RADIANCE
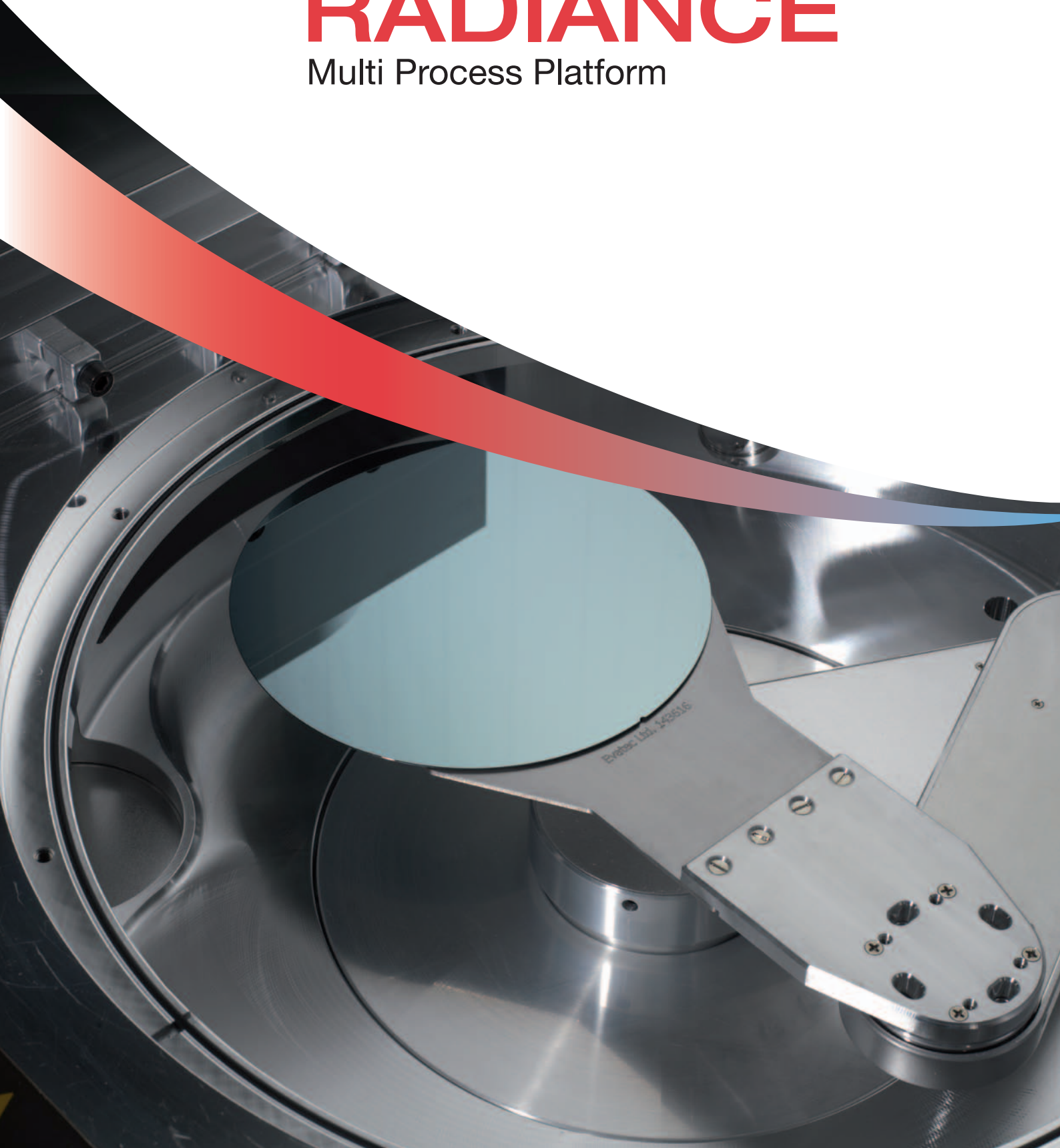## Multi Process Platform

Radiance
Flexible cluster platform architecture

Radiance is a flexible process tool with cluster architecture for substrate sizes up to 12 inch. It handles changing substrate geometries, process and source requirements with ease to give you flexibility whatever the future brings. Radiance puts you firmly in control for