

The foundry

We operate a 2650 m² state-of-the-art cleanroom of class 100-10,000 on the High Tech Campus in Eindhoven, The Netherlands.



2650 m²

state-of-the-art cleanroom of class 100-10,000



Large set of 150 mm and 200 mm
state-of-the-art tools

Unmatched flexibility in materials

ranging from Ag to Zn, including 'CMOS-forbidden' materials, alloys, dielectrics, and polymers like Parylene

On different substrates and various shapes

Si, III/V, glass; square and round; up to 8"

1. Process capabilities

Cleaning

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
SSEC Evergreen cleaning system	•	•		
SSEC Trillanium 3100	•	•	•	Single wafer, in-situ piranha, megasonic cleaning
Lift-off system	•	•	•	
Semitool Cintillio 'S'-Clean		•	•	Spray process; O ₃ , H ₂ O, HF, HCl, NH ₄ OH
Semsysco-Clean		•	•	Spray process; O ₃ , H ₂ O, HF, HCl, NH ₄ OH

CMP

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Avanti 472	•	•	•	
Dama SPF650-2	•	•	•	
Dama 500 dual head	•	•	•	

Dry etching

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Down stream plasma stripper		•	•	O ₂ , N ₂ , N ₂ +H ₂ (3 %) and CF ₄
Silicon Deep Reactive Ion Etching		•		F-based (SF ₆ , C ₄ F ₈ , O ₂ , Ar, and N ₂); He backside cooling
SPTS CPX clustertool (2x)		•	•	3-ICP based chambers with He backside cooling: - metals (Ar, N ₂ , O ₂ , C ₄ F ₈ , SF ₆) - non-metals (Ar, He, N ₂ , O ₂ , H ₂ , CF ₄ , CHF ₃ , C ₄ F ₈ , SF ₆) - DRIE (Ar, N ₂ , O ₂ , Cl ₂ , HBr, CF ₄ , CHF ₃ , BCl ₃ , SF ₆)
Ion Beam Etcher		•		
Shuttlelock (RIE)	•	•	•	2 chambers: F-based (CF ₄ , CHF ₃ , CH ₄ , SF ₆ , O ₂ , Ar, and N ₂) & C- based (Cl ₂ , BCl ₃ , CF ₄ , CH ₄ , O ₂ , Ar and N ₂)
Several barrel etchers	•	•	•	

Evaporation*

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
BAK 550 (2x)	•	•	•	See materials list for evaporation >
BAK 640	•	•	•	Also oxides, and large substrate (300 mm)

Furnace processing

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Atmospheric furnace	•	•	•	Several furnaces
ATV Anneal furnace	•	•	•	Poly-Imide, BCB curing
Koyo furnace	•	•	•	Controlled atmosphere
Horizontal LPCVD furnace	•	•	•	T _{max} : 1100°C ± 0.5°C; (P-doped) Poly-Si, a-Si, SIPOS, Si ₃ N ₄ , low-stress SiN, undoped TEOS
Horizontal Atmospheric furnace	•	•	•	T _{max} : 1300°C ± 1.0°C; Dry & Wet Ox, Anneal N ₂ , Alloy process (N ₂ H ₂), P-doped gas process
Rapid Thermal Anneal		•		

Implanting

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Several equipment	•	•	•	Dose up to 1x10 ¹⁶ at/cm ² ; 6 - 250 keV; B, As, P and other species (external partner)

Lithography

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Suss MA8 GEN3 Mask Aligner	•	•	•	Equipped with SCIL capability
Suss MA8 Mask Aligner	•	•	•	1 kW lamp
Suss MA150 Mask Aligner		•		
7120 Exposure equipment	•	•	•	Large substrate exposure
Electron Beam Pattern Generator	•	•	•	CD < 100 nm (external partner)
ASML Stepper PAS5500/100	•	•	•	CD ~ 0.5 μm and including back-side alignment

Metrology

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Several Optical microscopes	•	•	•	
Several Step height measurement tools	•	•	•	
SEM-XL40 FEG	•	•	•	
SEM-XL50 SFEG	•	•	•	Loadlock system
PE Lambda950 spectrofotometer	•	•	•	InGaAs detector, angle dependent measurement possible
Toho FLX2320-S	•	•	•	Heated stage with N ₂ flow
Orbot WF735 DUO	•	•	•	Automated patterned particle measurement
MOS Ultra-Scan Stress System	•	•	•	
CV measurement system	•	•	•	
Electroglass Automatic prober	•	•	•	Automated probe station
KLA Surfscan 6200	•	•	•	
KLA P16+ step height measurement	•	•	•	Vertical range 0-327 μm
Nanospec 4000 reflectometer	•	•	•	
4 Dimension	•	•	•	Automated 4-point probe incl mapping
Nanospec 6100 thickness meter	•	•	•	Automated mapping
Ellipsometer LSE-WS	•	•	•	Automated mapping

* [See materials list for evaporation >](#)

