POLYTEKNIK
When thin film matters



PVD SYSTEMS

Flextura® PVD Platform

The most flexible PVD platform: modular, and designed for advanced thin film processing

We build modular PVD systems for advanced thin film processing

At Polyteknik AS, we don't just build PVD systems — we create opportunities.

Headquartered in Denmark, with a sales office in Dresden, Germany, we deliver next-generation thin-film solutions through our Flextura® Platform; modular, flexible, and built to grow with your R&D and production needs.

Polyteknik AS is a family owned business since 1995, now with more than 30 years of experience in vacuum technology. From our extensive know-how, we have been able to make innovative solutions based on a strong presence in the European semiconductor community.



New headquarters in Hjallerup, Denmark

2026
Expanding to new headquarters

30+ years
Experience in vacuum technology

DK • DE
Hjallerup Dresden

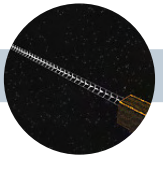
More than 30 years of experience

1995

Polyteknik is founded by Mr. Jens William Larsen



Polyteknik 1.0



First order - Coating of mirrors for the Danish Satellite ØRSTED

2002

Polyteknik becomes Polyteknik AS

Polyteknik 2.0



2006

Polyteknik strengthens its focus and strategy on thin films and starts its own platform of PVD systems



2007

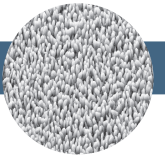
First system delivered abroad

Polyteknik 3.0

2016



Introduces Flextura® PVD and Infinity VB Platforms



Flextura® 200 Cluster with CMOS compatible GLAD process

2019



Materials, development, and characterisation Cluster

2023



First Flextura® 300 Cluster

2024



Polyteknik GmbH in Dresden opens



Several Flextura® installations for Quantum, Power electronics, MEMS

Polyteknik 4.0

2026



Inaguration of new HQ and PVD facilities

What's next?

Follow us on LinkedIn to stay updated



MARKET AREAS

Photonics & PIC

Quantum

MEMS & sensors

Wireless devices

Power electronics

Most flexible PVD Platform

Flextura® PVD Platform

PLATFORM HIGHLIGHTS

- High temperature deposition (1000°C)
- Magnetron sputter epitaxy
- Highly ionised sputtering
- Gradient sputtering
- Glancing angle deposition

Flexibility and reliability

Combining different technologies from sputtering, evaporation, etch to annealing with opportunities for new dedicated process modules. Configured to handle 100mm, 150mm, 200mm, or 300mm substrates.

Scalable capacity

From R&D to high volume manufacturing; the Flextura® PVD platform is fully upgradable from single module to full cluster with reliable 24/7 production.

CMOS Compatibility

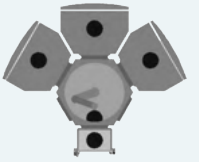
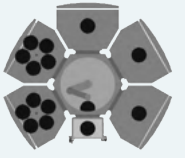
Built for CMOS-compatible processing, delivering the cleanliness and precision demanded by advanced semiconductor fabrication.

Smart automation

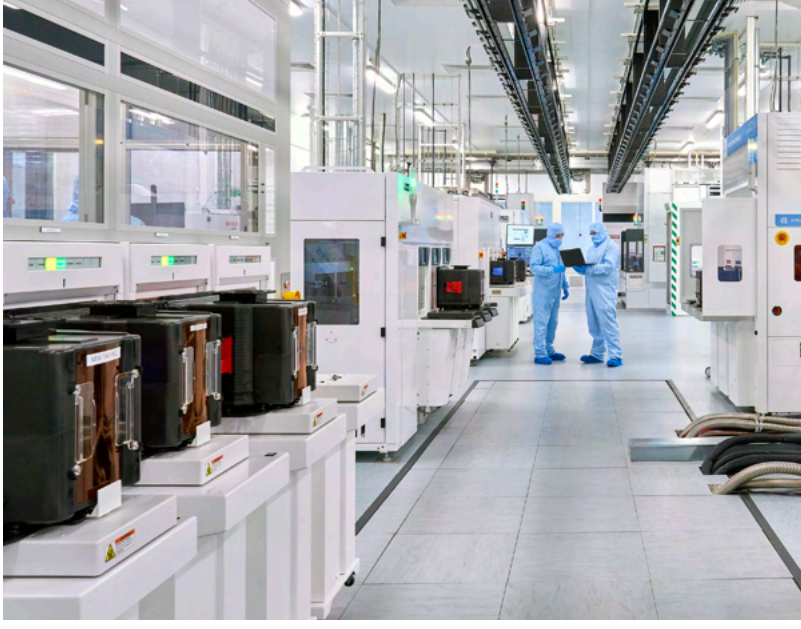
Fully automated process control ensures consistent, repeatable processing while advanced data logging and wafer ID tracking enable full traceability of process history. SECS/GEM and MES integration options support automated data exchange, production monitoring, and seamless integration into fab automation workflows.