development or mass production. Choose from a whole range of cassette, handling and transfer, process module and process technology options to build the tool that's right for you whatever your requirements in semiconductor, optoelectronics or precision optics.
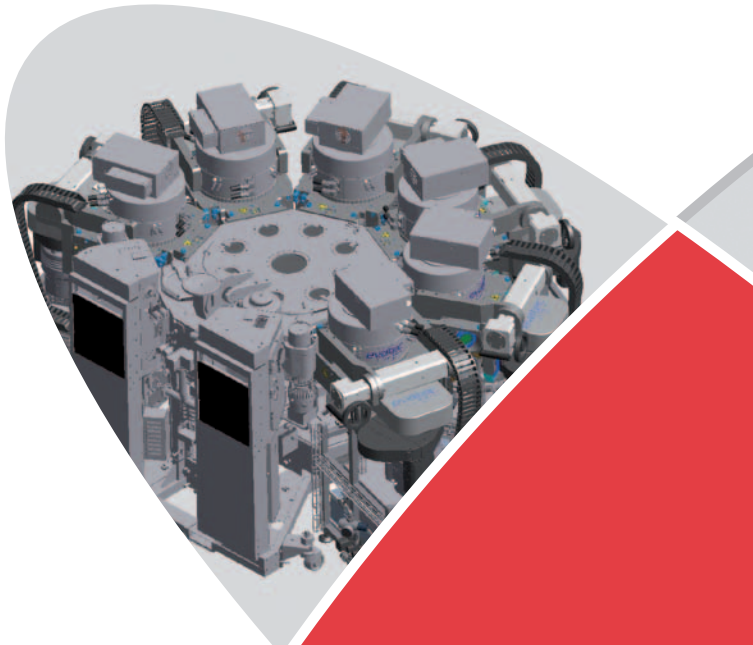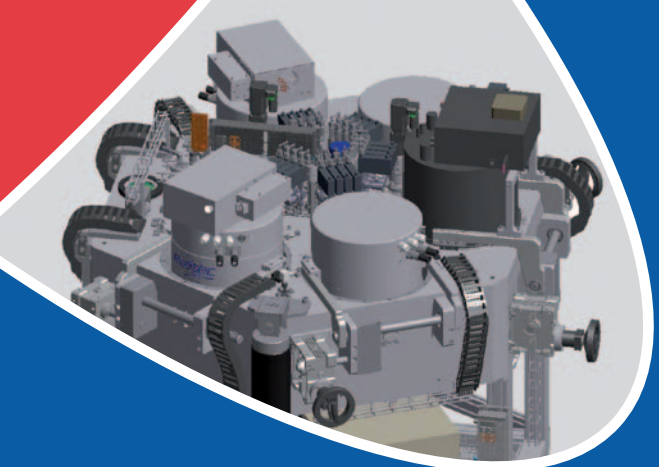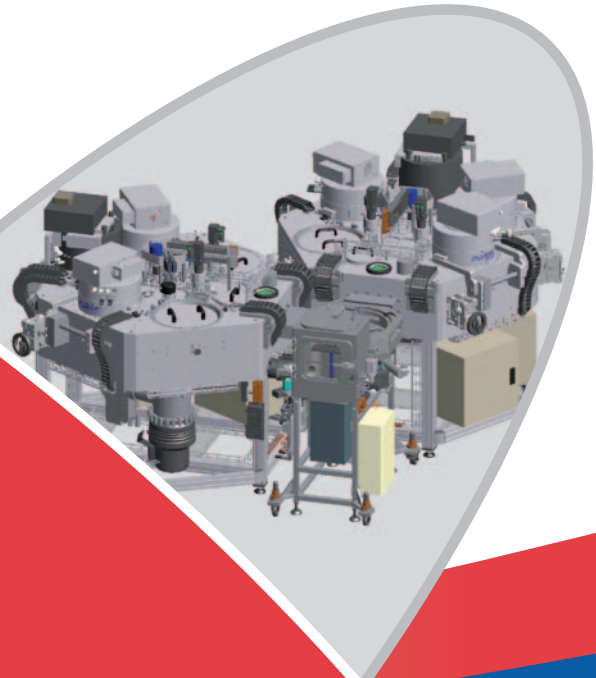
Radiance Concept

