# AMICA - the Nanolab of AMO

Fact Sheet
Equipment

**Description:**
AMO runs a class 10 to class 1000 cleanroom with a total area of 400 m²: Nanolab AMICA. Here, high end fabrication equipment for semiconductor technology is operated in a highly flexible way to enable quick process changes and unconventional solutions.

## Lithography

- Leica EBPG 5000 e-beam system:
  20/50/100 kV , sub 10 nm resolution, 6” substrates
- EVG 770 NILStepper, 6” - 8“ UV Nanoimprint Step&Repeat system
- EVG 501 UV Nanoimprint prototype:
  1” template size, sub 20 nm - mm resolution
- EVG 620 Soft UV Nanoimprint prototype:
  4”- 6” flexible template size, sub 50 nm resolution
- EVG 150 automatic resist processor: 4”- 8” wafers
- EVG 420 6” semi-automatic Maskaligner
- Raith Elphy Plus and LEO DSM 940a e-beam system:
  5-35kV, laser stage, 2” substrates
- 2 experimental holographic DUV exposure systems:
  1 µm - 180 nm pitch, 6” substrates

## Wet Processing

- ARIAS Wet benches:
  single wafer and batch cleaning and resist processes
- SCFluids Super Critical Dryer:
  $CO_2$, semi-automatic, up to 6” substrates
- Nanequi Automatic single wafer development tool:
  up to 6“ substrates

## Furnaces

- Four 6” - 8“ Centrotherm Furnaces:
  Oxidation, POCl3-Diffusion and Annealing
- Jipelec JetFirst: 6” Rapid Thermal Annealing system

## CVD (Chemical Vapour Deposition)

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- Centrotherm 6” LPCVD furnaces:
  Polysilicon, Silicon Nitride and LTO (low temp. $SiO_2$)

## Sputtering / Evaporators

- Von Ardenne CS730 Cluster system: 6” DC and RF sputtering of dielectrics and metals, sputter etch
- Pfeiffer Vacuum Classic 580: 6” e-beam and resistive evaporator. Materials: Al, Cr, $SiO_2$,Ti, $Ta_2O_5$

## Etchers

- Roth & Rau Mircosys 400: automatic 2 chamber system, 6” fluorine and chlorine based chemistry
- Oxford PlasmaLab 100: automatic 2 chamber system, 6” - 8“ chlorine and fluorine based chemistry
- Tepla Semi 300: Microwave Plasma Etcher, batch and single wafer processes, $O_2$ and $CF_4$ processes

## Metrology

- LEO 982 GEMINI SEM:
  High resolution low acceleration voltage SEM
- Veeco (DI) Dimension 3100 SPM:
  high resolution STM, AFM, MFM, up to 6” substrates
- Veeco DekTak³ST surface profiler
- Leica INM 100 optical microscope
- Philips PQ Ruby Ellipsometer

## Electrical Testing

- Cascade Microtech semi-automatic probe station
- Agilent semiconductor parameter analyzer (4156B)
- Agilent pA-meter (4140B)
- Agilent Precision LCR-meter (4284A)

## Atomic Layer Deposition

- 2 Oxford FlexAL Plasma assisted ALD

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