Choose substrate loading

Start from a highly flexible standalone system and extend it step by step as your needs change.

Batch system		Start from a highly flexible standalone system.
Single substrate load lock		Add additional processes and analytics.
Cassette load lock		Fully automate your deposition process with cassette handling.
Fully automated cluster system		Save valuable clean room space.
Add process modules with increasing capacity		Without compromising flexibility!





Flextura® process modules

A highly flexible and fully automated platform designed for advanced thin film processing.

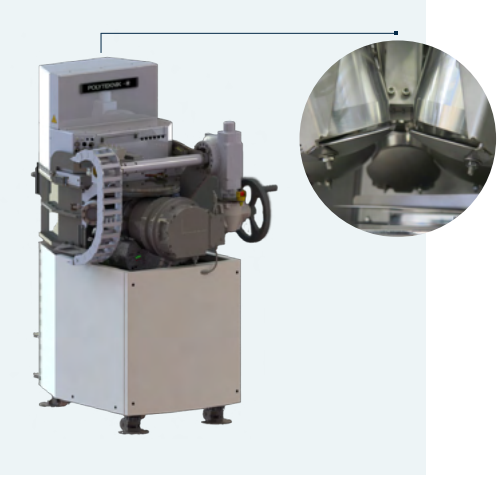
The Flextura® PVD platform bridges research and production environments — supporting substrates from smaller R&D wafers to full 300 mm manufacturing standards, as well as alternative materials.

All process modules can be integrated into the Flextura® Cluster platform or delivered as standalone tools, with single-substrate, cassette, or batch load-lock configurations.

Designed for versatility, our systems are installed across both research and production environments, supporting everything from material exploration to high-volume manufacturing.

Contact our experienced sales team to configure your next PVD system, or explore the process modules on the following pages to discover the possibilities within the Flextura® platform.

Confocal sputtering



Multiple magnetron setup

Enabling high flexibility for material combinations or multilayer sputtering.

Precise composition control

Enable deposition of alloys, doped materials, complex compounds or examine new exotic materials by true co-sputtering utilising DC, pulsed DC, RF, bipolar, and HiPIMS.

Multilayer sputtering

Create layer stacks or super lattices in the same module with up to 5 materials.

CSM sputtering



Circular scanning magnetron

(CSM) technology for static wafer coating used in high volume manufacturing.

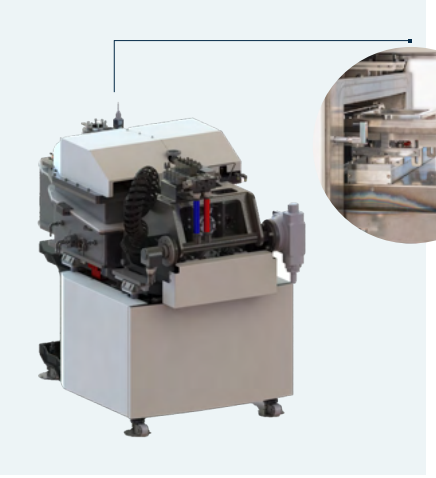
High target utilisation

Rotating magnets behind the target ensures high target utilisation – fewer target replacements for reduced cost-of-ownership.

Exeptional uniformity

Highly uniform thin film deposition with tuning abilities by adjusting RPM of magnet pack as well as magnet configuration.

Linear sputtering



Advanced linear sputtering

Substrates shuttling underneath single or dual linear magnetrons - ideal for several materials used in quantum or neuromorphic computing.

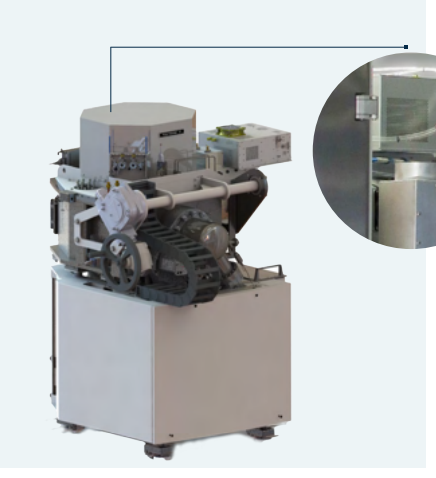
Excellent uniformity

Linear magnetrons enable a well-controlled plasma distribution across the substrate, for excellent sheet resistance and thickness uniformity.

Planar or rotable setup

Compatible with both planar or rotatable magnetrons, specifically interesting for materials such as NbTiN, Al2O3, or complex metal oxides.

