

USI PRISM Nozzle-less Spray Coating Platforms

USI's Thin Coating Application Technology Drives Super-Thin, Defect-Free Coating Operations From the R&D Bench to the Production Floor

The PRISM line of nozzle-less spray coating platforms from Ultrasonic Systems offers a seamless range of industrial spray coating application solutions. All PRISM models feature USI's proprietary ultra-Thin Coating Application Technology (T-CAT), combining ultrasonic "nozzle-less" spray with a high-performance programmable motion and control platform. T-CAT is a superior alternative to conventional air-atomizing or ultrasonic spray nozzle solutions. Installed at thousands of installations worldwide, PRISM systems deliver the thinnest, defect-free coatings for industry applications ranging from glass panel displays to semiconductors, fuel cells to solar panels, medical devices to electronic components.

THE PRISM PLATFORM LINE:



PRISM-1200

High-Speed, High Performance
for Large Substrates



PRISM-800

High-Volume, High-Throughput
Production



PRISM-500

Versatile for Production
and R&D



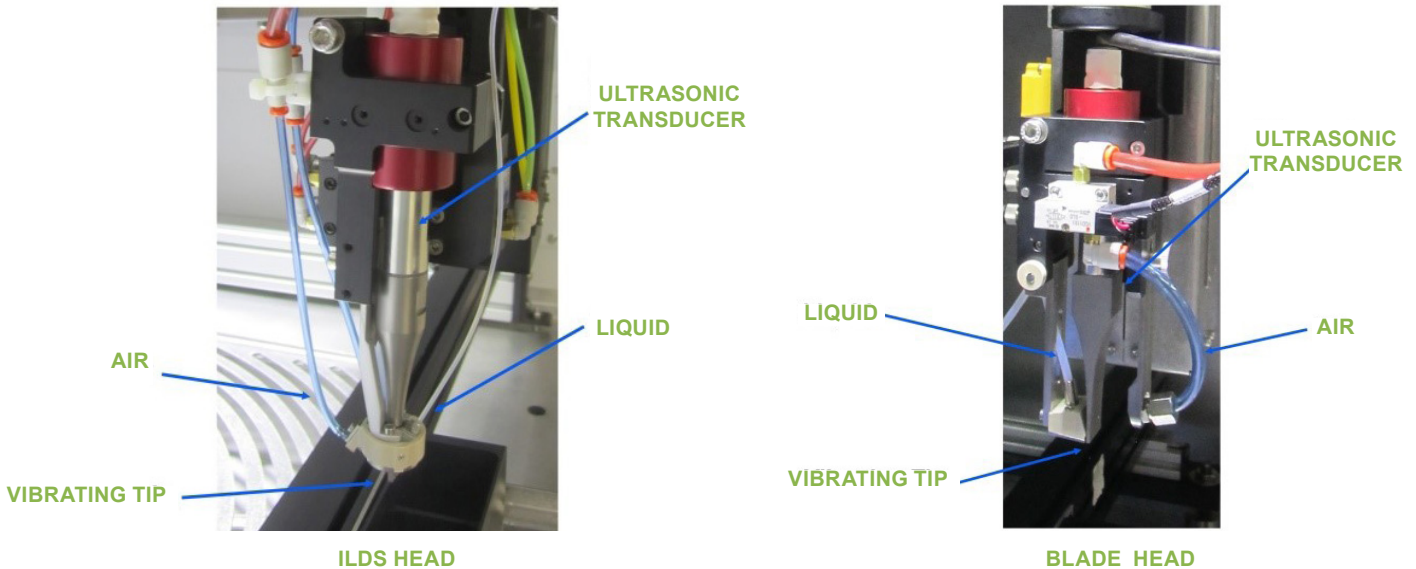
PRISM-400

Ideal for R&D and
Lab-Scale Applications

COATING TECHNOLOGY

The PRISM systems leverage USI's *Ultra-Spray* nozzle-less ultrasonic spray technology - a novel direct-spray method to apply liquid directly to the atomizing surface of the spray forming tip so the liquid and liquid connection do not hinder the ultrasonic vibrations of the transducer. An adjustable velocity air stream is used to expand and accelerate the ultrasonically-produced spray with an expanding pattern that prevents drops from coalescing to form larger drops. The resulting coating pattern is uniform and rectilinear. The ultrasonic spray can be turned on and off very quickly to minimize waste.

Ultrasonic Spray Head types include a dual mode ILDS Head with narrow mode and wide mode selected by system software, and a Blade Head that produces a wide pattern for coating large areas quickly.

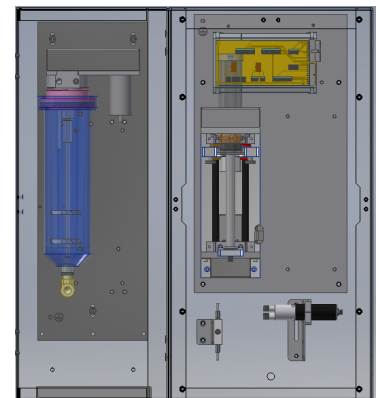


LIQUID DELIVERY SYSTEM

PRISM's precision metering pump (PMP) liquid delivery system delivers a controlled flow of liquid to the ultrasonic spray head via a positive displacement metering pump. Flow rate is controlled by a micro-stepping drive to ensure precise, reliable, and repeatable delivery. With multiple PMP configurations available, including dual PMP arrangements continuously available liquid flow, recirculation, and mixing and automatic stirring to keep coatings with suspended particles properly mixed.

