHOGRAPHY RESEARCH TOOL









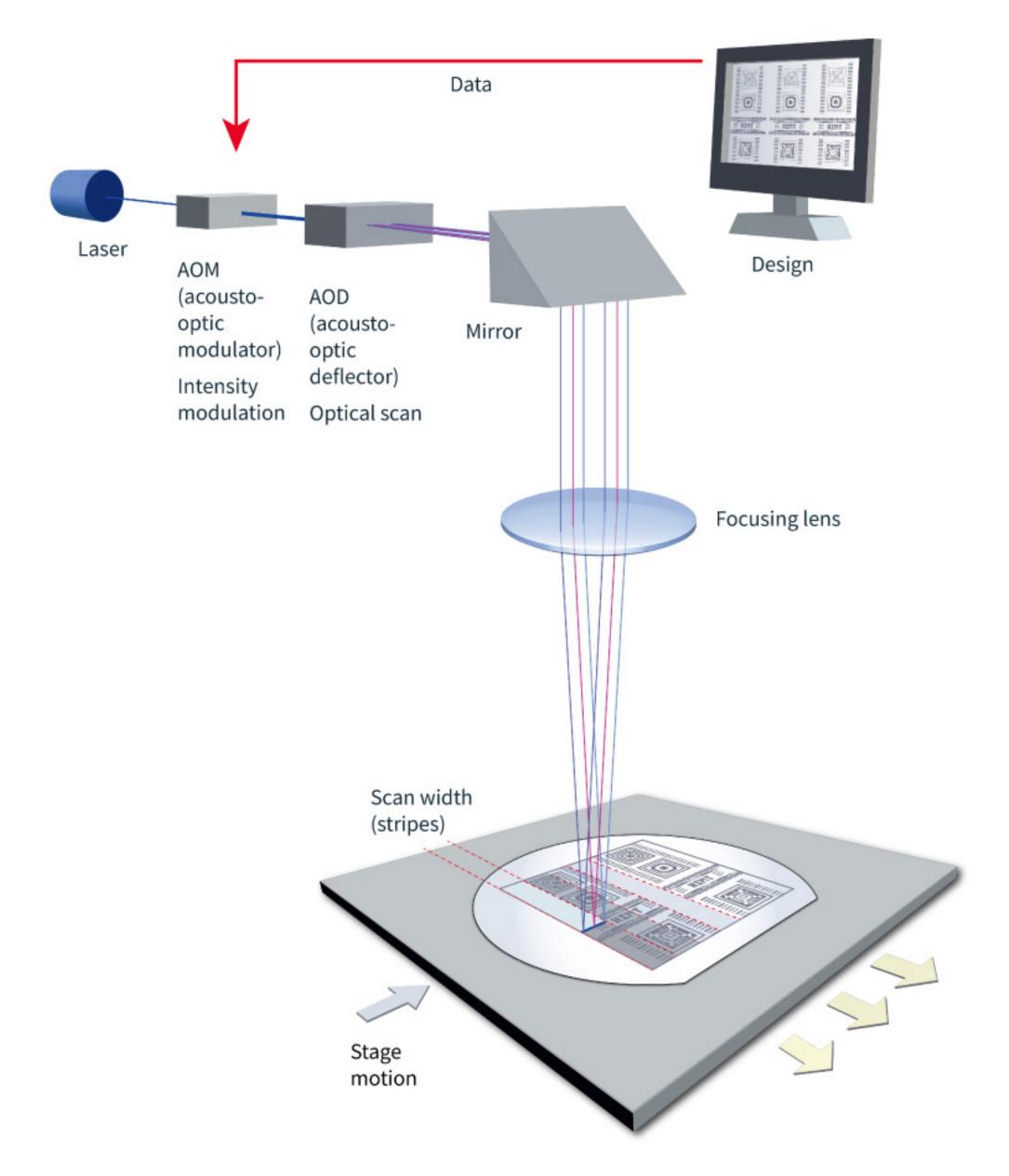
## DWL 66<sup>+</sup>

## THE ULTIMATE PHOTOLITHOGRAPHY TOOL FOR RESEARCH & DEVELOPMENT

The DWL 66<sup>+</sup> laser lithography system is a highly versatile, high-resolution pattern generator for direct writing and low-volume mask making. Its customer base includes over 300 leading universities, research facilities, and companies worldwide.

