

POLYTEKNIK 



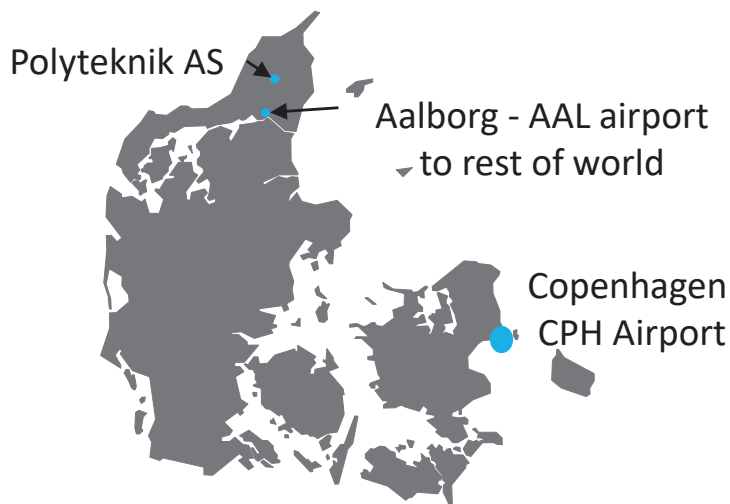
FLEXTURA® PVD PLATFORM

WHEN THIN FILM MATTERS

POLYTEKNIK 

POLYTEKNIK AS

WHEN THIN FILM MATTERS



ABOUT US

At Polyteknik AS we strive to meet our customers' needs and demands through highly qualified personnel – and make positive agreements. Delivering exceptional products and providing quality services with end-to-end support is at the core of our company. Our ambition is to be a reliable partner in all aspects of co-operations.

LOCAL COMPANY WORKING GLOBALLY

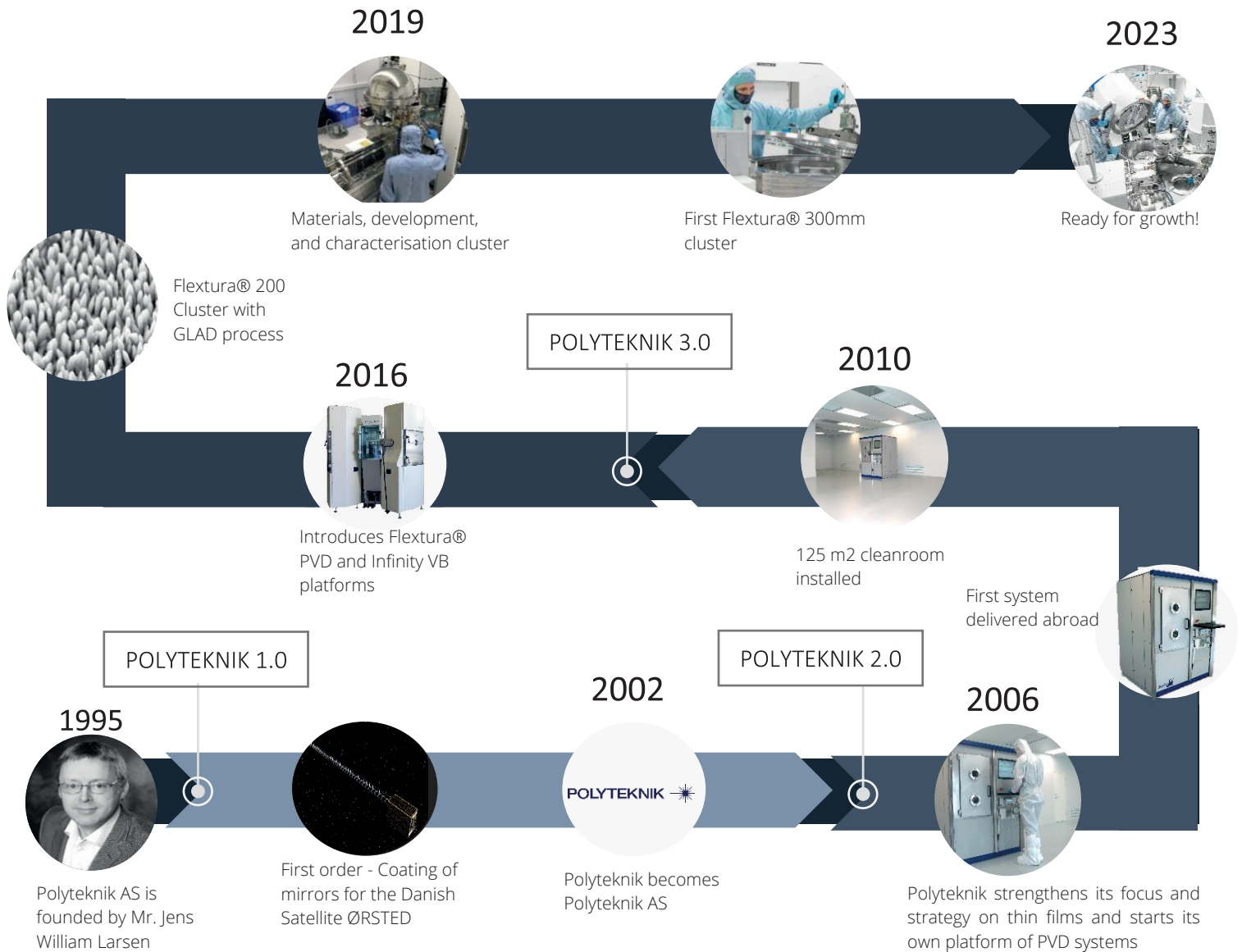
Director and Owner, Jens William Larsen (M.Sc.) founded Polyteknik AS in 1995. During the years, we have grown from being a local oriented supplier of thin film deposition service to an internationally working supplier of PVD systems and services.

