



# ASML

**ASML Introduces the  
New Generation TWINSCAN™  
the XT:1250**

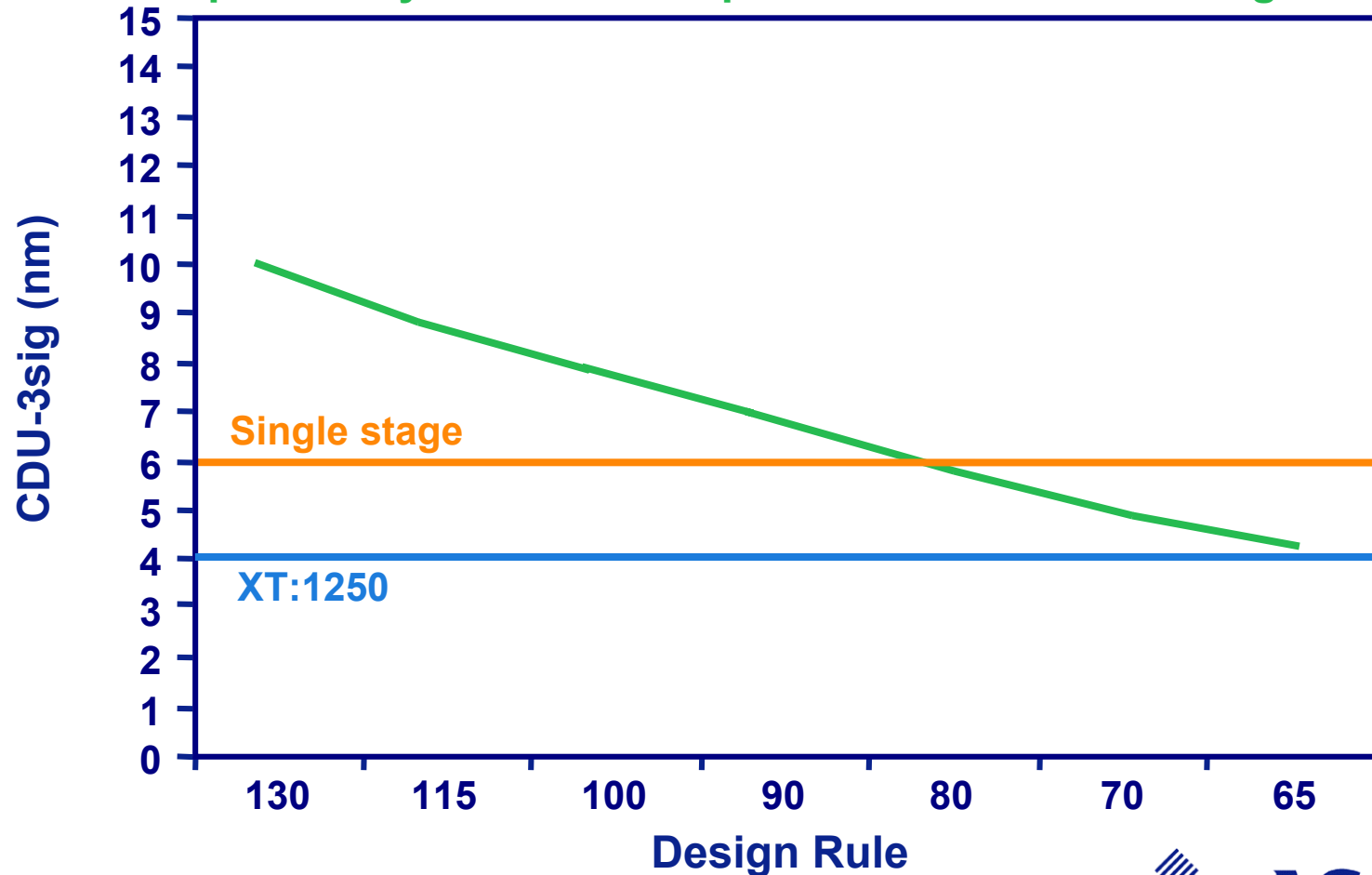
# The TWINSCAN XT:1250

- A 193-nm volume production tool for the 65-nm node
- Aimed at the 200-mm and 300-mm markets
- Ultra- $k_1$  solutions portfolio as standard
- A modular configuration

