TWINSCAN XT:1460K

193-nm Step and Scan

Description

The TWINSCAN XT:1460K 193-nm Step-and-Scan system is a high-productivity, dual-stage ArF lithography tool designed for volume 300-mm wafer production at 65-nm resolution. The TWINSCAN XT:1460K system combines the imaging power of a variable 0.65–0.93-NA Carl Zeiss Starlith 4X reduction lens with AERIAL-P illuminator technology, extending ArF technology beyond the 65-nm technology node. The dual wafer-stage technology of the TWINSCAN platform enables the exposure of one wafer and the alignment of the next wafer to take place in parallel, virtually eliminating overhead time and allowing for continuous patterning of wafers for maximum productivity. The off-line leveling system guarantees superior focus control over the full wafer, including edge dies. A standardly delivered 45-W ArF laser with variable frequency control, in combination with the high optical transmission of the complete system, provides a production throughput of 205 wph (300 mm). The tool is prepared to operate at extreme low-k_1 values, delivering excellent CD uniformity, industry leading overlay and long term performance stability.

Technical Specifications

Lens	
Wavelength:	193 nm
NA:	0.65–0.93 (variable)
Resolution:	≤ 65 nm
Field size, for reticle with pellicle	
• Max X:	26.0 mm
• Max Y:	33.0 mm
Aberrations RMS z5—z37:	≤ 1.5 nm
Overlay	
Single Machine:	≤ 5.0 nm
Matched Machine:	≤ 9.0 nm
Dedicated-chuck:	≤ 3.5 nm
Matched-machine:	≤ 5.0 nm
Production Throughput	
30-mJ/cm ^{2} exposure dose	
26 x 33-mm field size	
• 300-mm wafers, 96 shots:	≥ 205 wph

Key Features and Benefits

Variable 0.93-NA 193-nm Projection Lens With Advanced Lens Manipulators

Production resolution down to 57 nm with polarized Illumination.

Ultra-k_1 Package

Operation at extreme low-k_1 values is enabled using several capabilities standard on the tool. These include improved focus control, support for customized illumination with QUASAR XL and DoseMapper functionality to improve CD control.

Superior Overlay

The XT:1460K is equipped with the latest overlay improvements resulting in dedicated chuck overlay of ≤ 3.5 nm and matched machine overlay of ≤ 5 nm with the TOP XT:1460K package installed.

High-Speed Dual-Stage Technology

Industry leading throughput for high volume manufacturing enabling highest number of good wafers per day.