Cassette to cassette

Process technology flexibility

Compact footprint

Different substrate forms

Radiance
Have it your way

From the simplest configuration with a single process module and manual load lock, to a complex cluster of single and batch process modules with separate input and output cassette stations, the Radiance concept makes it easy to build up the perfect tool. Radiance's inherent flexibility and software construction make it simple to reconfigure or upgrade the system later by moving individual sources or adding further process modules.

STEP 1	
Choose your handler	• 4 to 8 sided automated system • Single sided manual system

STEP 2	
Choose substrate handling	• Direct wafer • Substrate carrier

STEP 3	
Choose number and type of process modules	• Single Process Module (SPM) • Batch Process Module (BPM)

STEP 4		
Choose process technologies	• PVD • De-gas • ICP	• PECVD • Soft Etch • RTP

STEP 5	
Choose metrology options	• Broad Band Optical Monitoring • Plasma Emission Monitoring • Pyrometry • Stress Control

Radiance
Puts you firmly in the drivers seat

1. You choose the process environment

2. Variable substrate sizes? No problem!

3. Advanced source technologies

1. Choosing source type and location is just the start. Radiance enables you to change source to substrate separation at the touch of a button and heating, cooling or substrate bias options can be added to either single of batch process modules. Configure gas inlet systems for each individual source and operate sources in sequence or simultaneously for high rates, co-deposition or Plasma Ion Assisted Deposition (PIAD)
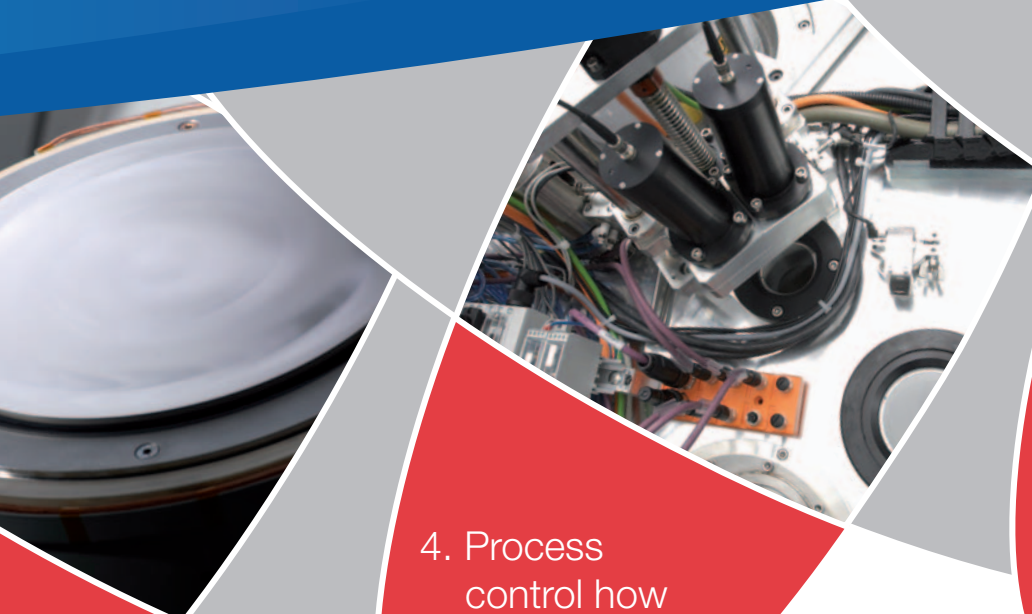
2. The Radiance system of machined substrate carriers gives you flexibility to process differing substrate sizes simultaneously including round and rectangular geometries. Alternatively, the system can be specified for direct handling of "thin" or standard wafers up to 12 inch.