The system features powerful standard options such as the High-Resolution Mode, backside alignment (BSA), and the optical autofocus. In addition to high-resolution 2D patterns, the system also supports the creation of complex 2.5D structures in thick photoresist with the help of the grayscale exposure mode. The DWL 66+ can be equipped with either a 405 nm laser for work with all broadband resists, or with a 375 nm UV laser that in addition allows the use of SU-8 and other i-line-resists. Advanced professional options like the High-Accuracy Coordinate System and an automatic loader are also available.

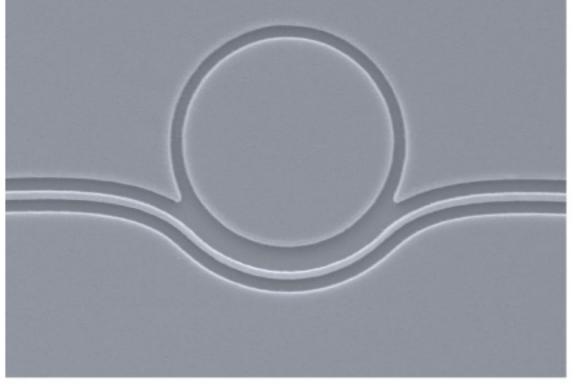
With minimum structure size of 300 nm, the DWL 66<sup>+</sup> provides the ultimate in high resolution, outperforming the most powerful optical lithography systems in the Research & Development market segment. The system's main application areas can be found in optical sciences, material research, micro-engineering and micro-electronics.



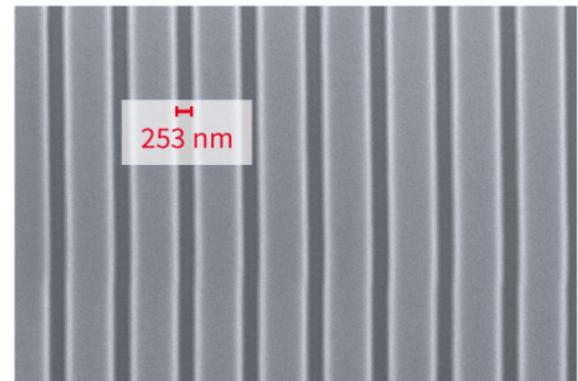
DWL 66<sup>+</sup> exposure strategy

#### THE HIGH-RESOLUTION MODE

This is one of the six write modes that available for the DWL 66<sup>+</sup>. The optimized optics and electronics setup of the High-Resolution Write Mode provide ultimate stability and resolution and enable exposures of structures with a minimum feature size of 300 nm.



A channel waveguide coupled to a ring resonator. The Minimum feature size: 300 nm - or even less. The image waveguide is approximately 320 nm wide, the resonator diameter is 3 µm. The exposure laser wavelength was 405 nm. Design created with [1].

