

# Spectrum™ II Series: Model S2-920

Scalable solutions for high-volume manufacturing and assembly

## Features and Benefits

- The Spectrum II series leverages over 30 years of Nordson ASYMTEK's automated fluid dispensing and jetting technology
- Scalable design matches current *and* future requirements for maximum return on investment
- The Spectrum II offers improvements over previous models:
  - High X-Y & Z axis accuracy
  - More consistent dispensing for lines and around corners
  - Dynamic dual-valve accuracy down to  $\pm 75 \mu\text{m}$
  - Automatic work piece skew-compensating dual-simultaneous dispensing capability
  - High brightness RGB LED vision system lighting
  - High-accuracy laser height sensor options
  - Automatic jet valve tilt bracket (option)

The scalable S2-920 is ideal for high-volume production of advanced dispensing processes, including underfill, cavity fill, die attach, and encapsulation.

**Scalability.** With its flexible, scalable configuration, the S2-920 can be configured with single or dual lanes, and up to six heat stations with the dual lane configuration. The platform is easily upgraded when process needs change.

The Spectrum II maximizes use of floor space — it is 600 mm wide (without the optional pre- and post-heat stations).

**Advanced Process Control.** The Spectrum II reduces process variation, increases yield, and reduces cost. Software-managed temperature, fluid and air pressure provide closed-loop control that eliminates the need for operator adjustment. Calibrated Process Jetting (CPJ) automatically maintains volumetric repeatability during long production runs. Controlled Process Heat (CpH™) adds recipe-controlled heat management for improved thermal efficiency.



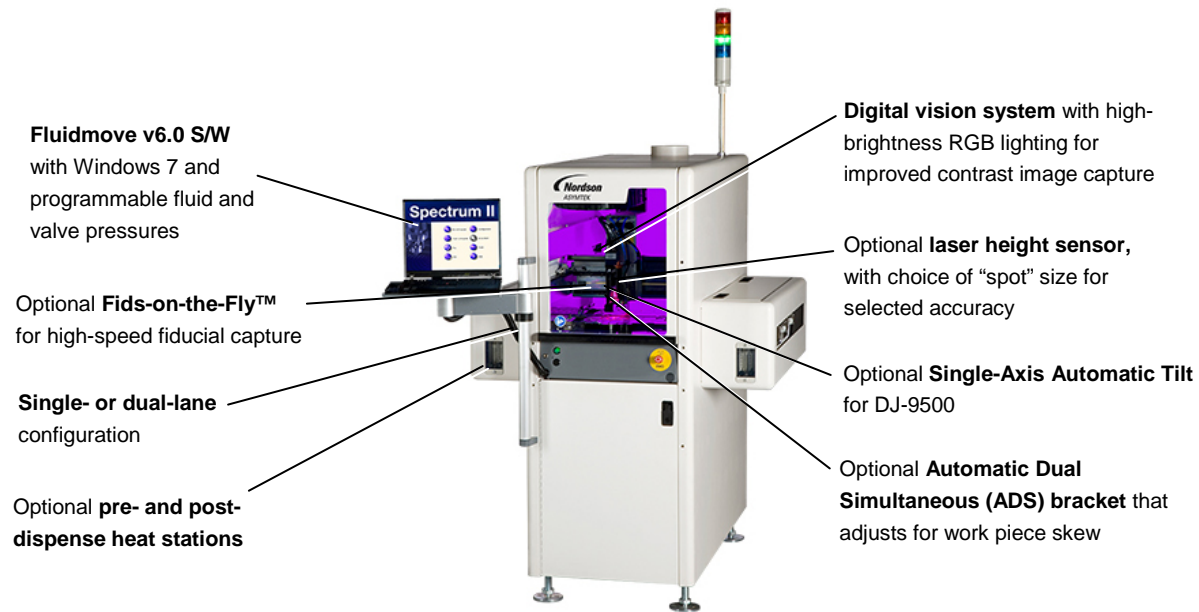
The S2-920 is an improved, turn-key replacement for the S-920N that uses the same software controls and works with the same jets and valves.