# Enhanced dual-stage performance

- Improved imaging provides higher performance

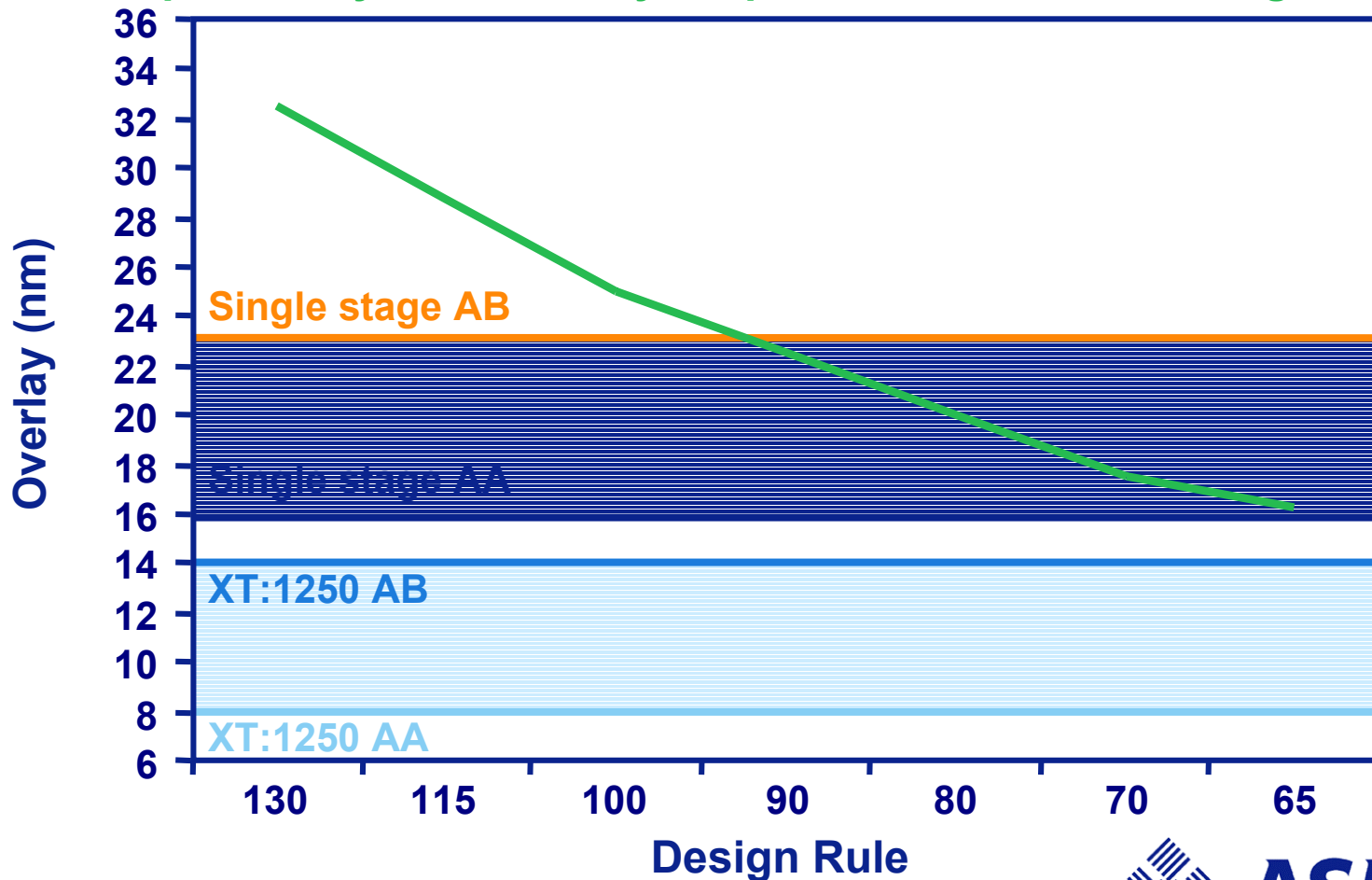
Exposure System CDU Requirement : ~7.5% of Design Rule