FROM THIN FILMS TO PVD SYSTEMS

Thin film coating service was the basis in which Polyteknik AS was founded and from 2006 the PVD equipment manufacturing was taken on as well. The main activities from then on has been related to the equipment manufacturing and the efforts to further develop the know-how and technology platforms.

MORE THAN 25 YEARS OF EXPERIENCE

HISTORY OF POLYTEKNIK AS



FLEXTURA® PVD PLATFORM

MOST FLEXIBLE 300mm PLATFORM

DRIVEN BY UNIQUE PROCESSES

- High temperature deposition (1000°C)
- Epitaxial growth
- Highly ionised sputtering
- Glancing angle deposition
- Combined evaporation and sputtering
- Integrated advanced thin film analysis
- Single wafer and batch processing
- Manual or fully automated loading cassette-to-cassette
- ESC with backside gas

FLEXIBILITY AND RELIABILITY IS THE KEY

- Scalable capacity from medium to high volume production
- Safe and reliable handling of wafers/carriers up to 300mm
- Strong reliable 24/7 production tools
- Fully automated process control with advanced data logging
- SECS/GEM, MES integration optional
- CMOS compatible



CHOOSE SUBSTRATE LOADING MODULARITY OF THE FLEXTURA®

BATCH SYSTEM



Start from a highly flexible standalone system

SINGLE SUBSTRATE LOAD LOCK



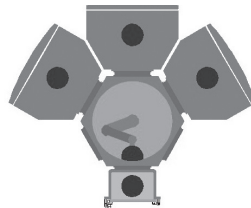
Add additional processes and analytics

CASSETTE LOAD LOCK



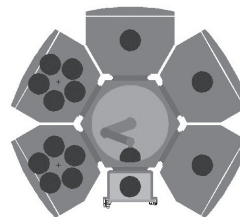
Automate your deposition process

CLUSTER SYSTEM



Save valuable clean room space

ADD PROCESS MODULES WITH INCREASING CAPACITY



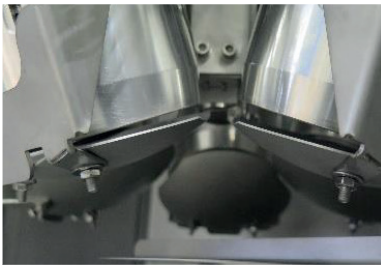
Without compromising flexibility!

FLEXTURA® CLUSTER PLATFORM

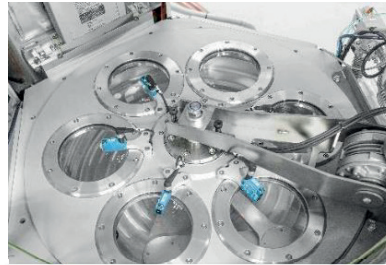
FLEXIBLE PRODUCTION

Flexibility, reliability, and quality – three terms that are central for the main functionalities of the Flextura® Cluster platform. With industrial grade components, full automation, and unique processes the Flextura® Cluster platform can take your wafer production to new heights. Combined with the know how and expertise of the Polytechnik AS team, you will experience a dedicated and professional approach to your core applications.

