



1 Torr = 1 mm Hg

Magnetron Sputtering Systems

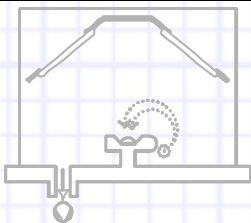


The Torr MagSput Series Affordable Magnetron Sputtering

The Torr MagSput series is the new generation Magnetron Sputtering Deposition system. Highly practical, low cost, expandable, and highly reliable systems are the future as we know it today.

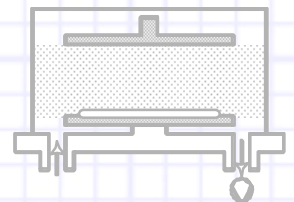
Torr Systems are specially tailored for R&D labs, pilot production, university research, and even small scale production. Our world class custom built systems are used in many universities and research facilities across the globe. The compact construction and small footprint make Torr Systems ideal for clean room applications.

Our chambers and vacuum systems are state of the art. And when you place your order, you have many options to choose from including the number and size of sputter guns, power supplies, and much more. Typical applications are nanotechnology, optics, microscopy, MBE, functional and decorative coatings.



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TORR INTERNATIONAL, INC.
Thin Film & Nanotechnology



Magnetron Sputtering Systems

The Torr International, Inc. Magnetron Sputtering System is completely customizable, and the chamber can be designed to accept additional evaporation sources later. The unused ports are blocked off with flanges to allow future additions to your Torr system. Then when you are ready, you can add additional Magnetron Guns, or a Thermal Resistance source or maybe expand your capabilities by adding Electron Beam Evaporation. Torr International, can produce any custom system that you desire. Call to discuss what functionality you require and your system will be designed to fit your process, your budget, & your future.



- **Excellent Film Quality**

Torr Systems produce uniform, adherent thin films of many materials. Include multiple axis rotation capability for the best uniformity possible on any size or shape sample.

- **Highly Versatile and Economical**

A wide variety of materials can be deposited, including: aluminum, carbon, chromium, gold, Teflon®, Silicon Dioxide, tantalum, tungsten, titanium and more. And your Torr system can be expanded later on to include other evaporation sources as well. The vacuum chamber can be designed with additional ports for future use that are sealed off until you are ready to upgrade. Taking advantage of this Torr design feature can help your budget go farther and save your department many thousands of dollars and precious lab space.

- **Low Maintenance**

The process chamber and stage assembly are all composed of long lasting construction. The turbomolecular pump needs zero maintenance while the external mechanical pump just requires routine oil changes. The entire system is constructed of long life vacuum components, and Torr International will service all of its products.

- **Many Options Available**

Choose a different chamber size, stage size, stage heating, water or multi coolant stage, stage rotation and tilt, power supply, turbomolecular or cryopump vacuum system, extended warranties and more. All systems are custom built to your specifications and budget.

SPUTTERING SYSTEM - STANDARD SPECIFICATIONS

VACUUM CHAMBER: Stainless Steel box chamber with full opening front door and 4" view port

VACUUM SYSTEM: Turbomolecular vacuum pump system with rotary pump and all necessary valves and fittings to achieve 10^{-7} Torr vacuum

VACUUM READOUT: Digital display full range vacuum gauge

SAMPLE STAGE: 8" diameter or smaller substrate stage

VENTING SYSTEM: Dry N_2 system for chamber venting

MAGNETRON SOURCE: Single or multiple 2" magnetron guns

POWER SUPPLY: 300W high voltage solid state variable power supply

THICKNESS MONITOR: Quartz crystal rate/thickness monitor with deposition rate controller

DIMENSIONS: As small as 24" x 24" x 5' high with an external rotary pump

WEIGHT: Approximately 500 lbs. and greater

WARRANTY: One year for both parts and labor

DELIVERY TIME: As little as 8 weeks from time of order

Sputter Deposition Rates

Current = 90 mA Distance: source to sample = 2"

Materials	Angstroms/Minute	Approximate Plasma Voltage
Silver (Ag)	1100	400-450
Gold (Au)	1650	700-750
Palladium (Pd)	688	400-450
Copper (Cu)	529	425-475
Aluminum (Al)	484	425-500
Platinum (Pt)	476	400-450
Nickel (Ni)	400	450-550
Chromium (Cr)	400	450-550
Tantalum (Ta)	362	550-650
Titanium (Ti)	362	550-650
Tungsten (W)	317	550-650
Carbon (C)	75	700-800

Note: All data is based on calculations using the specified power outputs and distance from the sample pedestal and the target. These figures are intended to be a basic guideline and the numbers can be easily decreased or increased by changing the system parameters.

AVAILABLE OPTIONS

PROCESS CHAMBER: Additional View ports & larger dimensions available

VACUUM SYSTEM: 300 - 3000 l/sec, turbo or cryopump, dry or oil rotary pump

VACUUM GAGE: Cold cathode or hot cathode ionization gauge

MAGNETRON SOURCE: Choose the size of the guns and how many

POWER SUPPLY: DC and RF Power Supplies available to 1000W and higher

SUBSTRATE STAGE: Any size available, adjustable height

ETCH CAPABILITY: Optional isolated stage can give etching and cleaning capabilities

STAGE TILT & ROTATION: Azimuthal and polar rotation, external or in vacuum stepper Motors

STAGE HEATING: Quartz lamp heater up to 800 degrees Celsius

THICKNESS MONITOR: Choose quartz crystal or optical thickness monitor

AUTOMATIC CONTROL: Completely PC compatible

EXTENDED WARRANTY: Renewable extended warranties available for any term

Contact us today for additional details.



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