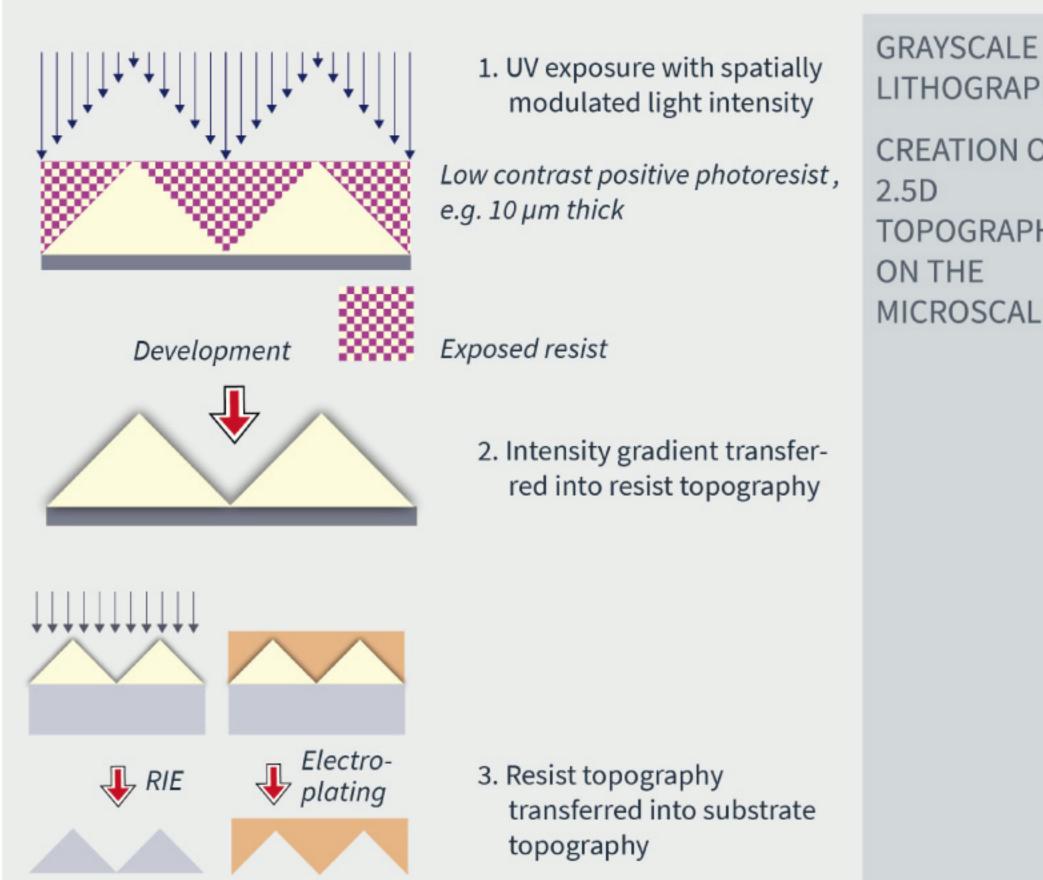


shows the result of a high-resolution test exposure with a nominal linewidth of 250 nm!

#### A CHOICE OF GRAYSCALE CAPABILITIES

Grayscale lithography uses a low-contrast positive photoresist. The exposure intensity gradient transfers directly into exposure depth. The result after processing is a 2.5D topography on the microscale.

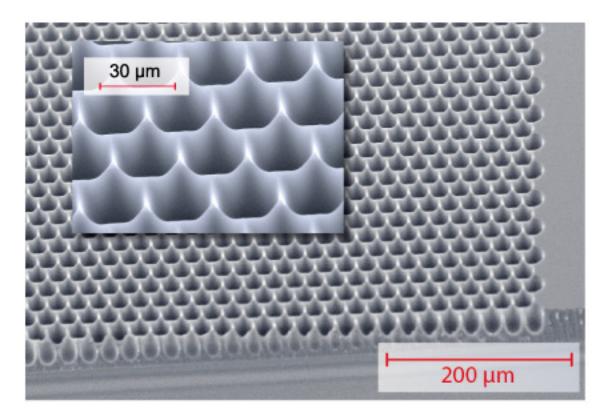
Whether standard, advanced or professional - the grayscale mode presents a powerful tool for the creation of complex topographies for example for micro-optical components or MEMS.



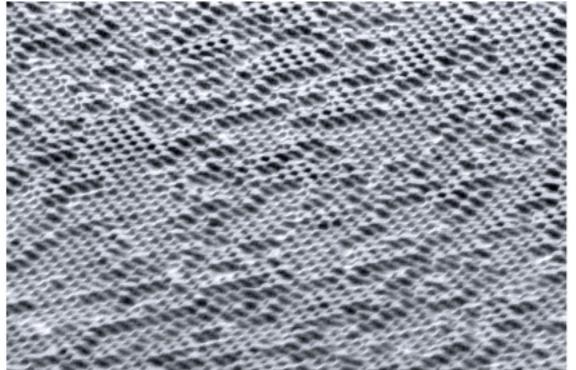
LITHOGRAPHY:

