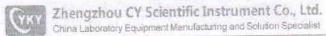


Spray pyrolysis is a process in which a thin film is deposited by spraying a solution on a heated surface, where the constituent reacts to form a chemical compound. The process is particularly useful for the deposition of oxides and has long been a production method for a long period for applying a transparent electrical conductor of Tin oxide (SnO2) or Stannic oxide to a glass. Now is popular to prepare perovskite solar cell.

MSK-USP-02 is a desktop ultrasonic spray pyrolysis ( USP) equipment, where parameters like dispensing rate of the solution and speed of spray head movement are precisely controlled which are difficult to be controlled in a manual process. A positive displacement pump controlled by the stepper motor and the microprocessor is used to dispense solution as per requirement. The ultrasonic spray head provides thinner particle coating and its movement is controlled by the stepper motor driven linear stages in X and Y direction to ensure uniform coating. The temperature of the substrate heater plate is controlled independently through a dedicated controller.

Power Input	Single phase 208 - 240VAC, 50/60Hz
	Please order a 1500W transformer for running the machine only in 110V
	Please order a 3000W transformer for running the machine and the air compressor in 110V
	Actuator: Stepper motor, 24VDC

Dispenser	Three Spray heads are included
	Ultrasonic spray head for thinner film coating
	Compressive Air Spray for thick film coating
	20ml Syringe Pump with compressive air for the expensive solution of the thick film.
	Dispensing unit capacity: 50ml & 250ml (two containers included) imension
	Dispensing rate: 1-20ml / min. adjustable via software.
Sprayer	Ultrasonic atomizer nozzle: 40 KHz, 130W
	producing a fine spray of droplets of 50 microns average size.
	Sprayer traverse: X - Y 200mm max.
	Drive speed X axis (min-max): 10-800mm / sec
	Drive speed Y axis (min-max): 1-12mm / sec
	Note:you may use inner gas or compress air to enhance spray
Pressure Regulator &	Pressure regulator with digital gauge is installed on the machine for precise a pressure control.
Gauge	Suggested pressure for air-assisted spray is ~3PSI.



Air Pump	One Compact air compressor is included for immediate use
	440mm Dia. x 650mm H
Substrate Base	Dimension: 150 X 150mm
riate	Max. temperature: 500°C
	PC connectivity: RS232 Port
	( software included, but need PC for operation )
	Centralized software control of almost all of the electrospinning parameters
Software	One software interface for container loading, draining, XY axis movement and
	flow rate
	All of the process parameters can be saved as user program and retrieved for
	analysis or rerun
	One brand new laptop computer or one Microsoft Surface Pro with pre-installed software is available for controlling.
Warranty	2 year
Compliance	CE Certified