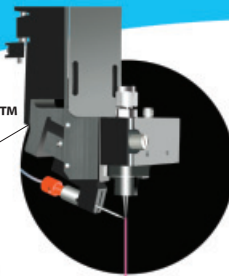


# Medi-Coat™ DES 1000

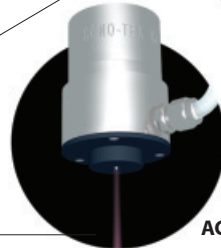
## Benchtop Stent Coating System



MICRO-MIST™



ACCU-MIST™



A turn-key solution for the laboratory in the development of processes for coating arterial stents with polymers containing anti-restinosis drugs.

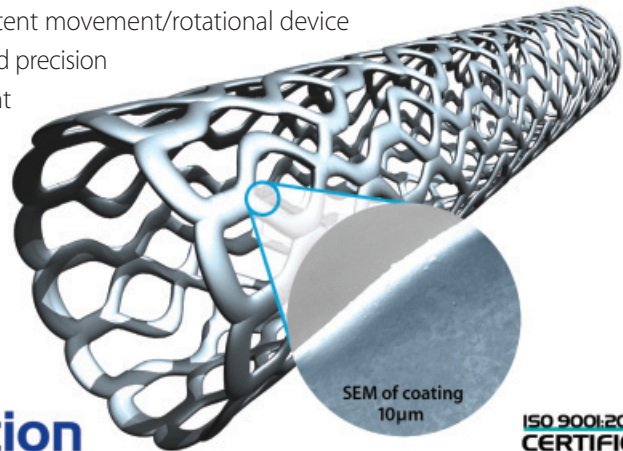
INTEGRATED ULTRASONIC STENT COATING SYSTEM

This new lab-friendly system can be configured with Sono•Tek's industry proven MicroMist™ or AccuMist™ ultrasonic nozzle, both of which are currently in use by many top stent manufacturers. The MicroMist nozzle produces a very thin, straight spray pattern (with a diameter of 0.010" - 0.030"), while the AccuMist™ nozzle produces a slightly wider, bow shaped spray pattern (with a diameter of 0.070" - 0.250"). Both nozzles produce a very precise, repeatable, controllable spray.

This convenient benchtop system incorporates a programmable stent movement and rotation device, located in an easily accessible spray area that allows for manual loading and unloading of stents in a controlled environment.

- Sono•Tek nozzles have industry proven success for producing high quality stent coatings
- Integrated control of the nozzle, liquid delivery, and stent movement/rotational device
- Soft, low-velocity spray can be targeted with unmatched precision
- Small ultrasonically generated drops provide excellent penetration and inhibit webbing
- Minimal overspray (minimal waste)
- Wide range of delivery rates from 0.3-100 ml/hour
- Self-cleaning ultrasonic nozzle prevents clogging
- All system components are compatible with the typical solvents and polymers used in stent coating

(solvents such as: THF, acetone, DMAC, toluene, chloroform, polymers: urethanes, polycarbonates, silicones, styrenes)



**SONO•TEK Corporation**

ISO 9001:2000  
CERTIFIED

## Operating Principle

The MediCoat™ Benchtop Stent Coating system combines Sono•Tek's unique microspray atomizing nozzle with low-pressure gas to produce a soft, highly focused beam of atomized spray drops. Compressed gas, typically at 1 psi, is introduced into the diffusion chamber of the air shroud, producing a uniformly distributed flow of air around the nozzle's atomizing surface.

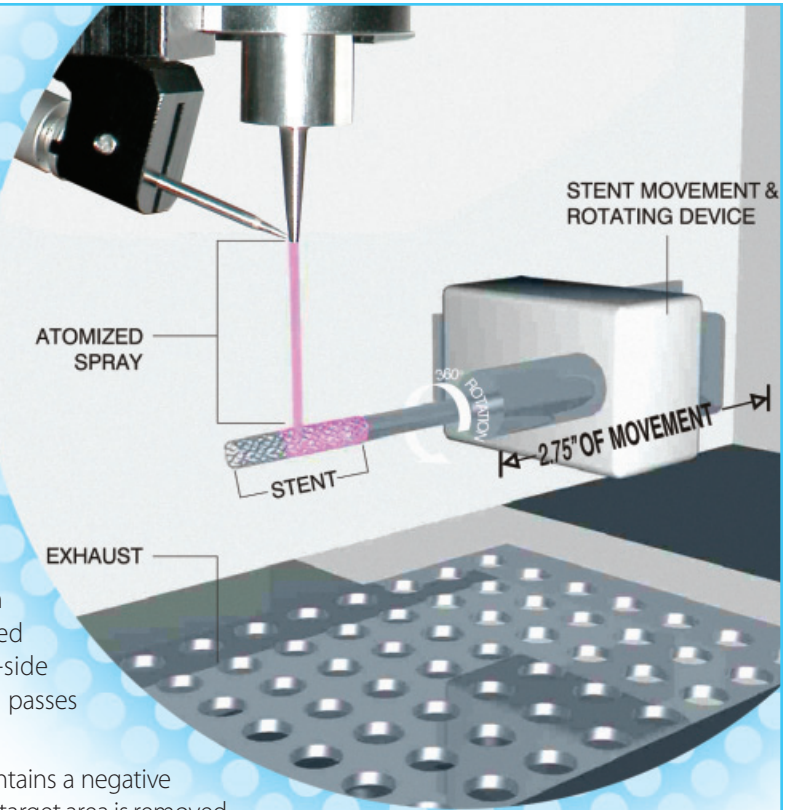
The ultrasonically produced spray created is immediately entrained in the air stream. An adjustable focusing mechanism on the air shroud allows complete control of the spray width.

