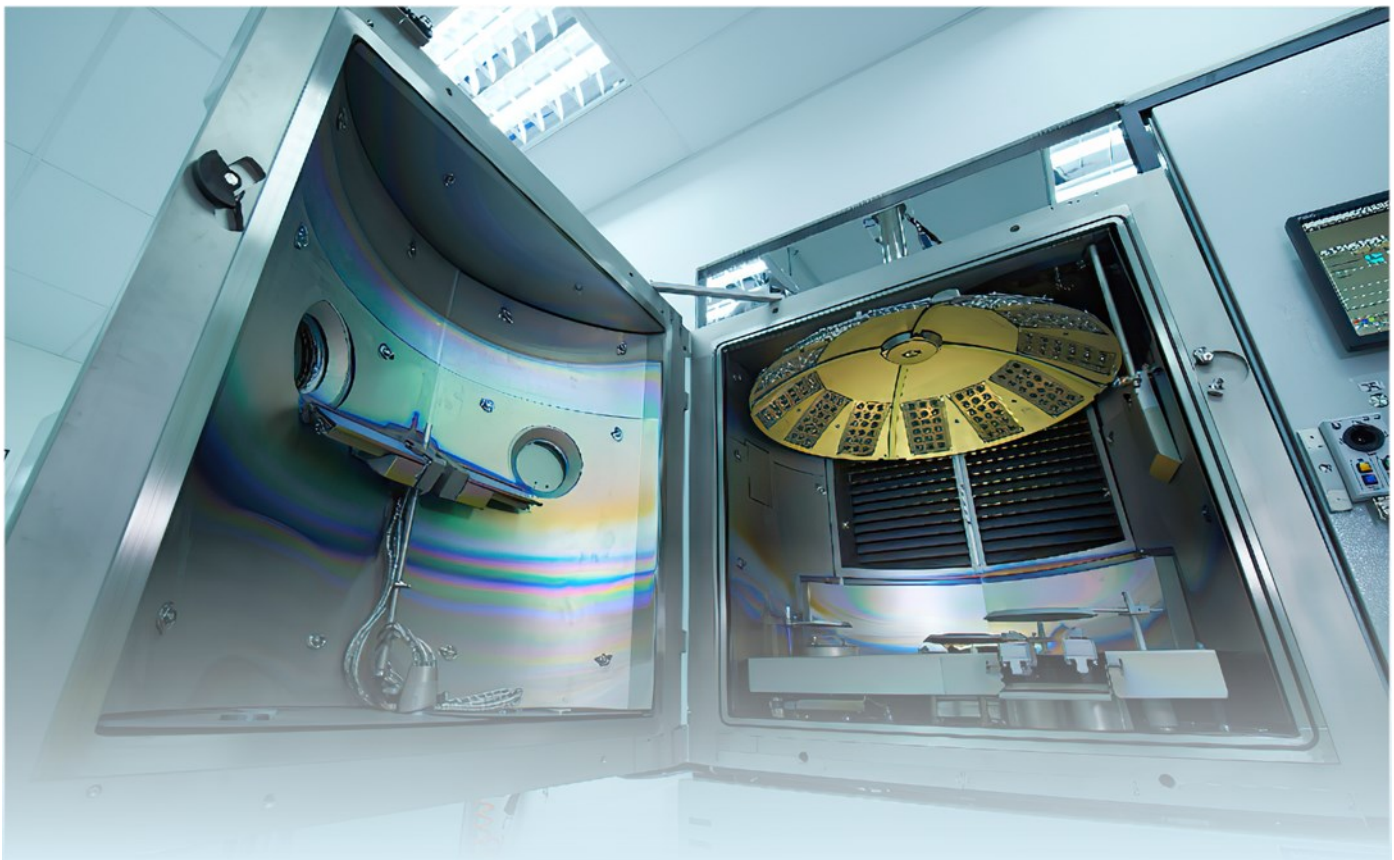
SIMTRUM

Optical & Functional Coatings



2022 V1

For customized projects please Contact us:

info@simtrum.com

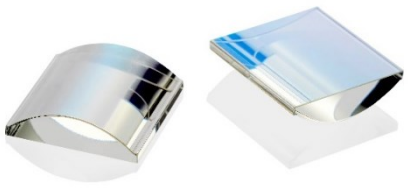
Introduction

Optical and functional coatings are used to enhance the performance of a component in various aspects of properties. For example, and uncoated polymeric lens reflects about 8% of incident light at each surface. To reduce the reflection to less than 1%, anti-reflection dielectric coatings can be applied on the lens surface via Physical Vapor Deposition (PVD). For optical components that transparent in nature but require reflective mirror surfaces, dielectric or metallic coating can also be applied to provide highly reflective surfaces. Other properties such as anti-finger-print, anti-dust, anti-fogging and hard protective layers are also parts of the coating application.

The performance of a coating depends on the number of layers, their thickness, the refractive index difference between them, and the material of each layer such as oxides, metals, or rare earth metals.