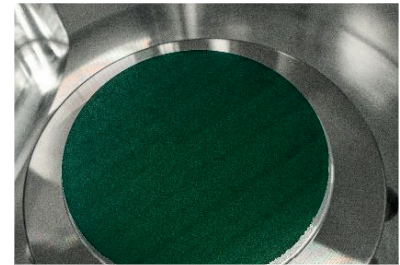
EXAMPLES OF FLEXTURA® CLUSTER MODULES



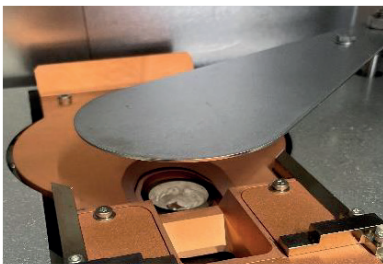
MAGNETRON
SPUTTERING



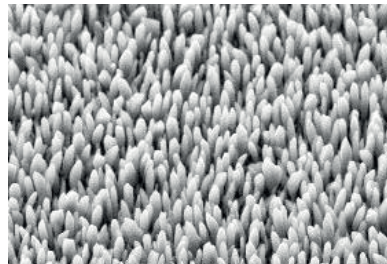
TRANSFER MODULE
BROOKS ROBOT



CCP, ICP, DEGAS
PRECLEAN



THERMAL OR E-BEAM
EVAPORATION



FULLY AUTOMATED
GLAD MODULE



ANALYSIS MODULE
XPS/UPS



FLEXTURA® 200 CLUSTER

- Six-port transfer module with Brooks Magnatran LEAP robot
- Single or dual cassette load locks
- Wafer aligner, wafer mapping, cross-slot detection
- Substrate heating up to 1000°C
- Dynamic in-situ feedback control by PEM or RGA in reactive sputtering
- Fully automatic handling from cassette
- Up to 200mm wafers/carriers
- Sputtering, Pre-clean, ICP Soft Etch, Degas, Evaporation, GLAD
- Standard SEMI or custom cassette
- SECS/GEM, Direct SQL server logging



FLEXTURA® 300 CLUSTER

- Eight (9)-port transfer module with Brooks Magnatran LEAP dual arm robot for maximum throughput and reliability
- Room for up to six process modules
- Atmospheric front-end with Brooks JCP EFEM
- Up to 4 Vision™ LEAP load ports supporting 300mm FOUPS or 200mm cassettes
- Sputtering, Evaporation, Pre-clean, ICP Soft Etch, Degas
- Substrate heating up to 950°C
- Wafer aligner, wafer mapping, cross-slot detection
- GEM300 -EDA/Interface-A

PROCESS MODULES

FLEXIBLE PRODUCTION

FLEXTURA® SPUTTER

The **Flextura® Sputter** modules can be equipped with single or multiple magnetrons for direct planar or confocal sputtering.

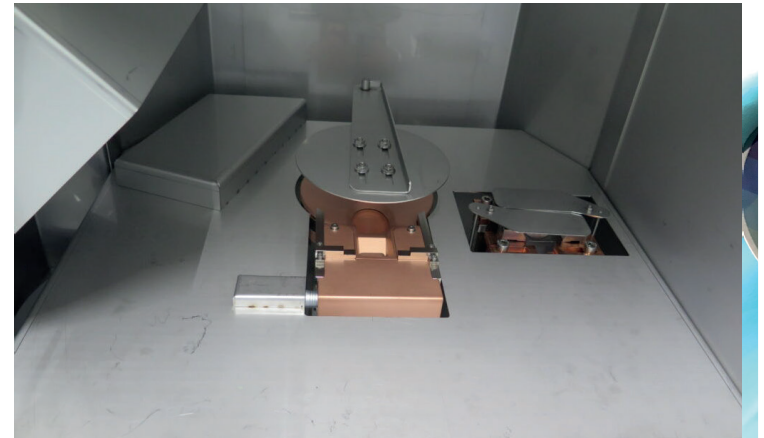
- Direct planar sputter module
- Confocal sputtering
 - Multiple magnetrons
 - Multilayers in one module
 - Co-sputtering
- Linear sputtering
 - Single or dual magnetrons
 - Planar or rotatable setup
- HiPIMS sputtering module
 - High aspect ratio metallisation
 - Layer property tuning
- DC, pDC, RF, and bipolar magnetron sputtering
- Reactive and non-reactive sputtering