The Spectrum II's improved digital vision system's higher brightness LEDs with RGB three-color control improves image contrast and detection capabilities for more accurate and consistent pattern recognition for difficult applications.

**Jet Technology.** Patented non-contact jetting offers many advantages over traditional needle dispensing. The NexJet® valve shoots “on the fly” using a patented high-speed mechanism, jetting precise volumes of fluid in dots, lines and patterns with flow rates up to 750 mg/second and 300 dots/second.

**Value.** With a reputation for innovation, our comprehensive process solutions ensure a maximum return on investment and low cost of ownership. From initial process development through full-scale production, you are supported by our experienced worldwide engineering, applications development and technical service network.

# Spectrum™ II Series: Model S2-920 Features



**Fluidmove v6.0 S/W**  
with Windows 7 and  
programmable fluid and  
valve pressures

Optional **Fids-on-the-Fly™**  
for high-speed fiducial capture

**Single- or dual-lane**  
configuration

Optional **pre- and post-**  
**dispense heat stations**

**Digital vision system** with high-  
brightness RGB lighting for  
improved contrast image capture

Optional **laser height sensor**,  
with choice of “spot” size for  
selected accuracy

Optional **Single-Axis Automatic Tilt**  
for DJ-9500

Optional **Automatic Dual  
Simultaneous (ADS) bracket** that  
adjusts for work piece skew

## Standard Features

Calibration module: patented Mass Flow Control Module with scale, vacuum purge, and fiducial marks for automatic setup

CPJ – Calibrated Process Jetting closed loop process control adjusts the number of dots dispensed to ensure accurate dispense volume as fluid viscosity changes

Digital vision system with NEW high-brightness RGB vision system lighting

Light beacon with audible alarm

Low pressure sensor

Programmable fluid and valve pressures

Tactile height sensor

Ventilation exhaust system

Supports all Nordson ASYMTEK jets, valves, and pumps

## Optional Features and Configurations

CPJ+ Advanced Calibrated Process Jetting further enhances CPJ by automatically adjusting fluid and valve pressures to control individual dot weight consistency

CpH™ - Controlled Process Heat

Dual-action dispensing (two applicators operate independently)

Dual-simultaneous dispensing (two applicators on one dispense head) options:

- NEW: Automatically adjusted, dual simultaneous (ADS) bracket
- Dual simultaneous with manual adjust, fixed-pitch

Dual-lane configuration (Model S2-922)

Exterior bulk fluid reservoir: 600 cc (20 oz), includes remote feed and fluid level sensor

Fids-on-the-Fly™ software

Heat stations, pre- and post-dispense

Heated tooling, contact or impingement

Hot plate, process development

Laser Height Sensor, with NEW choice of “spot” size:

- High accuracy: 200 µm diameter circle
- Highest accuracy: 700x200 µm oval

Low fluid sensor, magnetic or capacitive

Material handling: MH-900 Series loader/unloaders, film frame wafer, bare wafer

SECS/GEM interface

NEW: Single-Axis Tilt Mechanism (3 positions, Automatic)

Cleanroom compatibility

# Specifications: Spectrum™ II Series: Model S2-920

## Motion System

Z-axis repeatability:	±5 µm (0.0002 in.), 3 sigma
X-Y repeatability:	±15 µm (0.0006 in.), 3 sigma
X-Y acceleration:	1 g peak
X-Y velocity:	1 m/s peak (40 in./s)

## Wet Dispensing Accuracy & Repeatability

### Single Applicator:

$C_p \geq 1.0^{(1)}$ :	±35 µm (0.0014 in.)
$C_{pk} \geq 1.0^{(2)}$ :	±40 µm (0.0016 in.)

## Z-Gap Performance

Z-Gap Repeatability <sup>(3)</sup> :	±15 µm (0.0006 in.), 3 sigma
Minimum Z-Gap Capability:	50 µm (0.002 in.)

## Vision and Lighting

Camera resolution:	640 x 480 pixels
Field of view:	7.0 x 5.0 mm (0.28 x 0.20 in.)
Lighting:	Red/Green/Blue high-brightness LED with 4095 independent light levels for each color

## Fluid Delivery Method

Supports all Nordson ASYMTEK jets, piezo-activated valves, encoded auger pumps, spool, and pressure-time valves. An integration kit may be required.

