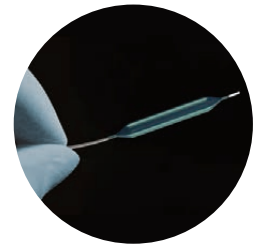
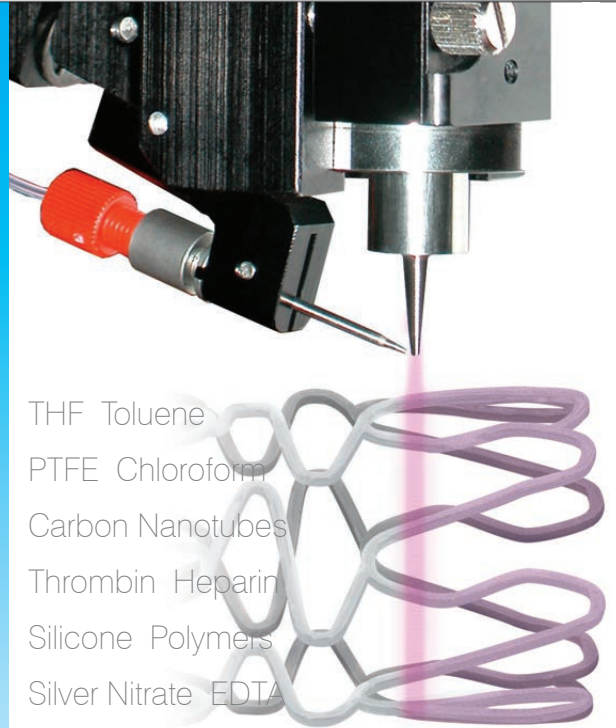


When Precision Counts...

Medical Device Coating Systems

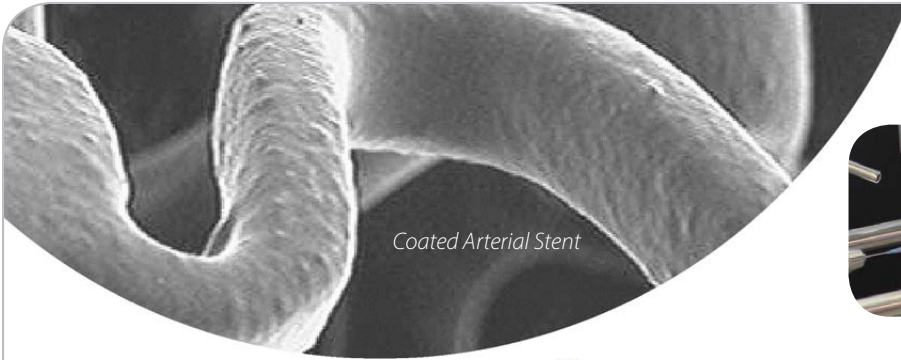
Uniform ultra-thin film coatings onto stents, catheters, balloons, endoscopic instruments, pacemakers, heart valves, glucose monitors, sensors, medical textiles, blood collection tubes, surgical implants, orthopedic implants, and diagnostic devices.



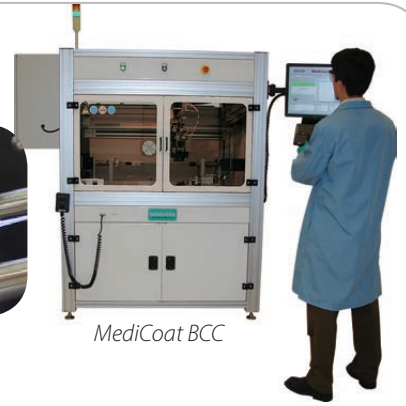
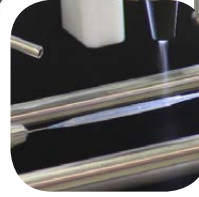
Why Ultrasonic Nozzle Technology?

- Low velocity, soft spray with minimal overspray saves up to 80% in coating material
- Independent control of process parameters including flow rate, spray velocity, drop size and deposition
- Precise control over a wide range of flow rates
- Non-clogging, repeatable performance
- Tight drop distribution creates highly uniform thin films
- Choice of drop size depending on nozzle frequency (drop sizes range from 18 - 49 microns)
- Deagglomeration of particles in suspension due to ultrasonic vibration
- Excellent penetration and adherence to complex geometries without webbing