3. From PVD to PECVD, soft etch to de-gas, Evatec's portfolio of source technologies is designed for high rates and maximum throughput. Uniformity shapers have been eliminated to avoid potential sources of particle shedding. PVD sources are mounted on a hinge, opening through 180 degrees to enable rapid target swap and quick exchange of single piece gas rings and shields. Built in chamber heaters enable chamber conditioning and rapid pump down after planned service operations. Simple maintenance and easy system access are at the heart of the Radiance design philosophy.

4. Process control how you want it
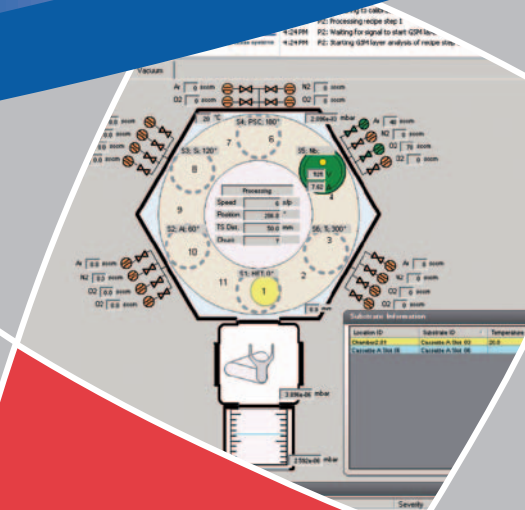
5. Intelligent software design

4. Sources can be operated with either upstream or downstream pressure control according to your process requirements. A Residual Gas Analyser (RGA) can be installed for monitoring and control of the overall process environment. Further in situ options include;

- Optical Pyrometry for temperature monitoring and control
- Film stress Measurement
- Sputter Process Monitoring for film stoichiometry control
- GSM1100 Broadband Optical Monitoring for end point termination of complex optical stacks

5. Built on an industrial server running Windows XP, the closed loop system integrates all aspects of platform, source and process control hardware for seamless communication. Robust software is a prerequisite, but with Evatec's 50 years hands-on experience in designing control systems for coating equipment, Radiance is simple to use and keeps you in control.

Powerful scheduling, despatch and recipe management enables different recipes to run simultaneously, and full data logging and archiving software saves and exports data to remote systems for production quality control.

The whole system is controlled via rack mounted keyboard and touch screen and can be connected to a host system via a SECS interface. The Radiance's GUI (Graphical User Interface) complies with Semi standards.

Radiance
Choose your process module

Batch

In Evatec's Batch Process Module (BPM), a substrate table transports carriers or wafers directly below each station in static, oscillating or dynamic process modes. Combined turbomolecular and water vapour pumping ensure efficiency and low base pressures for a wide range of substrate materials.

Benefit from excellent deposition and etch uniformities from inside to outside edge without the need for source uniformity shields and choose from the full range of substrate heating, cooling, biasing and rotation options to ensure damage free deposition for even the most sensitive substrate materials. An integral cover lift enables simple opening of the module for shield change and cleaning.

PVD, DE-GAS, SOFT ETCH

Single

A Single Process Module (SPM) with multiple substrate chuck options and its own discrete pumping system enables stand alone deposition and etch technologies. Enjoy easy access and maintenance in just the same way as the batch module.