The customer has the option of attaching a custom stent holding device onto the rotating mandrel. The stent is manually loaded onto the stent rotation device and is rotated at a fixed speed, controlled by the user. The stent moves horizontally side-to-side beneath the target area. The number of horizontal passes made are programmable.

A low-velocity exhaust located below the spray area maintains a negative air pressure to assure that any unwanted mist beyond the target area is removed.

The system's unique glove box design allows for safe and convenient access to the stent load and unload area. Large, unobstructed viewing windows and high-intensity internal LED lighting allow for easy observation.

With integrated controls for triggering the ultrasonic atomization, liquid delivery and stent movement, the MediCoat™ DES 1000 Stent Coating System provides a complete solution for developing a stent coating process.



## MEDICOAT™ INTEGRATED ULTRASONIC STENT COATING SYSTEM SPECIFICATIONS

### Liquid Delivery Specifications

For high accuracy liquid delivery, the MediCoat™ system for stent coating is typically used in conjunction with either a Sono•Tek syringe pump or the Accu•Flow™ pump.

	Sono•Tek Syringe Pump	Accu•Flow™ Pump
Controls	Microprocessor operated, LCD display, keyboard	LCD display, Self-diagnostic ten key operation
Input/Output Interfaces	RS232 and TTI types for control of pump and nozzle	Full PC control, 3 event outputs, time programmable
Capacity	Two syringes: up to 60 ml each, or one syringe: up to 140 ml	Unlimited continuous feed from reservoir
Flow Rate Range	0.01 µ/hr - 71 ml/min	0.001 ml/min to 4.0 ml/min with 0.001 ml increments by ten key operations
Flow Rate Stability	± 1%	Less than ± 1%

### Requirements

Power	100-240 VAC, 50/60 Hz single phase, 2.5A
Compressed air	15-150 psi/100-1000 kPa, clean, dry air or gas
Exhaust	100 CFM with damper
PC Controls	Windows 98 Operating System or higher*, Serial Port * PC is available from Sono•Tek as a system option

### Benchtop Specifications

Dimensions: Length: 37" Height: 24 3/4" Width: 22 3/4" Weight: 100 lbs.

Stent Rotation	1.5 - 1,000 RPM (clockwise or counterclockwise)
Linear Stent Movement	0.001 - 0.6 inch/second (0.003 - 1.5 cm/second)
Max Linear Movement	2.75 inches (70 mm)

Construction 316 stainless steel, titanium, Teflon®, polypropylene, Delrin®, PVC, tempered glass, powder coated steel

Controls Full PC control with unlimited custom process storage

### Ultrasonic Nozzle Specifications

Materials	
Nozzle Body*	Titanium alloy 6Al-4V
Nozzle Housing	316 stainless steel
O-rings	Kalrez®
Air Shroud	Delrin®/316 stainless steel
Liquid Inlet*	316 stainless steel (1/8" or 1/16" tubing)
Air Inlet (1/4" tubing)	316 stainless steel

Ultrasonic nozzles are available in three (3) operating frequencies, each of which produces drops of a different size range . Median drop diameter (based on water): 120 kHz (18 microns), 60 Hz (31 microns), 48 kHz (38 microns)

Operating Temperature 20 - 150° C

Air Pressure 0 - 2 psi

Flow Rate AccuMist™ Nozzle: 1 - 100 ml/hr  
MicroMist™ Nozzle: 0.3 - 9 ml/hr

Spray Pattern Diameter AccuMist™ Nozzle: 0.070 - 0.250 inches (1.778 - 6.35 mm)  
MicroMist™ Nozzle: 0.010 - 0.030 inches (0.26 - 0.77 mm)

\*Wetted materials

Teflon®, Kalrez® and Delrin® are registered trademarks of E.I. DuPont de Nemours & Company  
Specification may change without notice

## *Global Solutions in Ultrasonic Spray Technology*

*Sono-Tek's corporate headquarters are located in Milton, NY USA, with additional offices in Hong Kong. Our extensive global support and distribution network provides factory trained personnel with local language support in dozens of countries worldwide.*



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**Comprehensive Solutions in Process Automation and Technology**