COATING SYSTEM PLATFORM

USI's coating system platform consists of an X-Y-Z- Θ - Φ gantry system for the motion and positioning of the ultrasonic spray head, the liquid delivery system, and a transport mechanism for the substrates. All critical process parameters are controlled by the platform software and control system.








STANDARD FEATURES

- Heavy duty welded steel frame*, powder coated paint with texture finish.
- Sheet metal exterior panels that overlap the frame to seal the work area — powder coated with a texture finish.
- Safety rated clear glass panels in all steel framed doors and panels.
- IP67 for work light.
- Ball screw actuators with covers and brushless servo motors for X & Y axes.
- Home and forward limit switches on all axes. Soft limits for reverse limit beyond home position.
- High-flex motor cables for X, Y & Z motors, contained in energy chain.
- Ethernet based controls for motion and I/O.
- Windows based system controller for PRISM Ultra-Coat graphical user interface.
- 17" flat panel monitor, keyboard and mouse.
- Ergonomic pole mounted monitor arm and keyboard tray.*

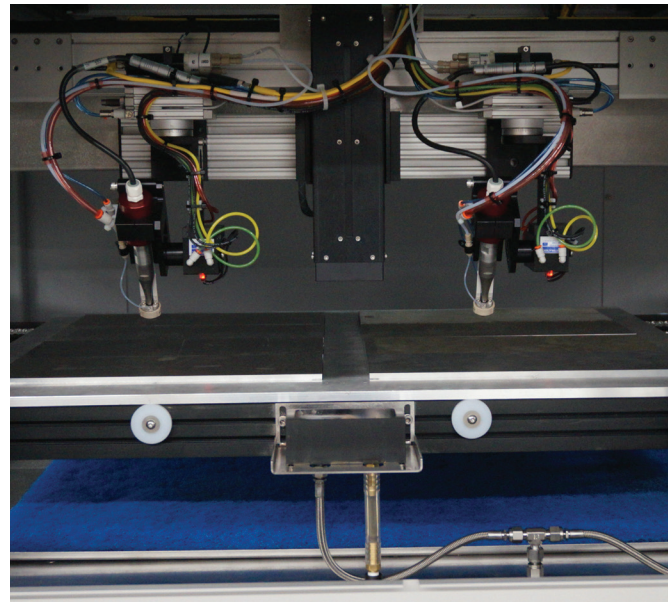
CONTROL HARDWARE

- All controller hardware has at least one 100BaseT Ethernet communication port.
- Motion controller for X, Y and Z axes as well as option conveyor. XYZ controller contains I/O for critical motion related I/O functions.
- I/O controller to extend the number of base I/O on the motion controller.
- Single axis controller for each pump's motion control and I/O.
- Single axis controller for optional W-Axis.

 		Copy File Name:   										
MachineID	Date	StartTime	EndTime	Recipe	Side	VolumeA	Volume	Operator	LotID	Batch#	SprayMod	ProcessTime
PRISM-1-110	8/7/2017	12:56:37 PM	1:00:36 PM	PR Copper Panel CCFIL_2_RCP	1	12.859	0.0	1	2		Wait	00:04:18
PRISM-1-110	8/7/2017	1:05:42 PM	1:10:01 PM	PR Copper Panel CCFIL_2_RCP	1	12.36	0.0	1	2		Wait	00:04:18
PRISM-1-110	8/7/2017	1:06:48 PM	1:11:06 PM	PR Copper Panel CCFIL_2_RCP	1	12.36	0.0	1	2		Wait	00:04:18
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PROCESS LOG

*Feature available on PRISM 500, PRISM 800, and PRISM 1200 models only.

