

# NANOVAK®

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## NVHP-400

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# NANOVAK

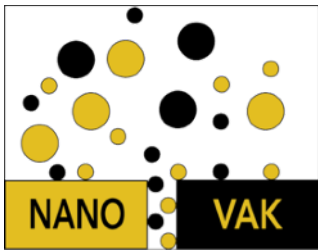
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## HIPIMS Systems

HIPIMS systems are based on high energy pulsed DC magnetron technology. In this method 500-1000 VDC short duration pulses are sent to targets with 100-500A/cm<sup>2</sup> currents to generate very high ionization plasma density. Consequently, very dense, well adhered high quality films can be obtained. Oxide and nitride films can also be made by HIPIMS reactive sputtering using metallic targets. Substrate holder can be biased to DC pulsed voltage with high accuracy synchronization to the target pulse. These systems can have 2 – 4 sputtering sources. Multi-layered thin films of two, three or four different materials to produce multilayered, nanosized metallic, oxide, fluoride or nitride films.

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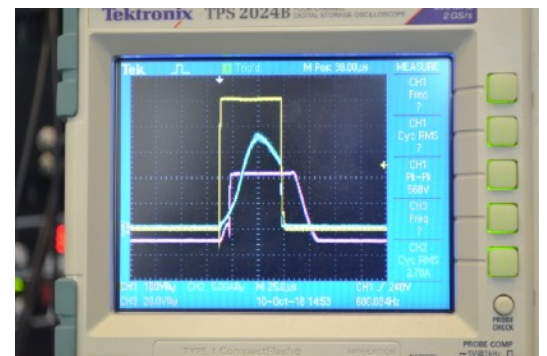
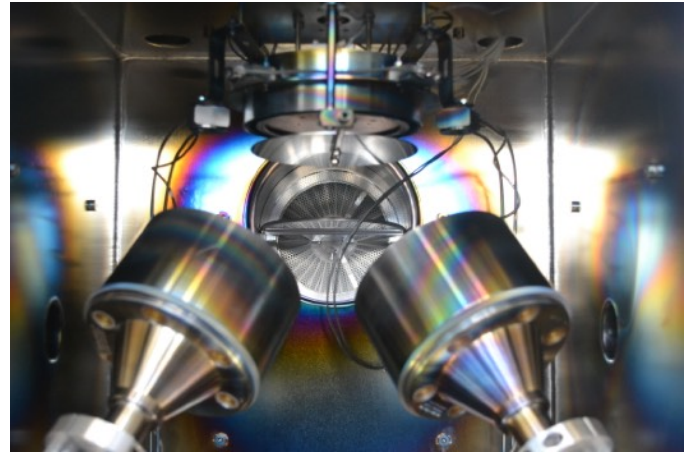
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# NANO VAK

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## HIPIMS Systems



- Fully automatic computer control option, touch screen panel control with real time LCD displays
- Prismatic/cylindrical vacuum chamber made of SS304. 30/40/50/60 cm box size, clean electro-polished surfaces
- Front viewing window and rotatable shutter,
- Standard 1", QF, CF, ISO ports
- Internal lighting and baking of the system, internal baking option up to 120°C
- $10^{-8}$  Torr base pressure level,  $2 \times 10^{-6}$  Torr vacuum level in 20 minutes
- Turbomolecular + Mechanical pump, cryo-pump and dry pump as options,
- Wide range (1000 -  $10^{-9}$  Torr) vacuum control and measurement system
- 50-700°C PID sample rotation-heating option
- 2-30 rpm adjustable sample rotation unit
- Automatic closed loop water cooling option
- Sample surface cleaning option by synchronised Pulsed-DC plasma.
- 70-90% very high ionization density, 300-1000 VDC pulses with adjustable width
- 1-4 HIPIMS sputtering sources
- Target-sample synchronisation with voltage-current-timing display
- Mass flow meter controlled gas inputs, isolation valves, chamber backfill with Ar or N<sub>2</sub> as desired
- 0.1 Å/s dual-channel precision thickness-rate measuring unit with 1-4 QCM's, with averaged value
- The chamber remains under vacuum with isolation valve when not in use.
- Fully automated deposition of each layer
- 75x120 cm footprint, lockable wheels
- Easily passes through, 85cm , standard doors
- One year warranty for design, materials and workmanship