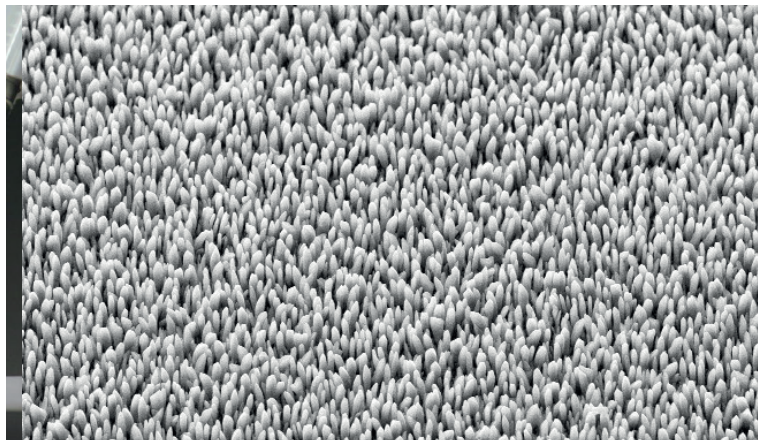


FLEXTURA® EVAPORATOR

Polytechnik AS has delivered variously sized evaporation systems for both high-end industry and university R&D. A combination of highly skilled process, software and mechanical engineers secures you the most optimum evaporation solution, including:

- E-beam evaporation
- Thermal evaporation
- Glancing angle deposition (GLAD)
- Ion beam assisted deposition (IBAD)

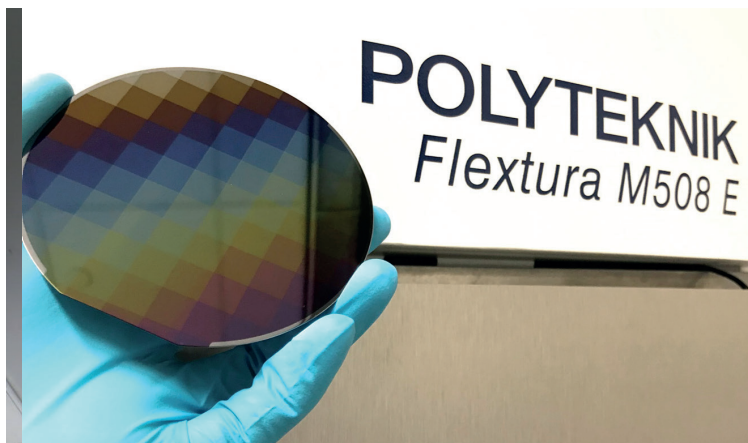




FLEXTURA® GLAD

The **Flextura® GLAD** module is a production proven glancing angle evaporation module for industry scale volumes with fully automated substrate handling from cassette. Fully compatible with standard top-down processing ensuring fast and direct integration with complementary processes like degas, etch or sputtering.

- Proven up to 200mm diameter substrates
- Rotation: 0-40 rpm, tilt: 0-180°, resolution 0.1°
- GLAD stage with water cooling, ESC, or pneumatic chuck
- Special ebeam crucible with 12x60cc pockets
- Automatic pellet feeder option
- Low base pressure <5E-8 mbar
- SECS/GEM, MES direct SQL server logging
- CMOS compatible



PLATFORM HIGHLIGHTS

- Process frame for epitaxial growth of thin films at elevated temperatures up to 1000°C
- Glancing angle deposition at wafers in mass production scale
- Dynamic in-situ feedback control by PEM or RGA in reactive sputtering
- Electrostatic chuck (ESC) with backside gas for substrate cooling or heating, RF/DC bias option
- Remote plasma sputtering
- Plasma etch or pre-clean
- Market leading process software technology for accurate real time control of deposition

IN-SYSTEM DEPOSITION AND CHARACTERISATION FASTER FROM DEVELOPMENT TO PRODUCTION

Connect in-system analysis to your Flextura® PVD Cluster, load your cassette, set the process flow and let the system handle deposition and analysis automatically. The Flextura® platform combined with the experience, flexibility, and collaborative approach of Polyteknik AS makes it happen – latest confirmed in an application driven research tool delivered to University of Oslo investigating new and existing wide bandgap materials.