**CREATION OF TOPOGRAPHIES** ON THE MICROSCALE

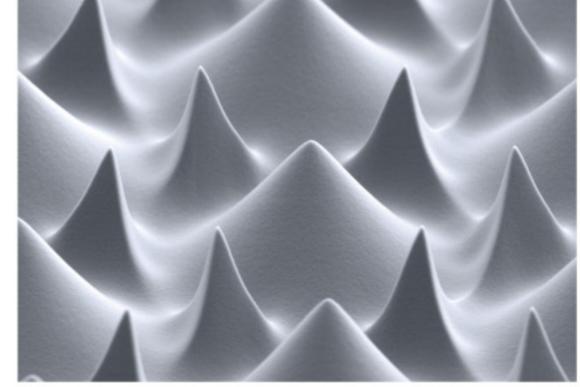
#### **APPLICATIONS**



Microlens array: Width of lenses 20 μm, depth 30 μm



DOE: Resist AZ 4633, resist thickness 4 µm, structure size 2 µm



Diffuser: Resist AZ 4562, structure size < 5 μm Image courtesy of IGI

#### ADVANCED OPTIONS AND UPGRADES

#### Professional Grayscale

Allows the exposure of CAD files with up to 1024 gray levels in order to create complex topographies for applications such as microoptics. Includes highly sophisticated software package.

#### High-Accuracy Coordinate System

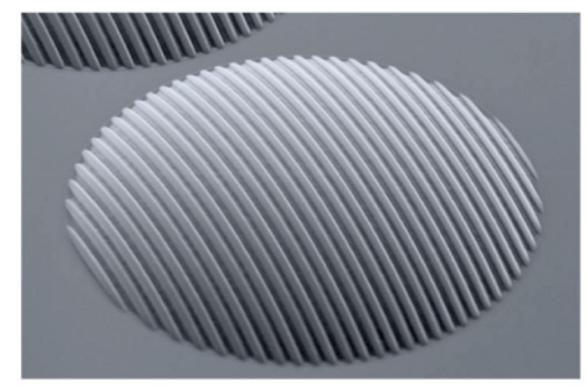
Includes various technical measures to improve the thermal stability and position accuracy of the stage's coordinate system. Provides improved specifications for 2nd layer overlay accuracy.

#### Automatic Loader

Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner.

#### Basic Freeform (BFF)

Exposures on non-planar substrates with features down to 3 µm. Typical applications are microstructures on top of convex or concave lenses.