# Enhanced dual-stage performance

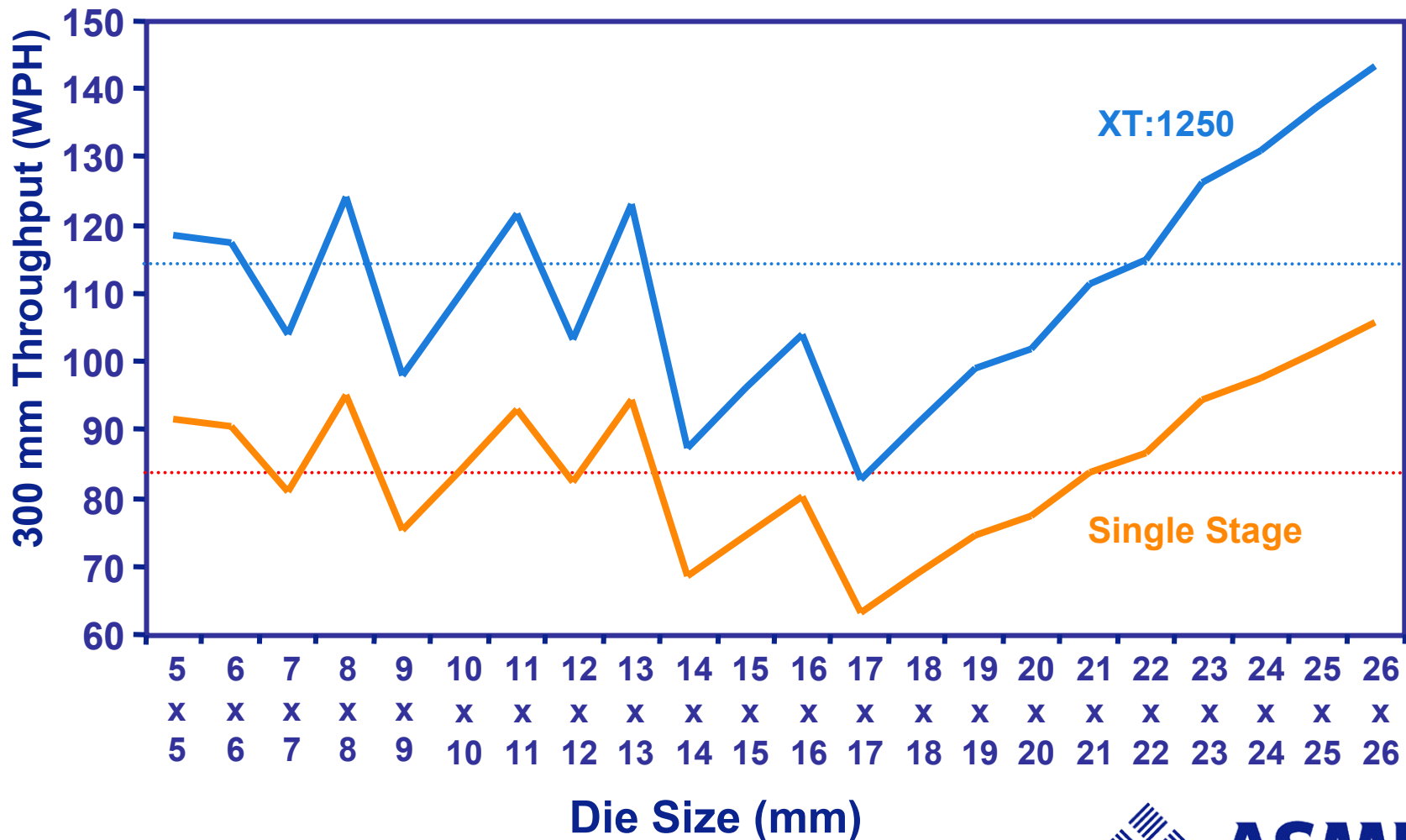
- Dual stages provide overlay advantage for higher yield—more good die per wafer