Remote plasma sputtering



Innovative technology

Remotely generated plasma directed toward the target by use of electromagnets - decoupling plasma energy and density for controlled deposition.

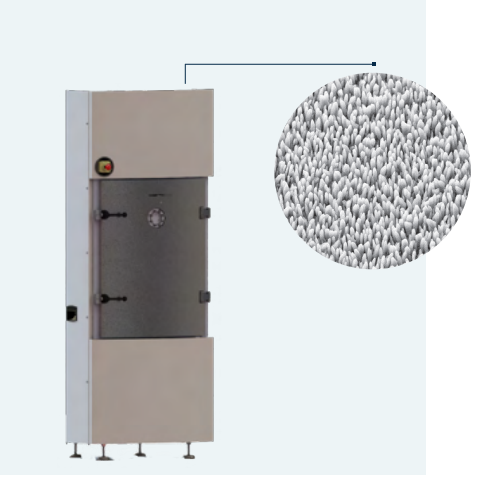
Tuneability of film properties

Independent control of plasma energy and density, enabling additional tuneability of film properties like stress and density.

Thick magnetic layers

Remotely generated plasma removes the need for magnets, essentially removing the thickness limitation of targets – especially of interest for thick magnetic layers.

GLAD evaporation



Glancing angle deposition

Rotate and tilt your substrate during deposition, to promote columnar growth of your chosen material, altering properties of your thin film by changing geometry & surface area.

Tuning optical properties

Avoid using expensive or challenging materials for optical sensor/absorber applications, by altering thin film properties of common materials.

CMOS compatible industrial platform

Scalable from small throughput R&D to fully automated 200mm CMOS compatible volume-production system.

Evaporation



E-beam or thermal evaporation

Compatible with both single wafer and batch configurations with fully automatic handling of substrates.

Directional deposition

The directionality of the evaporation process is a key benefit for metallization and lift-off processes.

Flexible configuration

Supports multiple sources (thermal and/or e-beam) for sequential or co-deposition. Can be configured with ion gun for ion-beam assisted deposition (IBAD) or pre-cleaning capabilities.

Flextura® Quantum

The Flextura® Cluster design provides exceptionally low base pressure and moisture levels through automated substrate transfer and isolation between modules. These controlled conditions minimize surface contamination and oxidation — essential for maintaining superconducting and quantum-layer integrity.

Integrated process control tools, such as plasma emission monitoring and residual gas analysis (RGA), continuously track plasma stability and background composition, ensuring consistent vacuum quality and reproducible thin-film deposition.



Pre-clean process

In-situ pre-clean ensures atomically clean surfaces before deposition, preventing oxidation and securing the purity essential for reliable quantum device performance.

Effusion cell evaporation

Enable precise and low-energy deposition of ultra-pure aluminum films — ideal for Josephson junctions and other superconducting devices. Stable flux control ensures uniform, smooth, and reproducible films across the wafer.

Linear sputtering

Linear magnetron sputtering of NbTiN produces highly uniform, reproducible superconducting films optimized for qubit and resonator fabrication — delivering consistent critical temperature (T_C) across full wafers.

Confocal sputtering

Our high temperature (1000°C) multi-material sputtering module enables deposition of α-Ta and related superconductors (Nb, Al, Hf or similar) under precise conditions, ensuring superior interface quality and qubit coherence.

Unique process control

SOFTWARE HIGHLIGHTS

Flexibility and automation for every Flextura® system through our in-house developed software.

With intuitive recipe-based processing, multi-user access, and advanced data logging, our software ensures reliable, repeatable, and intelligent thin-film deposition — from R&D to high-volume production.



SOFTWARE BY POLYTEKNIK AS

- Recipe based processing, save load and edit recipes - layer, wafer, and cassette level.
- Advanced datalogging of all parameters - plot data easily with built in data viewer.
- Remote system monitoring or operation.
- Access right management with multiple user levels, configurable to customer userbase.
- Modular software tailored to customer system.
- Fully compatible with customer MES, SECS/GEM, E84, and GEM300 factory automation systems.



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Who we are

Polyteknik AS is a PVD equipment manufacturer with an innovative, modular system design and a strong focus on service. With more than 30 years in business, an international reference list and an excellent technology platform, Polyteknik AS has become a valued partner in the thin film industry.

What we do

Our portfolio of PVD systems ranges from small-scale R&D to high-volume and large-area deposition.
The modular Flextura® platform lets you start with the processes your research needs today and add modules, as your projects change. Our Flextura® 200 and 300 Cluster, Tornado and Infinity platforms cover the range from compact research systems to production.
At Polyteknik AS you will meet a dedicated team that works closely with you to find the right solution.

POLYTEKNIK

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