Grating on concave lens

Image courtesy of Fraunhofer IOF

# DWL 66<sup>+</sup> SYSTEM SPECIFICATIONS

Minimum Feature Size [µm]  Minimum Lines and Spaces [µm]  0.3 0.6 0.8 1 1.5 3 5 Address Grid [nm]  5 0.8 1 1.5 3 5 Address Grid [nm]  5 0.8 10 25 50 100 200 Edge Roughness [3σ,nm]  50 50 70 80 110 160 CD Uniformity [3σ,nm]  60 70 80 130 180 250 250 250 250 250 350 500 201 Layer Alignment over 5 x 5 mm² [nm]  250 250 250 250 250 350 500 500 201 Layer Alignment (over 100 x 100 mm² [nm]  8 10 100 200 201 Layer Alignment (over 100 x 100 mm² [nm]  8 2 10 30 150 600 2000 Exposure Time for 100x100 mm² area [min]  Write Speed [mm²/min]  8 2 10 30 110 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 30 110 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 30 110 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 30 110 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 30 110 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 30 110 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 30 110 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 30 110 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 30 110 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 100 1015 300 100 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 100 1015 300 100 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 100 1015 300 100 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 100 1015 300 100 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 1015 300 100 - 0 Exposure Time for 100x100 mm² area [min]  8 2 10 1015 300 100 - 0 Exposure Area  200 x 200 mm²  Exposure Area  3 x 10 mm² field of view facilitates alignment to marks and substrate navigation  Altorocus Compensation Range  8 x 10 mm² field of view facilitates alignment to marks and substrate navigation  Allows the alignment of exposures to structures on the backside of the substrate navigation  Allows the alignment of exposures to structures on the backside of the substrate navigation  Allows the alignment of e	Write mode	HiRes	1	П	III	IV	V	
Minimum Lines and Spaces [µm]         0.5         0.8         1         1.5         3         5           Address Grid [nm]         5         10         25         50         100         200           Edge Roughness [3α, nm]         50         50         70         80         110         160           CO Uniformity [3α, nm]         60         70         80         130         180         250           2nd Layer Alignment over 5 x 5 mm² [nm]         250         250         250         250         350         500         5	Writing Performance							
Address Grid [nm]         5         10         25         50         100         20           Edge Roughness [3σ, nm]         50         50         70         80         110         160           2D Uniformity [3σ, nm]         60         70         80         130         180         250           2nd Layer Alignment over 100 x 100 mm² [nm]         500         500         500         800         1000           Backside Alignment [nm]         500         500         500         800         1000           Backside Alignment [nm]         3         13         40         150         600         2000           Backside Alignment [nm]         3         13         40         150         600         2000           Backside Alignment [nm]         3         13         40         150         600         2000           Exposure Time for 100x100 mm² area [min]         3         13         40         150         600         200           With UV Diode Laser [475 mm]         2         10         30         110         -         -         -           With UV Diode Laser [475 mm]         2         10         30         110         -         -         - <td< td=""><td>Minimum Feature Size [μm]</td><td>0.3</td><td>0.6</td><td>0.8</td><td>1</td><td>2</td><td>4</td></td<>	Minimum Feature Size [μm]	0.3	0.6	0.8	1	2	4	
Edge Roughness [3σ, nm] 50 50 70 80 130 120 150 150 150 150 150 150 150 150 150 15	Minimum Lines and Spaces [μm]	0.5	0.8	1	1.5	3	5	
CD Uniformity [30, nm] 60 70 80 130 180 250 100 201 201 201 201 201 201 201 201 20	Address Grid [nm]	5	10	25	50	100	200	
2nd Layer Alignment over 5 x 5 mm² [nm]	Edge Roughness [3σ, nm]	50	50	70	80	110	160	
2nd Layer Alignment over 100 x 100 mm² [nm]       500       500       500       800       1000 decoder         Backside Alignment [nm]       1000 methode Laser (405 nm)       1000 methode Caser (405 nm)       150       600       2000 methode Caser (405 nm)         Write Speed [nm²/min]       3       13       40       150       600       2000 methode Caser (375 nm)         Write Speed [nm²/min]       2       10       30       110       -       -       -         Exposure Time for 100x100 mm² area [min]       5000       1015       350       100       -       -       -         Exposure Time for 100x100 mm² area [min]       5000       1015       350       100       - <td< td=""><td>CD Uniformity [3σ, nm]</td><td>60</td><td>70</td><td>80</td><td>130</td><td>180</td><td>250</td></td<>	CD Uniformity [3σ, nm]	60	70	80	130	180	250	
Backside Alignment [nm]   100   1	2nd Layer Alignment over 5 x 5 mm² [nm]	250	250	250	250	350	500	