## Dispense Area (X-Y)

311 x 412 mm (12.3 x 16.2 in.) with tactile height sensor  
337 x 412 mm (13.3 x 16.2 in.) with laser height sensor

## Conveyor

Max. board/carrier length:	One station: 340 mm (13.4 in.) Three stations: 320 mm (12.6 in.)
Min. board/carrier length:	25 mm (1.0 in.)
Max. board/carrier width <sup>(4)</sup> :	Single lane: 535 mm (21.1 in.) Dual lane: up to 228 mm (9.0 in.) <i>(configuration dependent)</i>
Min. board/carrier width <sup>(5)</sup> :	34 mm (1.3 in.)
Max. board/carrier thickness:	12 mm (0.5 in.)
Max. overboard clearance:	30 mm (1.2 in.)
Underboard clearance:	2.75 mm (0.11 in.)
Transport height:	Conforms to SMEMA standard for conveyor height; height adjustable from 913-965 mm (35.9 - 38.0 in.) from floor to bottom of the part
Edge clearance:	6 mm (0.24 in.); 5 mm (0.20 in.) available by request
Maximum load capacity <sup>(6)</sup> :	1 kg (2.2 lbs)
Operation modes:	Automatic (SMEMA), manual, pass-through
Belt types:	ESD O-ring, ESD high-temp 6-mm flat belt, ESD high-temp 4-mm flat belt

## Computer

Laptop with Windows operating system

## Software

Fluidmove® v6.0 or higher

## Facilities Requirements

System footprint:	Single heat station: 600 mm wide x 1321 mm deep (23.6 x 52.0 in.) Two heat stations: 850 x 1321 mm (33.5x52.0 in.) Three heat stations: 1100 x 1321 mm (43.3x52.0 in.)
Air supply <sup>(7)</sup> :	Two air supplies: one with 3 CFM @ 100 psi for contact tooling, a second one with 1 CFM @ 100 psi for the rest of the system (100 psi = 689 kPa, 6.8 atm)
Power (mains):	Power supply accommodates 200-240 VAC, 47-63 Hz single phase, 30 A
Ventilation <sup>(8)</sup> :	Downdraft or updraft
System weight <sup>(9)</sup> :	377-422 kg (830-930 lbs.)

- (1) Wet dispense  $C_p$  is tested against Nordson ASYMTEK standard 722-dot test method at full-rated machine speed
- (2) Wet dispense  $C_{pk}$  is tested against Nordson ASYMTEK standard sealant line path and dot accuracy test methods
- (3) Z-gap repeatability is tested with Nordson ASYMTEK standard white ceramic tile and laser height sensor, performance with other substrates or height sensors may vary.
- (4) To achieve maximum dual-lane width, set distance for rails 1-3 to 300 mm and rails 2-4 to 299 mm.
- (5) Contact factory regarding smaller boards/carriers.
- (6) Total weight of all parts on conveyor at any one time. Load capacity is indicated for O-ring conveyor. Belt systems may have a greater load capacity.
- (7) For regular impingement tools: one air supply with 9 CFM @ 100 psi for impingement air and a second one with 1 CFM @ 100 psi for the rest of the system.  
For high-flow impingement tools: one air supply with 14 CFM @ 100 psi for impingement air and a second one with 1 CFM @ 100 psi for the rest of the system.
- (8) For impingement heat applications, 100 cfm from the 6-in. exhaust port may be required. Contact the factory.
- (9) System weight varies depending on configuration.

