

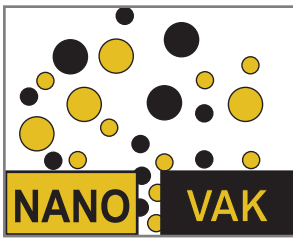
# NANOVAK

NANOVAK® offers global products

## Optical Coating System



Box type Physical Vapor Deposition systems, based on prismatic vacuum chambers are run with recipe software. These systems have 1-4 thermal and/or 1-4 DC-RF sputter sources. Optical systems have two axes of rotation with orbital positioning. Multi-layered thin films of different materials can be prepared by NVT systems via user prepared recipe. Orbital optical Systems can be tailored to fit user desires in order to produce multilayered, metallic, oxide, carbide or nitride films.



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- DC/RF magnetron sputter sources (1", 2", 3"). Flex head, 80 mm diameter, magnetic material sputtering,
- Four 10V-200A sequential, 2x2 channel, co-evaporation thermal sources. Ability to prevent cross contamination, easy replacement
- Turbomolecular + Mechanical pump, and dry pump as desired
- $1 \times 10^{-6}$  Torr in 30 minutes and  $5 \times 10^{-8}$  Torr base pressure offered
- Fully automatic computer controlled with recipe, Recipes can be stored to use later,
- Prismatic vacuum chamber made of SS304. 50x50x50cm size. Feather-touch clean, electro-polished surface, SS304 liner,
- UV-blocking, front observation window,
- Standard 1", QF, CF, ISO ports as desired. Easy upgrade to add on additional thermal and sputtering sources,
- Internal lighting and baking unit,
- RF Power supply, 13.6 Mhz, 300-1200 W,
- DC Power supply, 500-1000VDC, 1200 W,
- $10^{-8}$  Torr base pressure level,  $10^{-7}$  Torr vacuum level in one hour, for fully loaded system,
- Wide range ( $1000-10^{-9}$  Torr) vacuum control and measurement, ability to fix pressure to desired values, 2nd capacitance manometer,
- 50-700°C PID controlled sample heating,  $\pm 1^\circ\text{C}$  sensitivity, , 3", 4", 6" wafer loading ability,
- 2-30 rpm sample rotation unit, better than 3% homogeneity across sample,
- DC-RF Sample plasma cleaning unit,
- Sample biasing with RF or DC while the sample is rotating
- Automatic closed loop water cooling system, interlock controlled, automatic on-off process control to prevent premature use of power without water,
- 0.01 Å/s four-channel precision thickness-rate measuring unit with four QCM's,
- Digital Mass flow meter controlled gas inputs (Ar, N<sub>2</sub>, O<sub>2</sub>, He, CH<sub>4</sub>, ...), easy mix of gases, 0.1 SCCM sensitivity,
- $\pm 1$  milliTorr sensitivity pressure adjustment in 1-300 milliTorr range
- Throttle, vent and isolation valves, The chamber remains under vacuum with an isolation valve when not in use,
- 1.5 hour cycle-time, possibility for 4-6 experiments per day,
- 2 year warranty for design, materials and workmanship