- Smarter and faster research development
- Increased R&D through put, reliability, and quality
- Fast process optimisation by parameter scanning and tuning
- More reliable and repeatable experiments
- More time to plan, analyse, discuss, and collaborate
- Bridging process development to volume production

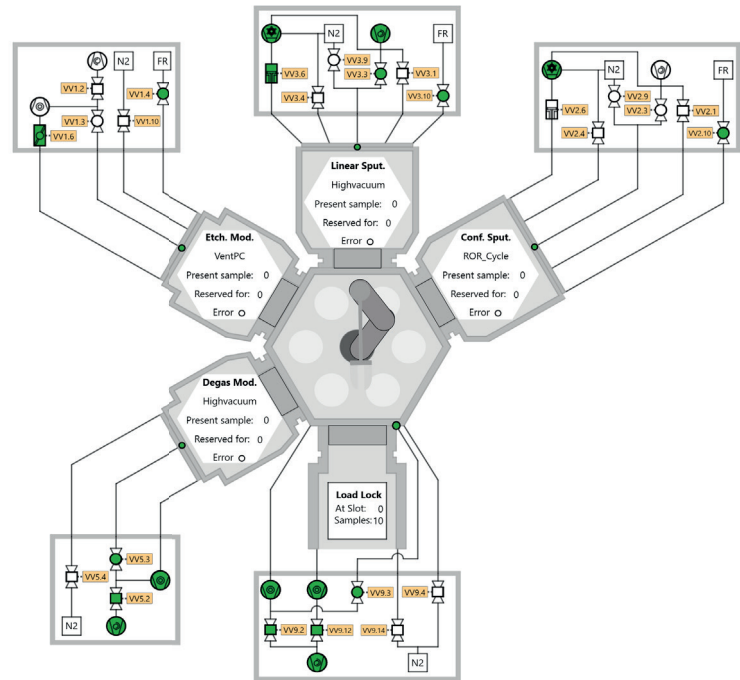
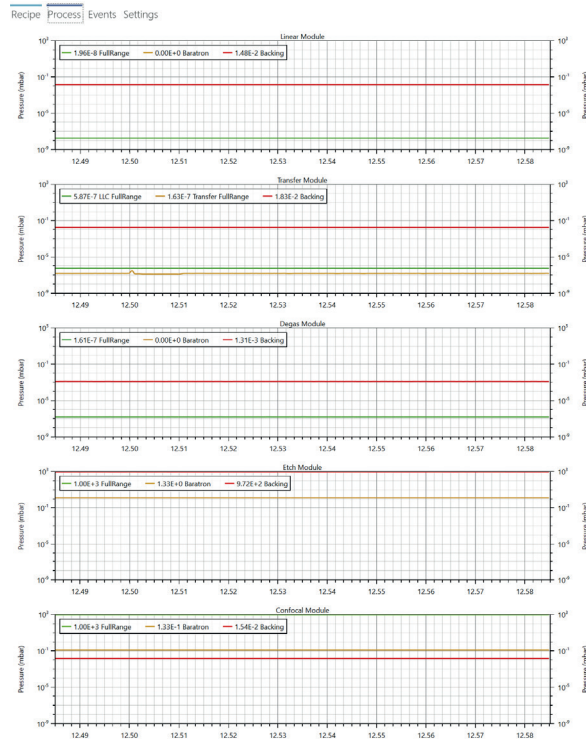
EXAMPLES OF CHARACTERISATIONS MODULES

- X-ray photoelectron spectroscopy (XPS)
- Ultraviolet photoelectron spectroscopy (UPS)
- Reflection high-energy electron diffraction (RHEED)
- Ellipsometry
- Energy-dispersive X-ray (EDX)
- X-ray diffraction (XRD)
- Scanning electron microscopy (SEM)



MODULAR SOFTWARE PLATFORM

UNIQUE PROCESS CONTROL WITH CRYOSOFT



Generic in-house developed software

Recipe based processing

Save, load, and edit recipes

Multilayer or multiprocesses

Individual or batch recipe

Multiple user levels

Fully automatic or semi-automatic mode

Advanced datalogging of all parameters

Remote system monitoring or operation



WHO ARE WE

Polytechnik AS is a PVD equipment manufacturer with an innovative and best service approach. With more than 25 years in business, a global reference list, and an excellent platform of technology, Polytechnik AS has turned to be an appreciated partner in the thin film industry.



WHAT DO WE DO

The portfolio of platform systems ranges from small scale R&D to high volume or large area deposition systems. Polytechnik AS covers several deposition processes including sputtering, evaporation, and varieties of these. At Polytechnik AS you will meet a dedicated team interested in a strong co-operation towards the best solution.

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