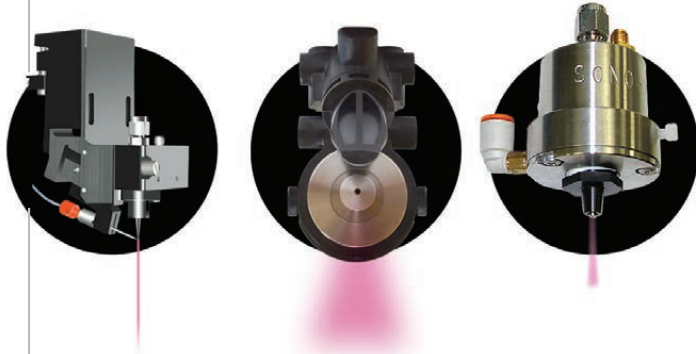
SONO•TEK Corporation
Leadership through innovation since 1975



Coated Arterial Stent



MediCoat BCC



MediCoat BCC

Available in two configurations - **MediCoat BCC185**, for coating balloons up to 185mm in length, or **MediCoat BCC300**, for balloons up to 300mm.

Designed for spraying anti-restenosis solutions containing Paclitaxel, Rapamycin (Sirolimus), Zotarolimus, Docetaxel, Heparin, or other cell anti-proliferative drug + plasticizer excipient solutions onto catheters mounted with cardiac or other implantable drug eluting balloons.

Implantable Stent Coatings

Designed to coat cardiac or peripheral stents with anti-restenosis polymers. Provides uniform thin film coverage of all complex strut geometries without webbing of the polymer material.

MediCoat DES3000

A state-of-the-art benchtop coating system with programmable stent movement and rotation. Available as an inert glovebox (MediCoat 3000) or a non-glovebox enclosure (MediCoat 4000). Sono-Tek has been a world leader in stent coating systems for over a decade, with advanced features not available anywhere else.

- Wide range of delivery rates from 0.3-100 ml/hour.
- Integrated control of the nozzle, liquid delivery, and stent movement/rotational device.
- High precision alignment fixture provides excellent repeatability of coatings from stent to stent and machine to machine.



Blood Collection Tubes

Targeted coating of side walls, layering of chemistries, polymers, or clotting agents.

- Common materials sprayed include Heparin, Silicone and EDTA. Nozzle design allows atomizing surface to reach inner diameter lengths.
- Fully automated control of electronics.
- Custom multiple nozzle systems for high volume production
- Soft, low velocity spray will not collect on base of tubes.
- 20+ years of BCT process experience.



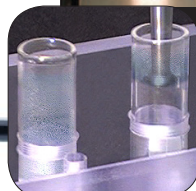
ExactaCoat BCT System

Integrates any ultrasonic nozzle for a full coating solution, for coating the side walls of blood collection tubes or syringe barrels with Heparin, Silicone, lubricants, hydrophylic/

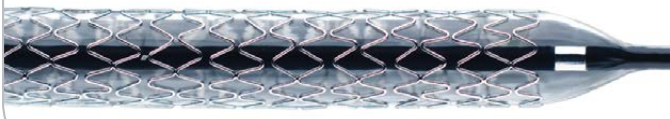
hydrophobic coatings, Teflon, barrier films, or clotting agents. Fully automated XYZ motion control, programming and recipe storage. Automated drying sequence increases throughput.



ExactaCoat for BCT



ExactaCoat tabletop programmable coating system is a flexible, customizable turn key solution for R&D and small volume production.

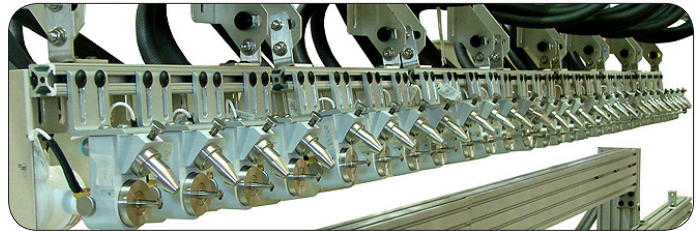




Medical Textiles

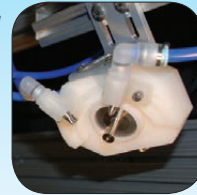
WideTrack ultrasonic systems for spraying Silver Silane, Triclosan and ammonium-based antimicrobial agents onto a wide variety of textiles such as wound dressings and bandages, to prevent infection and/or inhibit the growth of mold, gram (+) and gram (-) bacteria and fungi. Other medical textile applications include adhesive or controlled drug release coatings onto patches and hernia mesh coatings.

- Highly uniform, micron-thin coatings with flexible spray width control for any size, including wide webs.
- Single or dual side application, spray up or spray down.
- Precise coating allows for uniform release of antimicrobial compound onto surfaces, ensuring functional properties.
- Thin film coatings minimize material usage by up to 80%.



Multiple nozzles are used to spray virtually any width.