With Diode Laser (405 nm)         Write Speed [nm²/min]         3         13         40         150         600         2000           Exposure Time for 100x100 mm² area [min]         3000         740         255         72         20         7           With UV Diode Laser (375 mm)         Write Speed [mm²/min]         2         10         30         110         -         -         -           Exposure Time for 100x100 mm² area [min]         5000         1015         350         100         -         -         -         -           System Features         5000         1015         350         100         -	2nd Layer Alignment over 100 x 100 mm² [nm]	500	500	500	500	800	1000	
Write Speed [mm²/min]   3   13   40   150   600   2000     Exposure Time for 100x100 mm² area [min]   3000   740   255   72   20   7     With UV Diode Laser (375 nm)   2   10   30   110   -	Backside Alignment [nm]		1000					
Exposure Time for 100x100 mm² area [min]   3000   740   255   72   20   7	With Diode Laser (405 nm)							
With UV Diode Laser (375 nm) Write Speed [mm²/min] Exposure Time for 100x100 mm² area [min] System Features Light Source Diode laser with 405 nm or 375 nm Substrate Sizes Variable: 5 x 5 mm² to 9" x 9"   Customizable on request Substrate Sizes Variable: 5 x 5 mm² to 9" x 9"   Customizable on request Substrate Thickness 0 to 12 mm Maximum Exposure Area 200 x 200 mm² Temperature stability ± 0.1°, ISO 4 environment Real-Time Autofocus Optical autofocus or air-gauge autofocus Autofocus Compensation Range 80 µm Standard or Advanced Grayscale Mode 128 / 256 gray levels respectively Vector Mode Enables the writing of stitching-free lines Backside Alignment (optional) Allows the alignment of exposures to structures on the backside of the substrate navigation Allows the alignment of exposures to structures on the backside of the substrate New Advanced Options - Performance Upgrades High-Accuracy Coordinate System Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm Professional Grayscale Mode 1024 gray levels, professional data conversion software Automatic Loading System Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm Professional Grayscale Mode 1024 gray levels, professional data conversion software Automatic Loading System 1000 kg (lithography unit only) Vecight 1000 kg (lithography unit only) Installation Requirements Electrical 230 VAC ± 5 %, 50/60 Hz, 16 A	Write Speed [mm²/min]	3	13	40	150	600	2000	
Write Speed [mm²/min] Exposure Time for 100x100 mm² area [min] 5000 1015 350 100 System Features  Light Source Diode laser with 405 nm or 375 nm Substrate Sizes Variable: 5 x 5 mm² to 9" x 9"   Customizable on request  Substrate Thickness Oto 12 mm Maximum Exposure Area 200 x 200 mm² Temperature controlled Flow Box Temperature stability ± 0.1°, ISO 4 environment  Real-Time Autofocus Optical autofocus or air-gauge autofocus Autofocus Compensation Range Standard or Advanced Grayscale Mode 128 / 256 gray levels respectively Vector Mode Enables the writing of stitching-free lines Backside Alignment (optional)  Backside Alignment (optional) Allows the alignment of exposures to structures on the backside of the substrate navigation Allows the alignment of exposures to structures on the backside of the substrate Mavanced Options - Performance Upgrades  High-Accuracy Coordinate System Professional Grayscale Mode 1024 gray levels, professional data conversion software Automatic Loading System Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height 1300 mm x 1100 mm x 1950 mm (lithography unit only) Installation Requirements  Electrical 230 VAC ± 5 %, 50/60 Hz, 16 A	Exposure Time for 100x100 mm <sup>2</sup> area [min]	3000	740	255	72	20	7	
Exposure Time for 100x100 mm² area [min] 5000 1015 350 100	With UV Diode Laser (375 nm)							
Light Source Diode laser with 405 nm or 375 nm  Substrate Sizes Variable: 5 x 5 mm² to 9" x 9"   Customizable on request  Substrate Thickness 0 to 12 mm  Maximum Exposure Area 200 x 200 mm²  Temperature controlled Flow Box Temperature stability ± 0.1°, ISO 4 environment  Real-Time Autofocus Optical autofocus or air-gauge autofocus  Autofocus Compensation Range 80 μm  Standard or Advanced Grayscale Mode 128 / 256 gray levels respectively  Vector Mode Enables the writing of stitching-free lines  8 x 10 mm² field of view facilitates alignment to marks and substrate navigation  Allows the alignment of exposures to structures on the backside of the substrate  Advanced Options - Performance Upgrades  High-Accuracy Coordinate System Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm  Professional Grayscale Mode 1024 gray levels, professional data conversion software  Automatic Loading System Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height 1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight 1300 kg (lithography unit only)  Installation Requirements  Electrical 230 VAC ± 5 %, 50/60 Hz, 16 A	Write Speed [mm²/min]	2	10	30	110	-	-	
Light Source       Diode laser with 405 nm or 375 nm         Substrate Sizes       Variable: 5 x 5 mm² to 9" x 9"   Customizable on request         Substrate Thickness       0 to 12 mm         Maximum Exposure Area       200 x 200 mm²         Temperature controlled Flow Box       Temperature stability ± 0.1°, ISO 4 environment         Real-Time Autofocus       Optical autofocus or air-gauge autofocus         Autofocus Compensation Range       80 μm         Standard or Advanced Grayscale Mode       128 / 256 gray levels respectively         Vector Mode       Enables the writing of stitching-free lines         Backside Alignment (optional)       8 x 10 mm² field of view facilitates alignment to marks and substrate navigation         Allows the alignment of exposures to structures on the backside of the substrate navigation       Allows the alignment of exposures to structures on the backside of the substrate navigation         Advanced Options - Performance Upgrades       Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm         Professional Grayscale Mode       1024 gray levels, professional data conversion software         Automatic Loading System       Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner         System Dimensions of Standard Version       1300 mm x 1100 mm x 1950 mm (lithography unit only)         Width × Depth x Height       1300 mm x 1100 mm x	Exposure Time for 100x100 mm <sup>2</sup> area [min]	5000	1015	350	100	-	-	