Miscellaneous

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Diamond Scriber	•	•	•	
Nanowave printer SCIL	•	•	•	
SCIL unit on Suss MA8 GEN3 Mask Aligner	•	•	•	Alignment down to 1 micron possible
VectorMark VMc1 marking laser	•	•	•	

PECVD

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Advanced Vacuum Vision	•	•	•	SiO ₂ & SiN, low temperatures
Paryleen coater	•	•	•	
Novellus PECVD Concept one.	•	•	•	SiO ₂ , SiN, (BP)TEOS
AKT 1600 CVD	•	•	•	(doped) a-Si, SiO ₂ , SiN. Substrate size max 300 x 400 mm
ALD ASM Polygon 8200		•	•	Aluminum oxides (+ other processes in development)

Resistcoating

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Several manual spinners	•	•	•	
Suss Delta Altraspray	•	•	•	Spray coater
EVG 120 Resist track	•	•	•	
EVG 150 Resist track (2x)	•	•	•	Dedicated for stepper resist
Eagle resist coater	•	•	•	Cathophoretic resist
Eagle 2002 Topcoat	•	•	•	Eagle developer
Spray development unit	•	•	•	
Optispin SB20	•	•	•	Extensive BSR & EBR; dedicated for SU8 coating
Several primer ovens	•	•	•	

Special deposition

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Parylene coater	•	•	•	
Laminator	•	•	•	

Sputter deposition*

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Veeco Nexus (2x)	•	•	•	6 chambers; double loadlock
Oerlikon CORONA ZH620 Vanguard	•	•		
Oerlikon EMERALD ZH620 Vanguard	•	•		
LLS 802	•	•	•	Batch deposition
Unaxis Clusterline		•		AlN
Evatec Multi Cathode system	•	•	•	Cosputter system equipped with 4 cathodes
Evatec Radiance-6PM	•	•	•	Optical Coatings; in-situ monitoring and Ion Beam densifying
KDF-744N	•	•	•	Up to 14" x 16"

Wafer bonding

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Suss SB8E Bonder aligner		•	•	Anodic, Si direct, adhesive, thermo compression, eutectic bonding

Wet processing

Equipment	Substrate size			Comments
	100 mm	150 mm	200 mm	
Anisotropic silicon etching	•	•	•	KOH
Wet etching of dielectrics (i.e. different oxide & nitrides)	•	•	•	HF, BOE, H ₃ PO ₄
Wet etching of metals	•	•	•	Cr, Cu, Au, ITO, Al, MoCr, AlTi
Wet cleaning processes	•	•	•	100% HNO ₃ , piranha
Wet stripping processes	•	•	•	EKC
Manual developing resists	•	•	•	AZ, OPD
HF vapour etch VPE200	•	•	•	Temperature controlled etching SiO ₂

* See materials list for deposition >

2. Materials list

		Sputter deposition			Evaporation
Nexus	Emerald & Corona	LLS802	KDF	Evatec	
AgTTP	Ag	Ag	AlTi	Al ₂ O ₃	Ag
Al	Al	Al	ITO	Ge	Al
AlCu 1wt%+0.5wt%	AgPd 1%	AlCNI	Mo	In	Al ₂ O ₂
AlCuMgMn	Al ₂ O ₃	AlCr	MoCr	Mo	Au
AlSi 1wt%	AlSi 1wt%	AlCu 0.5wt%	SiO ₂	MoSi ₂	B
AlTi 2wt%	Au	AlCu		Ru	Bi
Au	B	AlGe		Sb	Co
C	C	AlSi 1wt%		SiO ₂	Cr
Cr	Co	AlSiCu		Sn	Cu
Cu	Cr	AlTi 0.5wt%		Ta ₂ O ₅	Dy
ITO	Cu	Au		Te	Er
Mo	Ge	Cr		TiO ₂	Ga
MoCr 3wt%	Hf	CrNiAl		Zr	Gd
MoNb 5wt%	HfO ₂ Y ₂ O ₃	CrSi			Ge
Ni	In	CrSiO			Hf
NiV 10wt%	Mo	Cu			Ho
Pt	MoSi ₂	CuNi			In
Ru	Nb	Mo			Ir
Si (B-doped)	Ni	Ni			La
Ta	NiFe 80/20	NiCr 50/50			Mg
Ti	Pd	NiCrAl			MgO ₂
TiW10/90	Ru	NiV 93/7			Mn
V	Si	Si			Mo
W	SiO ₂	SiC			Nb
ZnOAl2O3	Sn	SiO ₂			Ni
	Ta	Sn			Os
	TbFeCo	Ta			Pb
	Ti	Ti			Pd
	W	TiW 10wt%			Pt
	ZnO	Zr			Re
	ZnOAl ₂ O ₃				Rh
	Zr				Ru
	ZrO ₂				Sc
					Si
					SiO ₂
					Sn
					Ta
					Tb
					Ti
					TiO ₂
					V
					W
					Y
					Yb
					Zr
					ZrO ₂

Other materials or other concentration of materials might be available or can be ordered. Please contact us for more information.

Contact

If you have any questions, feel free to contact us.



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