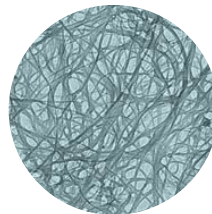
Wide area coating systems typically use *WideTrack Dual Jet* (left) or *Impact* (right) air shaping nozzles.



Nanotechnology (CNTs)

Ultrasonic nozzles are proven successful for spraying carbon nanotube solutions for diagnostic devices and new materials R&D processes.

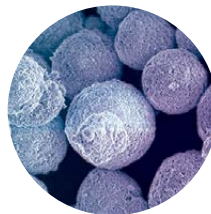
- Ultrasonic vibrations of the nozzle break apart naturally agglomerated particles, creating more uniform coatings.
- Capable of extremely small batch production (1 ml/hr flow rate).



Orthopedic Implants

Thin film coatings of antimicrobial agents or bone growth enhancing solutions onto rods, screws, plates, or joint replacements.

- Low velocity spray readily adheres to all surfaces.
- Ability to adjust coating morphology characteristics.
- Tight drop distribution uniformly coats any shape.

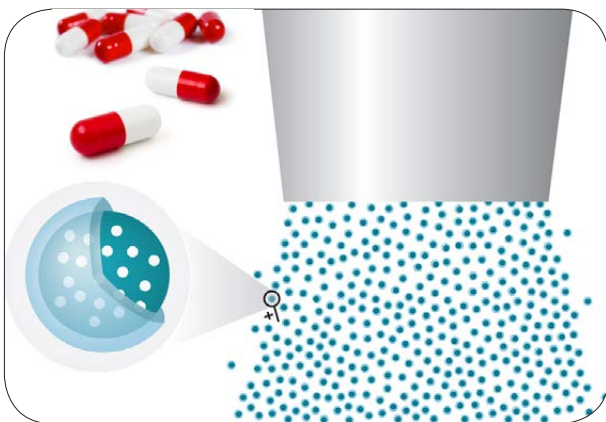


Materials commonly sprayed include:

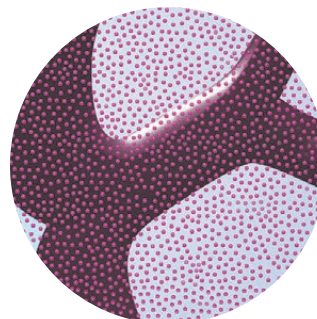
- Antimicrobials
- Adhesives
- Polymers
- Silver Nitrate
- Silicone
- Heparin
- Blood Plasma
- EDTA
- CNTs
- Hydrophilic/ Hydrophobic Films
- Chloroform
- Acetone
- Toluene
- DMAC
- Omega 3
- Lipids/proteins
- Enzymes
- THF
- PTFE
- Bioactive Peptides

Microencapsulation

Applications include targeted drug delivery, slow release pharmaceuticals, and nanoencapsulation.



The ultrasonic advantage



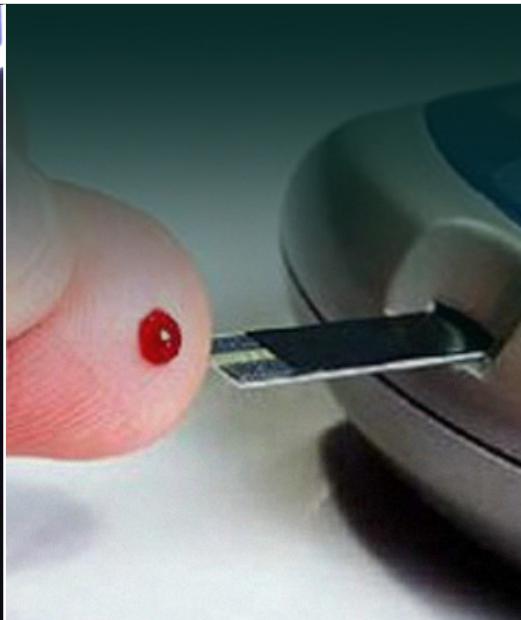
ULTRASONIC ATOMIZATION



AIR PRESSURE



Advanced Spray Coating Technology for Superior Functional Medical Coatings



Customer comments:

"We were developing a blood-contacting device for use in the OR and ICU and our previous coating technologies included dip-coating, thin film draw-down or knife-coating techniques, and pressure nozzle spraying, none of which had the efficiency or yields we are currently experiencing with a fine-tuned ultrasonic sprayer. We are in the point-of-care blood diagnostics business."



"The precise control of process variables that ultrasonic spraying technology provides enabled us to fine tune our process development, increase yields from 30% to 95%, and ultimately bring an intravenous Class II medical device from product to market in under 2 years. We could not have done this with any other technology."

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