Exposure System Overlay Requirement : ~25% of Design Rule

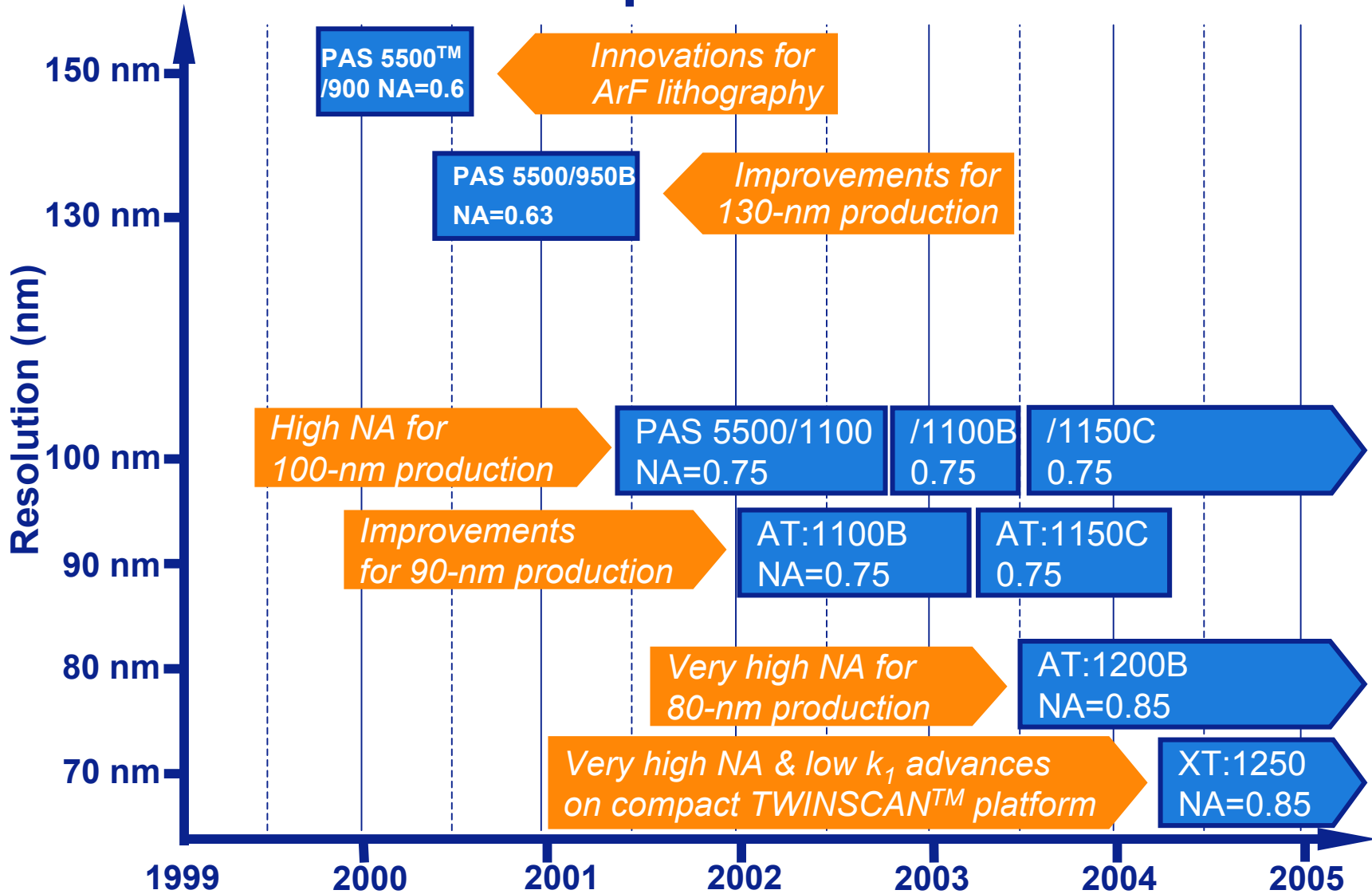


# Enhanced dual-stage performance

- Dual stages provide an average of 22% greater throughput across a range of die sizes

