

# TABLE-TOP ULTRASONIC SPRAY COATING SYSTEM

Our POLOS® Table-Top Ultrasonic Spray Coating Systems are used for precision coating in the fields of R&D and small volume production. Typical applications include photoresist coatings for various wafer materials and creating functional layers for thin-film processes.



Our systems allow highly precision nano-particle coating with more efficient photoresist consumption compared to standard photoresist application techniques. On our Ultrasonic Spray Coating Systems the material usage ratio exceeds 95%, this will allow our users to reduce costs of photoresist consumption and improve their process efficiency.

Listening to the needs of our customers, we designed a compact system with easy-to-use software controls, the ability to choose from the wide range of Ultrasonic Nozzles and complimentary options will allow our customers to find the perfect match for their process application.

The POLOS® UC320 is standard supplied with integrated syringe pump, carrier gas regulation, ultrasonic generator and controllable motion system. With patented ultrasonic spray technology, the system can provide highly uniform and efficient fine spray coating.

## CONFIGURATION

Ultrasonic nozzle	All series of patented ultrasonic spray nozzles available. Controlled by a multi-closed-loop system with a control step size of 0.01 W for high accuracy.
Motion system	High-precision XYZ motor driven stages and laser positioning allowing accurate controllable and repeatable coating.
Liquid delivery	Syringe pump with accuracy up to 0.01 µl/min. Different specifications can be equipped to achieve stable liquid supply.
Exhaust system	Connect the build-in exhaust system to your cleanroom exhaust line.

## HIGHLIGHTS

- High precision nanoparticle coating due to Ultrasonic Nozzle, material consumption ratio > 95%.
- Compatible with all series of POLOS® by Siansonic® nozzles; Spray width from 1 mm to 100 mm and flow rate of 0.001 ml/min - 50 ml/min.
- Max. spray area: 150 mm x 150 mm.

## OPTIONS

- Vacuum heating plate with maximum temperature of 150°C.
- Ultrasonic bath: used to pre-disperse the coating liquid.
- Ultrasonic syringe: Used to provide nano particle dispersion during the liquid delivery process and to avoid the solid settlement during spray coating.

## SPECIFICATIONS

Parts	Items	Value	Remark
Basic specifications	System dimension	830 (w) x 690 (d) x 950 (h) mm	
	Air tube size	6 mm	
	Input air pressure	> 0.4 Mpa	
Power supply	Input voltage	220 VAC 50/60 Hz	
	Input current	10 A	
	Max. power	1600 W	
Nozzle (Z402)	Max. power	5.5 W	Optional nozzles available: Specification of the nozzles could be reviewed on nozzle datasheet.
	Flow rate	0.1 - 5 ml/min	
	Spray diameter	5 - 20 mm	
	Spray height	10 - 80 mm	
	Median droplet size	40 um	
	Max. viscosity	30 cps	
	Particle size in suspension	< 20 um	
	Solid concentration	< 30%	
	Recommended shaping air pressure	0.01 - 0.05 Mpa	
	Environment temperature	0 - 60°C	
Motion system	Max. spray area	150 × 150 mm	
	Motion	XYZ servo system	
	Motion precision	± 0.02 mm	
	Max. velocity	XY axis: 200 mm/sec; Z axis: 30 mm/sec	
	Control method	PLC	

## SPECIFICATIONS CONTINUED

Parts	Items	Value	Remark
Liquid delivery (syringe pump)	Single channel syringe pump	Channel No: 1	
	Max. linear velocity	65 mm/min	
	Min. linear velocity	5 µm/min	
	Display	LCD: 128 × 64	
	Syringe	10 ml or 25 ml	Hamilton
	Liquid tube	1/8 " PFA, PEEK connector	Corrosion resistance
	Extra parts (optional)	Ultrasonic syringe 25 ml	Dispersion
Air control	Precision air regulator	> 0.003 MPa	
Nozzle position	Laser positioning	Fast align spray position	
Exhaust system	Could be connected to the exhaust system of the laboratory or cleaning room	Built-in exhaust system	Diameter of exhaust outlet 50 mm
Vacuum heating plate (optional)	Max. temp.	150°C	
	Accuracy	± 1°C	
	Size	150 × 150 mm	
	Material	Aluminum	
	Vacuum source	Vacuum generator	
High temperature heating plate (optional)	High temperature heating plate	500°C	
Ultrasonic dispersion bath (optional)	Power supply	AC220 V, 50 HZ	AC110 V, 60 HZ (optional)
	Ultrasonic frequency	40 kHz	
	Power	180 W	
	Timer	1 - 30 min	
	Volume	10 L	
	Heating power	250 W	
	Heating range	20 - 80°C	