Substrate Sizes  Variable: 5 x 5 mm² to 9" x 9"   Customizable on request  Substrate Thickness  0 to 12 mm  Maximum Exposure Area  200 x 200 mm²  Temperature controlled Flow Box  Real-Time Autofocus  Optical autofocus or air-gauge autofocus  Autofocus Compensation Range  80 µm  Standard or Advanced Grayscale Mode  128 / 256 gray levels respectively  Vector Mode  Enables the writing of stitching-free lines  8 x 10 mm² field of view facilitates alignment to marks and substrate navigation  Allows the alignment of exposures to structures on the backside of the substrate strate  Advanced Options - Performance Upgrades  High-Accuracy Coordinate System  Professional Grayscale Mode  Automatic Loading System  System Dimensions of Standard Version  Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	System Features							
Substrate Thickness 0 to 12 mm  Maximum Exposure Area 200 x 200 mm²  Temperature controlled Flow Box Temperature stability ± 0.1°, ISO 4 environment  Real-Time Autofocus Optical autofocus or air-gauge autofocus  Autofocus Compensation Range 80 µm  Standard or Advanced Grayscale Mode 128 / 256 gray levels respectively  Vector Mode Enables the writing of stitching-free lines  8 x 10 mm² field of view facilitates alignment to marks and substrate navigation  Allows the alignment of exposures to structures on the backside of the substrate  Advanced Options - Performance Upgrades  High-Accuracy Coordinate System Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm  Professional Grayscale Mode 1024 gray levels, professional data conversion software  Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height 1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight 1000 kg (lithography unit only)  Installation Requirements  Electrical 230 VAC ± 5 %, 50/60 Hz, 16 A	Light Source	Diode laser with 405 nm or 375 nm						
Maximum Exposure Area200 x 200 mm²Temperature controlled Flow BoxTemperature stability ± 0.1°, ISO 4 environmentReal-Time AutofocusOptical autofocus or air-gauge autofocusAutofocus Compensation Range80 μmStandard or Advanced Grayscale Mode128 / 256 gray levels respectivelyVector ModeEnables the writing of stitching-free linesOverview Camera8 x 10 mm² field of view facilitates alignment to marks and substrate navigationBackside Alignment (optional)Allows the alignment of exposures to structures on the backside of the substrateAdvanced Options - Performance UpgradesIncludes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nmProfessional Grayscale Mode1024 gray levels, professional data conversion softwareAutomatic Loading SystemHandling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scannerSystem Dimensions of Standard Version1300 mm x 1100 mm x 1950 mm (lithography unit only)Width × Depth x Height1300 mm x 1100 mm x 1950 mm (lithography unit only)Installation Requirements230 VAC ± 5 %, 50/60 Hz, 16 A	Substrate Sizes	Variable: 5 x 5 mm² to 9" x 9"   Customizable on request						
Temperature controlled Flow Box  Temperature stability ± 0.1°, ISO 4 environment  Real-Time Autofocus  Optical autofocus or air-gauge autofocus  Autofocus Compensation Range  80 µm  Standard or Advanced Grayscale Mode  Vector Mode  Enables the writing of stitching-free lines  8 x 10 mm² field of view facilitates alignment to marks and substrate navigation  Allows the alignment of exposures to structures on the backside of the substrate  1024 yars levels professional data conversion software  High-Accuracy Coordinate System  Professional Grayscale Mode  Automatic Loading System  Professional System  Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	Substrate Thickness	0 to 12 mm						
Real-Time AutofocusOptical autofocus or air-gauge autofocusAutofocus Compensation Range80 μmStandard or Advanced Grayscale Mode128 / 256 gray levels respectivelyVector ModeEnables the writing of stitching-free linesOverview Camera8 x 10 mm² field of view facilitates alignment to marks and substrate navigationBackside Alignment (optional)Allows the alignment of exposures to structures on the backside of the substrateHigh-Accuracy Coordinate SystemIncludes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nmProfessional Grayscale Mode1024 gray levels, professional data conversion softwareAutomatic Loading SystemHandling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scannerSystem Dimensions of Standard Version1300 mm x 1100 mm x 1950 mm (lithography unit only)Width × Depth x Height1300 mm x 1100 mm x 1950 mm (lithography unit only)Installation Requirements230 VAC ± 5 %, 50/60 Hz, 16 A	Maximum Exposure Area	200 x 200 mm <sup>2</sup>						