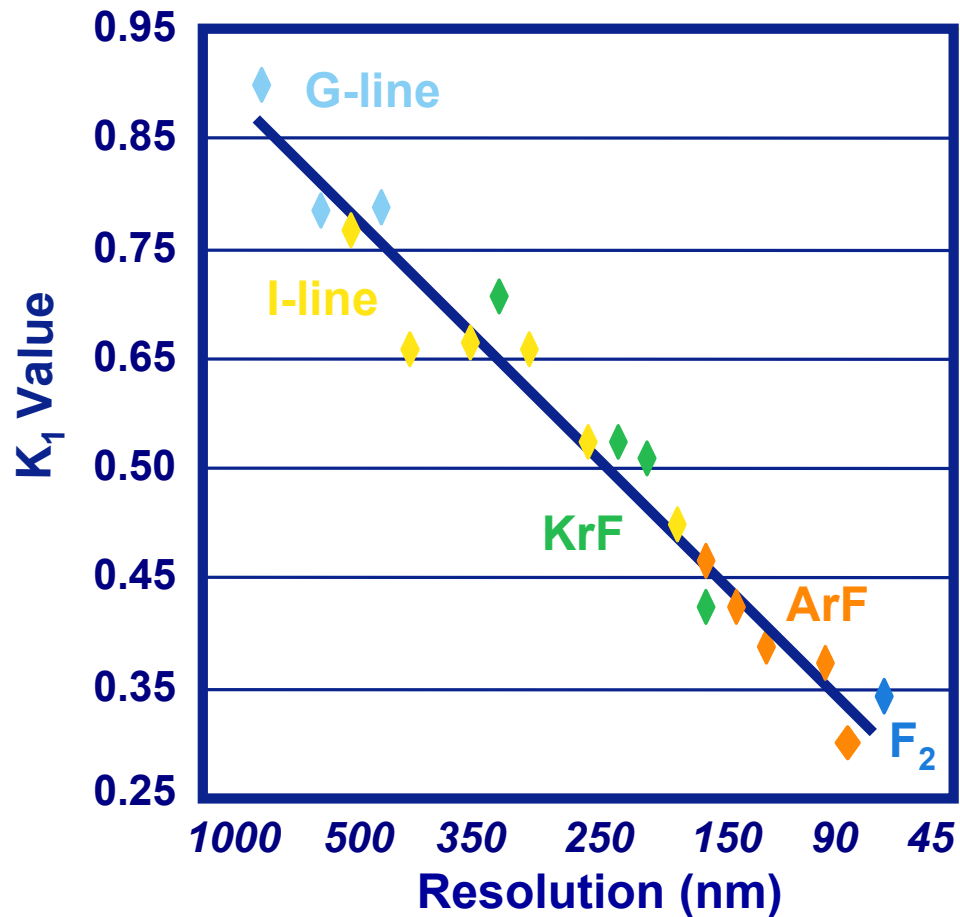


# ASML ArF roadmap 200 and 300 mm



# Ultra- $k_1$ products as a standard feature

- Addresses challenges in manufacturing with low  $k_1$



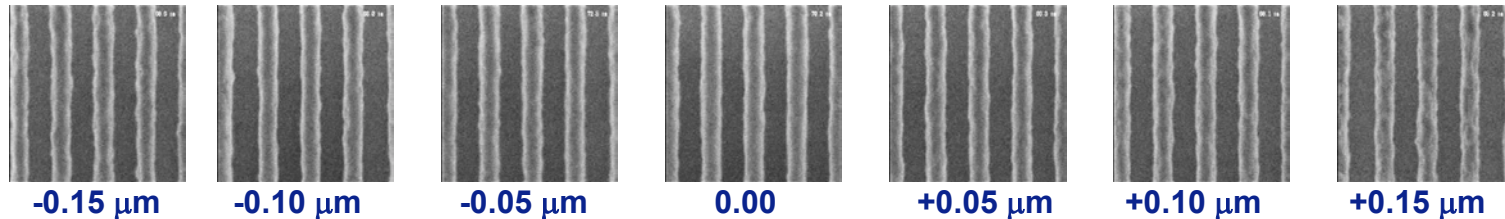
# Ultra- $k_1$ products

- Standard on the XT:1250
  - Mask design optimization
  - Aberration measurement and control
  - Process variability compensation
- Optional
  - Customized illumination



