

LithoTuner™ Pattern Matcher FullChip

LITHOTUNER PATTERN MATCHER FULLCHIP IS A SOLUTION THAT MATCHES EACH SCANNER TO EVERY RETICLE

Pattern Matcher FullChip brings complete optimization across all critical structures with exact scanner performance characterizations.

Complete Chip Analysis

Full chip analysis ensures that every critical structure is addressed in the matching optimization. Matching is no longer constrained to simple 1D through-pitch or limited pattern sets. Matching now finds and optimizes all sensitive patterns through the full process window. For the first time, matching optimization can cover the full chip over the entire process window, and with the exact variances of the actual scanners in the fab.

Full Scanner Characterization

Pattern Matcher FullChip identifies any structures sensitive to the actual scanner variations and includes them in the optimization. Each scanner's data is automatically obtained and used in the matching calculation. A range of internal adjustments including NA, Sigma, Stage tilt and Ellipticity is used to tune each scanner individually.

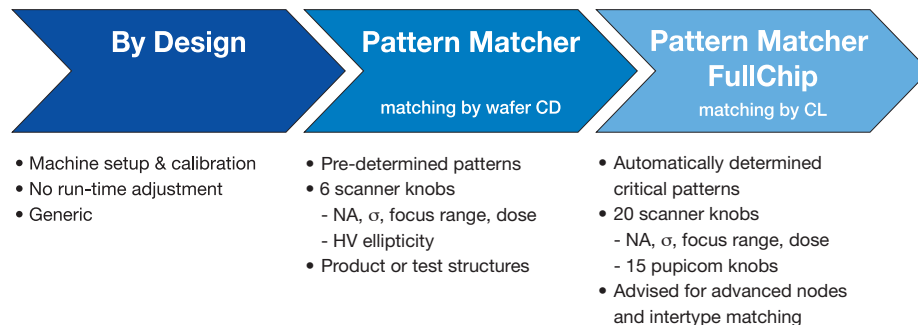


Figure 1: Scanner matching progress from design to product-specific optimization

Performance Benefits

- Full chip analysis ensures all critical features are optimized
- Uses industry leading Tachyon models
- Extends the set of tuning patterns by complementing wafer-based CD data with model-based analysis for the full chip

Complete Access to ASML Scanners' Tuning Functions

- NA, sigma, dose, and focus range
- Full ellipticity control

Ease of Use

- Simplified workflow
- User-friendly GUI

Builds on Pattern Matcher / Lithoserver Products

- Automated scanner connectivity
- Installation requires no scanner downtime

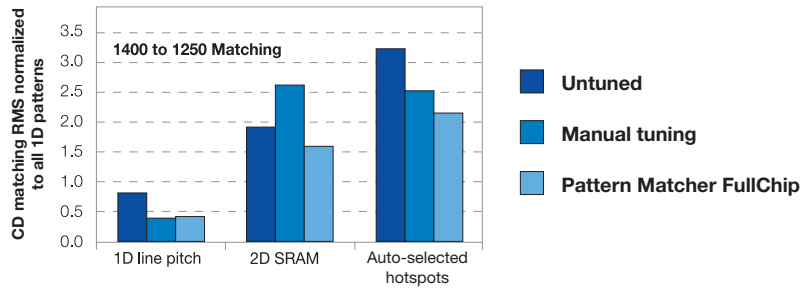


Figure 2: Matching different feature types on TWINSCAN XT:1400E and XT:1250D systems

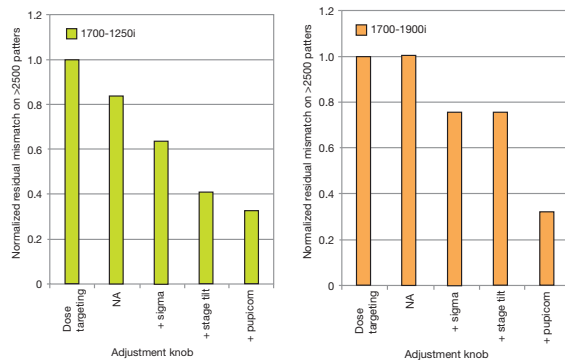


Figure 3: Using more tuning parameters enables better CD matching between scanners

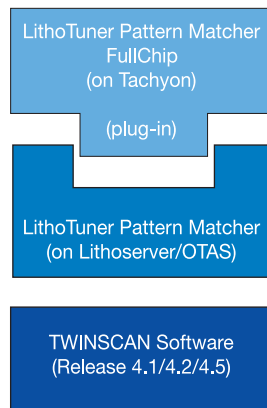


Figure 4: The Pattern Matcher product architecture

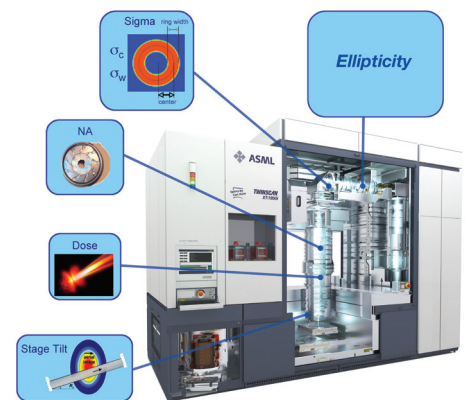


Figure 5: Adding knobs for improved matching