PVD, PECVD, ICP, RIE, RTP

Custom solutions
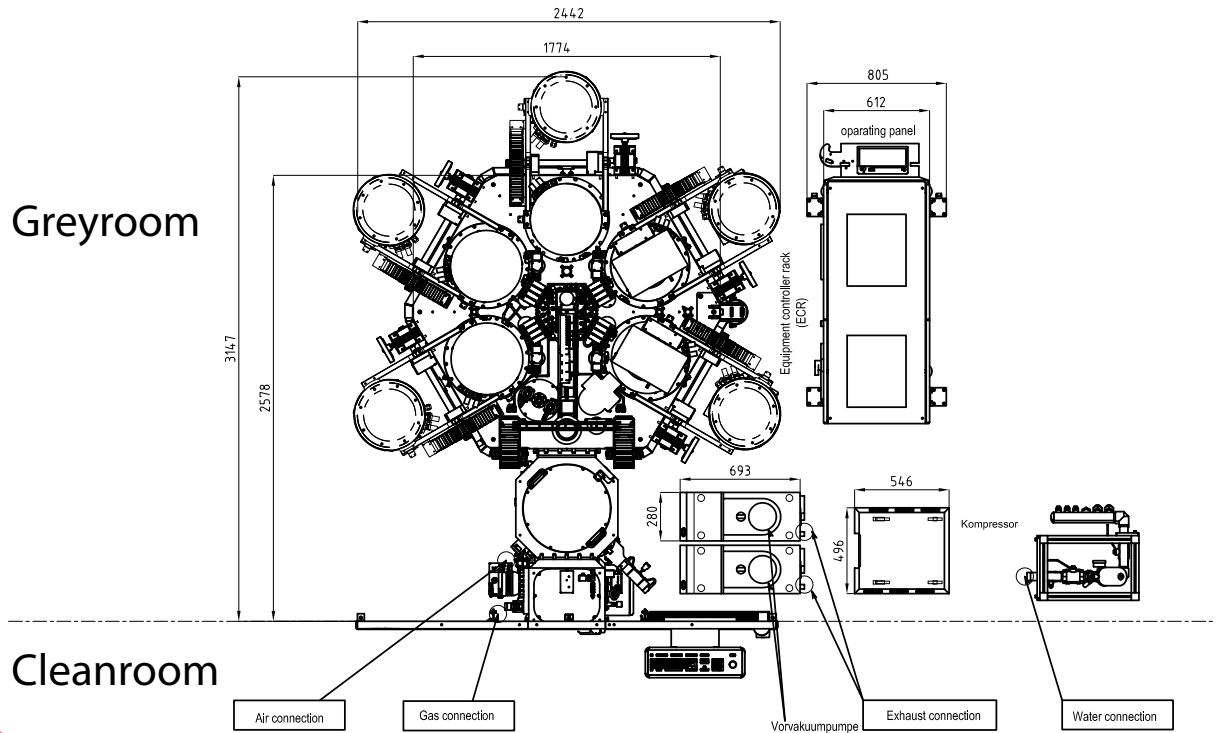## With systems that grow as you do

All the way from

Manual load lock
Single SubstrateTransfer
Standard Wafer Handling
One SPM

To

Twin load lock
Custom cassette designs
Custom substrate handling
Multiple SPM and BPM

And everything in between

Optical Filters MR Layers **AR coatings**
MEMS SAW LEDs Wafer Metallization
Thin Film Heads Photovoltaics **Sensors**

evatec
process systems

Greyroom

2442
1774
805
612
oparating panel
Equipment controller rack (ECR)
3147
2578
693
280
546
496
Kompressor

Cleanroom

| Air connection | Gas connection | Vorvakuumpumpe | Exhaust connection | Water connection |

About Evatec

Evatec offers complete solutions for thin film deposition and etch in the optical and semiconductor markets. Evatec engineers are able to offer practical production advice from R&D to prototyping and mass production. We recognize that no single technique offers the answer to all problems. With a technology portfolio including standard and enhanced evaporation as well as sputter, we are ready to offer sampling services and custom engineering to meet our customers individual needs.

We provide sales and service through our global network of local offices. For more information visit us at www.evatecnet.com or contact our head office.

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