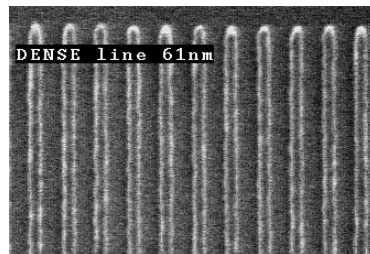
# XT:1250 imaging results: dense lines\*

## 70 nm (BIM)



140-nm pitch through focus. Binary mask. 70-nm lines: dipole NA=0.85, sigma 0.93/0.69.  
TArF6111, Ft=175 nm on Arc28

## 65 nm (AttPSM)

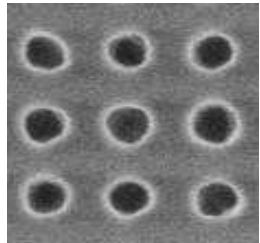


Design on mask: 65-nm 1:1 pitch  
6% AttPSM  
Dipole 35X illumination setting  
NA=0.85, sigma 0.93/0.69  
TArF6111, Ft=175 nm on Arc28

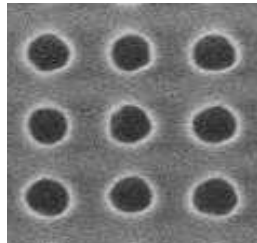
\*Data acquired using an AT:1200B

# XT:1250 imaging results: dense contact holes\*

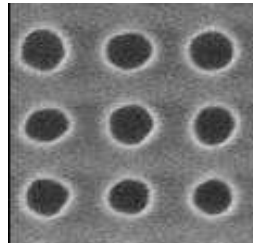
85 nm (AttPSM)



-0.2 $\mu$ m



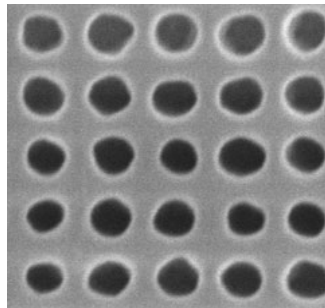
nominal



+0.2 $\mu$ m

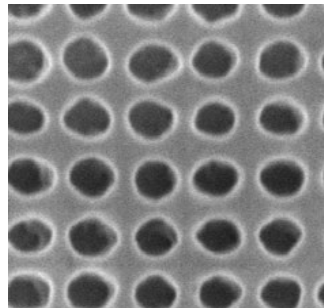
170-nm pitch  
6% AttPSM  
NA=0.85, sigma 0.93/0.69 QUASAR™-30  
Process: 250-nm TArF 7047, 82-nm AR19

80 nm (CPL\*\*)



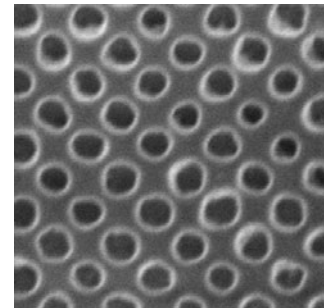
160-nm pitch  
1:1 contacts

75 nm (CPL)



150-nm pitch  
1:1 contacts

65 nm (CPL)