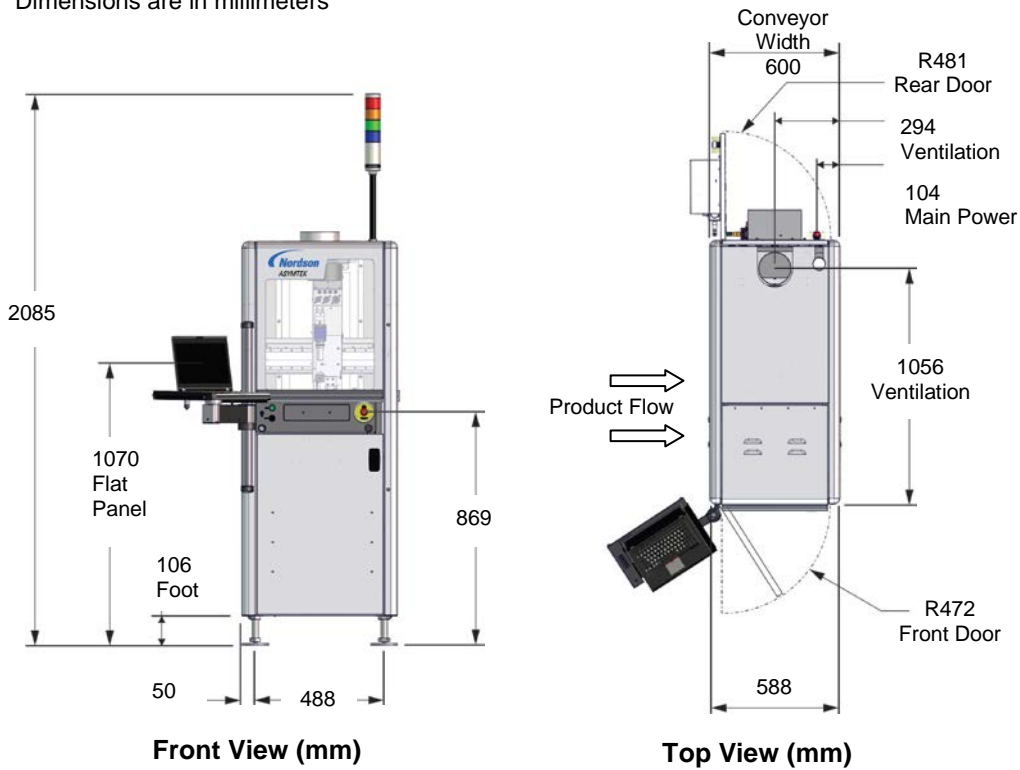
## Standards Compliance

SEMI-S2; SEMI-S8; SMEMA; CE

**Please contact your local Nordson ASYMTEK sales representative for more information.**

# Specifications: Spectrum™ II Series: Model S2-920

Dimensions are in millimeters



**For more information, speak with your local representative or contact your regional office.**

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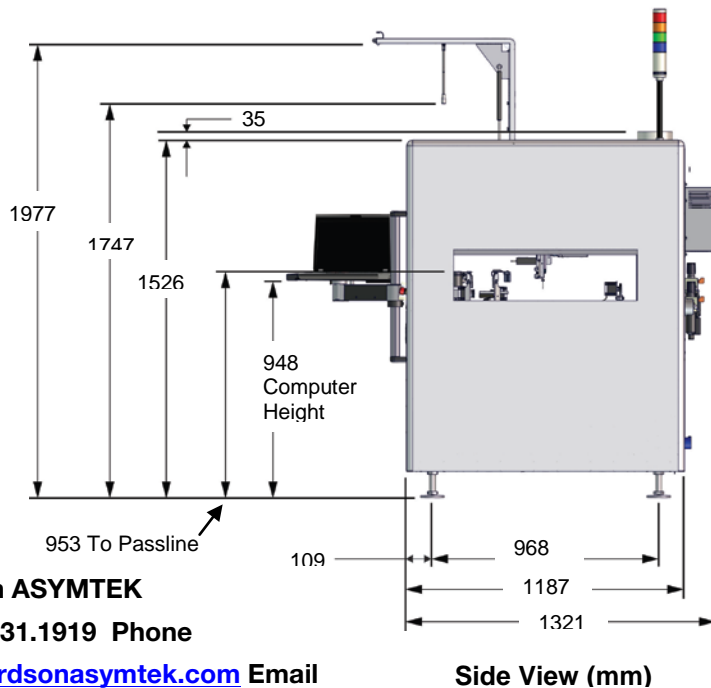
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