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Standard or Advanced Grayscale Mode  Vector Mode  Discrete Camera  Backside Alignment (optional)  Advanced Options - Performance Upgrades  High-Accuracy Coordinate System  Professional Grayscale Mode  Automatic Loading System  Width × Depth x Height  Wight  Discrete Camera  Standard Version  Width × Depth x Height  Backside Alignments  128 / 256 gray levels respectively  Enables the writing of stitching-free lines  8 x 10 mm² field of view facilitates alignment to marks and substrate navigation  Allows the alignment of exposures to structures on the backside of the substrate  Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm  Professional Grayscale Mode  1024 gray levels, professional data conversion software  Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	Real-Time Autofocus	Optical autofocus or air-gauge autofocus						
Vector Mode  Enables the writing of stitching-free lines  8 x 10 mm² field of view facilitates alignment to marks and substrate navigation  Allows the alignment of exposures to structures on the backside of the substrate strate  Advanced Options - Performance Upgrades  High-Accuracy Coordinate System  Professional Grayscale Mode  Automatic Loading System  Professions of Standard Version  Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	Autofocus Compensation Range	80 μm						
Overview Camera  8 x 10 mm² field of view facilitates alignment to marks and substrate navigation  Allows the alignment of exposures to structures on the backside of the substrate  Advanced Options - Performance Upgrades  High-Accuracy Coordinate System  Professional Grayscale Mode  Automatic Loading System  Pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  8 x 10 mm² field of view facilitates alignment to marks and substrate navigation.  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structure on the backside of the substrate  Allows the alignment of exposures to structure on the backside of the substrate  Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm  Professional Grayscale Mode  1024 gray levels, professional data conversion software  Automatic Loading	Standard or Advanced Grayscale Mode	128 / 256 gray levels respectively						
Advanced Options - Performance Upgrades  High-Accuracy Coordinate System  Professional Grayscale Mode  Automatic Loading System  Width × Depth x Height  Weight  Installation Requirements  Electrical  Inavigation  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Allows the alignment of exposures to structures on the backside of the substrate  Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm  Professional Grayscale Mode  1024 gray levels, professional data conversion software  Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Installation Requirements  Electrical	Vector Mode	Enables the writing of stitching-free lines						
Advanced Options - Performance Upgrades  High-Accuracy Coordinate System  Professional Grayscale Mode  Automatic Loading System  System Dimensions of Standard Version  Width × Depth x Height  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  Electrical  Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm  1024 gray levels, professional data conversion software  Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  1300 mm x 1100 mm x 1950 mm (lithography unit only)  1000 kg (lithography unit only)  1000 kg (lithography unit only)	Overview Camera							
High-Accuracy Coordinate System  Professional Grayscale Mode  Automatic Loading System  System Dimensions of Standard Version  Width × Depth x Height  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  Includes golden plate calibration and climate monitoring: 2nd layer alignment down to 350 nm  Professional Grayscale Mode  1024 gray levels, professional data conversion software  Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  1300 mm x 1100 mm x 1950 mm (lithography unit only)  1000 kg (lithography unit only)  Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	Backside Alignment (optional)							
High-Accuracy Coordinate System  Professional Grayscale Mode  Automatic Loading System  Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	Advanced Options - Performance Upgrades							
Automatic Loading System  Handling of masks up to 7" and wafers up to 8" with two carrier stations, pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	High-Accuracy Coordinate System	0						
Automatic Loading System  Pre-aligner and wafer scanner  System Dimensions of Standard Version  Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	Professional Grayscale Mode	1024 gray levels, professional data conversion software						
Width × Depth x Height  1300 mm x 1100 mm x 1950 mm (lithography unit only)  Weight  1000 kg (lithography unit only)  Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	Automatic Loading System							
Weight 1000 kg (lithography unit only)  Installation Requirements  Electrical 230 VAC ± 5 %, 50/60 Hz, 16 A	System Dimensions of Standard Version							
Installation Requirements  Electrical  230 VAC ± 5 %, 50/60 Hz, 16 A	Width × Depth x Height	1300 mm x 1	.100 mm x 19	950 mm (litho	graphy unit o	only)		
Electrical 230 VAC ± 5 %, 50/60 Hz, 16 A	Weight	1000 kg (lith	ography uni	t only)				
	Installation Requirements							
Compressed air 6 - 10 bar	Electrical	230 VAC ± 5	%, 50/60 Hz,	16 A				
	Compressed air	6 - 10 bar						

Please note: Specifications depend on individual process conditions and may vary according to equipment configuration. Write speed depends on exposure area. Design and specifications are subject to change without prior notice.



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