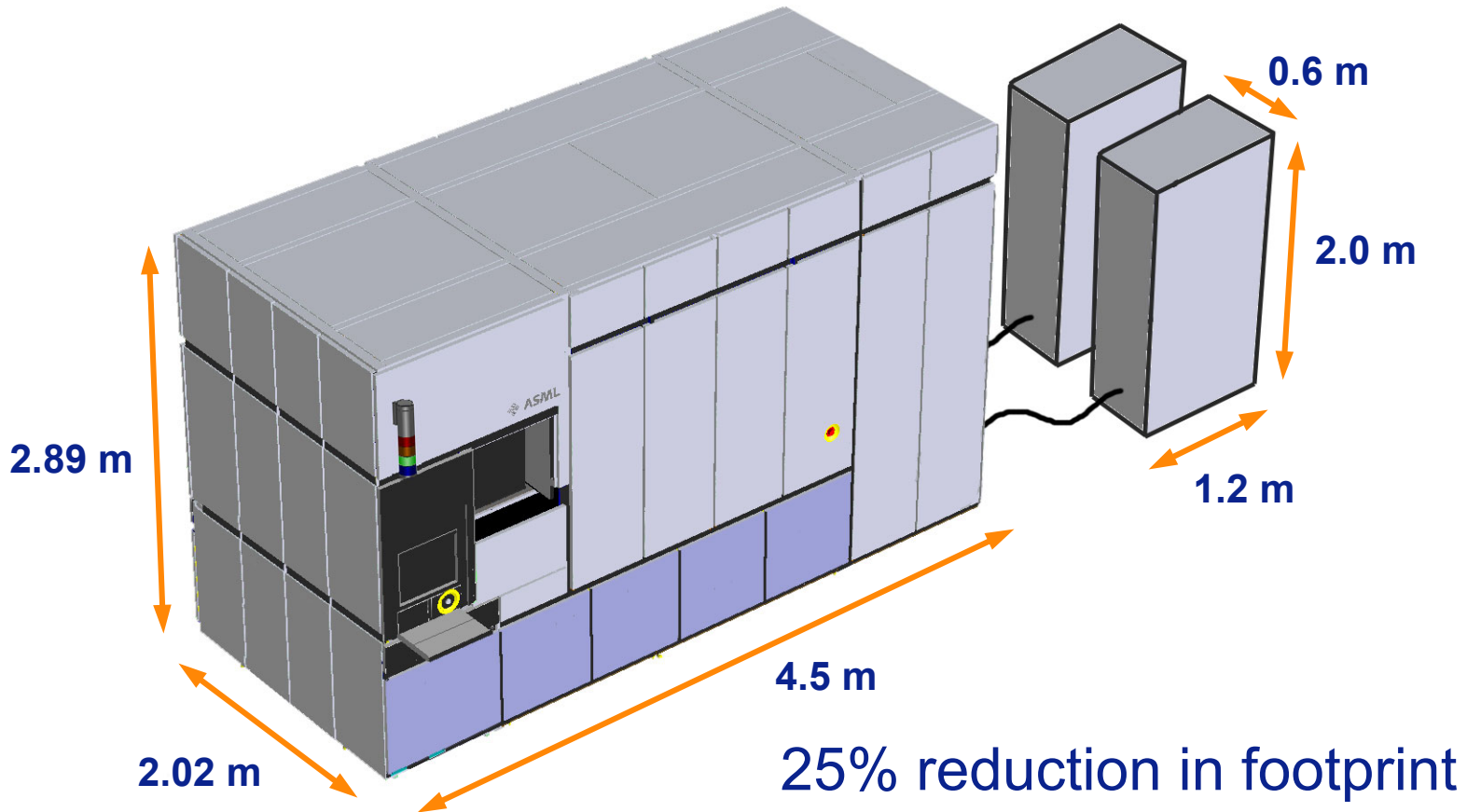
130-nm pitch  
1:2 contacts

\*Data acquired using an AT:1200B

\*\*Reticle CPL™ technology from ASML MaskTools

# A modular response to customer requirements

## XT:1250 - a modular configuration



# XT built on established TWINSCAN platform

## - TWINSCAN installed base



108 TWINSCANS INSTALLED Sep 03

# Fab requirement specifications lowered

- Up to 50% reduction in facility requirements
  - Process cooling water
  - Clean dry air
  - Exhaust heat load
  - etc.



# The XT:1250: customer orders Shipping in Q2 2004





# **ASML**

## ***Commitment***