In-House Coating Capabilities

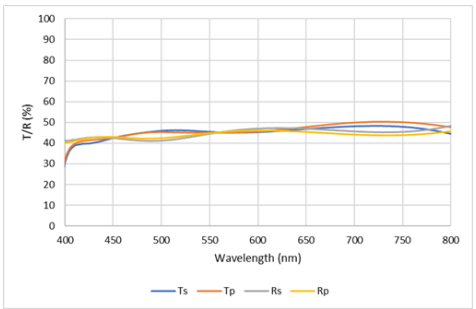
- Hydrophobic / Superhydrophobic / Oleophobic
- Anti-Fogging / Hydrophilic
- Polarization-Dependent Coating (Polarizers, Polarizing Beam-splitter)
- Optical Filter Coating (Dichroic, Long-pass, Short-pass, Bandpass, Notch Filters)
- Protective / Hard Coating
- Highly-Reflective Coating
- Anti-Reflection Coating



Optical Coating on Lens

Available Coating Materials

- Metallic Materials: Gold, Silver, Aluminum, Nickel, Chrominum, Copper, Titanium, etc.
- Dielectric Materials: Aluminium Oxide, Silicon Oxide, Titanium Oxide, Tantalum Oxide, ITO, etc.



Non-Polarization Beams-plitter Coating
(T_{avg}=R_{avg}= 45-50% @ 400-700nm)

Established Coating Technologies

- Leybold Physical Vapour Deposition (PVD) Ø1.0m & Ø1.30m Chambers
- Plasma Assisted Reactive Magnetron Sputterer
- Automated Spray Coater

Selectively Reflective Coating on Lens

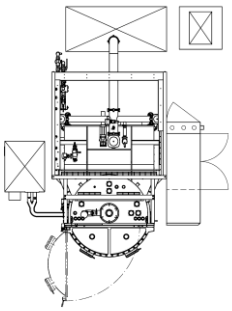
Equipment

Bühler – ARES 1100 & 1350

- ARES series is a high vacuum coating system utilizes PVD method to create accurate optical thin films.
- It is capable of achieving optimum levels of productivity by providing maximum through put in its spacious chamber.
- Variety of coating applications include Anti-Reflection, High Reflectance, Anti-stick coatings, bandpass filter and dielectric coatings.
- Customized jigs and fixtures, lateral rotating tools made it possible for coating from all angles.

Applications

– AR coatings
– Anti-fingerprint coatings
– Color filters
– Edge filters
– Cold-light mirrors
– Touch screens



Technical Data

Systems	ARES 1100	ARES 1350
Coating Materials	All commonly used dielectrics, metals, fluorides, sulfides	
Coating Technology	Ion-assisted deposition (IAD) / Plasma-ion-assisted deposition (PIAD)	
Chamber Diameter [mm]	1100	1350
Chamber Diameter [inch]	44	53
Floor Space [m²]	20	23.7
Floor Space [sq.ft.]	216	255
Loading Capacity Ø 65 mm		
Calotte [pcs.]	186	277
Segmented Dome [pcs.]	4 x 42	4 x 63
Planetary System [pcs.]	73	79

Equipment

CYSI - Three Targets DC Magnetron Sputtering Coater

- CY-MSP300S-3D is a sputtering machine employs energy bombardment to create a single or multilayer film. It deposits very high purity of coatings onto essentially any substrate.
- Ferroelectric thin films, conductive films, alloy films, dielectric films, optical films are possible with this machine.
- Sputtering target up to 3mm for non-magnetic target; up to 1.5mm for magnetic target.
- Substrates size up to Ø185mm.

Technical Data

Parameters	Specification
Power Supply	AC220V，50Hz
Whole Sower	6KW
Ultimate Vacuum	5x10-4Pa
Sample Table Parameters	
Size	φ150mm
Heat Temp	500℃ max.
Temp Control	±1℃
Rotation Speed	1-20rpm adjustable
Magnetron Sputtering Head Parameters	
Quantity	Size:2 inches x3
Cooling Mode	Water cooled, flow 10L/min required
Water Chiller	10L/min Circulating water cooling
Vacuum Chamber	
Size	φ300mm x 340mm H
Material	SUS
Watch Window	φ100mm
Opening Mode	open type, easy to replace target
Others	
Gas Flow Controller	One-channel,200sccm Ar;
Vacuum Pump	A molecular pump system, pumping 600L/S
Quartz vibrating Film Thickness Gauge	One set, resolution 0.10 angstrom
Sputter Power Source	DC power supply:500W, Suitable for preparing metal films
Operating Mode	All-in-one computer operation
Overall Dimensions	1090mm x 900mm x 1250mm
Total Weight	350kg

SIMTRUM Singapore
Telephone: +65 6996 0391
Email: info@simtrum.com

SIMTRUM China
Telephone: +86 150 0085 3620
Email: sales@simtrum.cn

www.simtrum.com