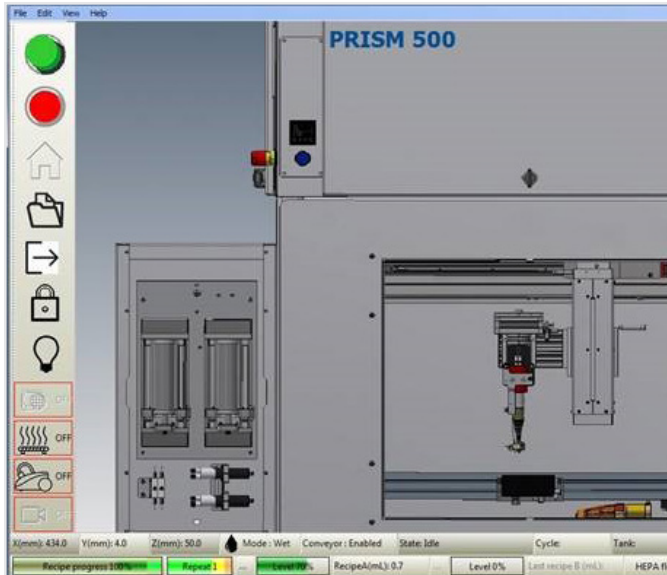


ULTRA-COAT SOFTWARE

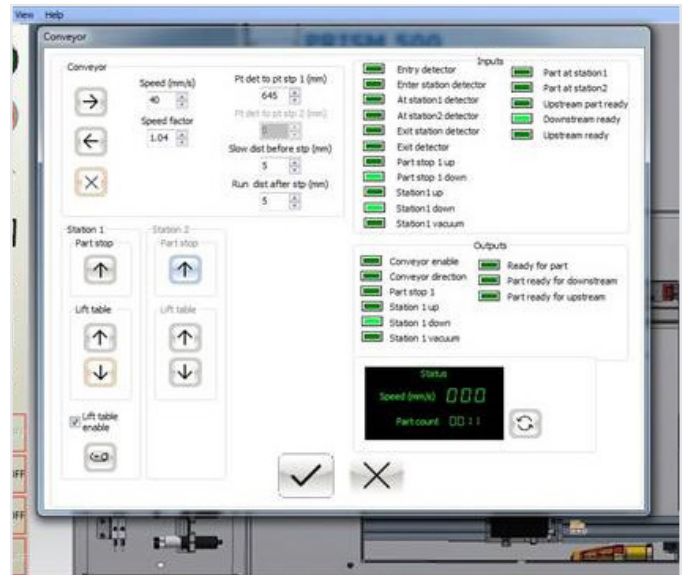
- Windows based GUI for machine setup and control.
- Manages Ethernet communications to all motion and I/O controllers.
- Enables full manual controls over all machine functions.
- Teach functions for programming recipe motion paths (laser pointer or camera teaching device).
- Spreadsheet-like grid for editing recipe commands and parameters.
- Recipe commands for single line motion (COAT), single line area fill (FILL), continuous motion area fill (CCFILL), circles, dots and trim to circle for area fills.
- Wait recipe command to allow for delays between coating commands.
- Clean command to allow the head to self-clean between coating commands.
- Repeat function to repeat all recipe commands up to 999 times.
- Three operation modes:
 - Batch mode-manual load of part through door
 - Manual conveyor – load part onto conveyor
 - In-line Conveyor – automatic load using SMEMA protocol.
- Optimal integration with robots and automated loaders and unloaders

USER INTERFACE WINDOWS

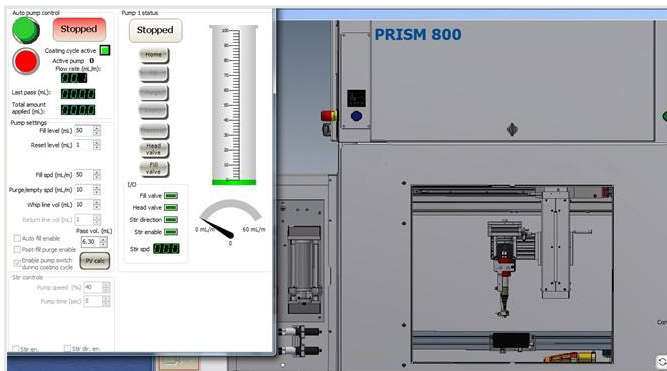
A single, integrated interface and state-of-the-art Ethernet based controller is used for all system functions, from Lab bench to large format high speed production models. Ultra-Coat software uses simple “point and click” functionality to create individual coating lines, area fills, circles, dots, etc. for easy coating recipe creation.



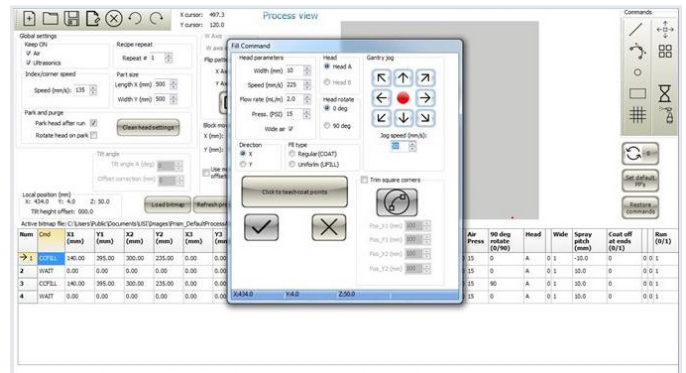
MAIN WINDOW



CONVEYOR WINDOW



PMP WINDOW



COATING RECIPE – FILL COMMAND

ABOUT ULTRASONIC SYSTEMS, INC.

Ultrasonic Systems, Inc. (USI) manufactures high-performance spray coating equipment based on patented, nozzle-less ultrasonic spray head technology. USI's products deliver a superior alternative to conventional air-atomizing or ultrasonic spray nozzle solutions for the solar, semiconductor, fuel cell, medical, and electronics assembly markets. With thousands of installations across many industries worldwide, our team of technical experts is committed to providing the best technical, product, and application support available.



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