ASYMTEK Forte Series

Advanced Fluid Dispensing for Consumer Electronics Assembly

The Forte® Series delivers exceptional fluid dispensing productivity and accuracy for high-volume printed circuit board assembly, flexible circuit, MEMs, and electromechanical assembly applications. Our latest high-end and time-tested technologies are combined in the Forte's space-saving footprint to increase productivity by up to 50% over the top-selling Spectrum® ll.

Accelerate your process with the flexibility of game-changing Forte MAX dual-valve dispensing in two modes. Swift acceleration and improved motion control increase UPH without sacrificing accuracy. Dual-simultaneous mode dispenses a single fluid type from two identical valves. And dual-action mode allows independent, sequential dispensing of two fluid types from separate valves.

Shifted parts won't slow you down. Your dual-valve system is equipped with patented* real-time correction to automatically adjust for skewed parts and component height variation in the x, y, and z-axis for improved yield.

Features and Benefits

- **Dual IntelliJet® compatible, cutting-edge dispensing technology,** all in a space-saving footprint for maximum productivity.
- **Blazing speed for point-to-point moves –** matching our most advanced fluid dispensing system at 1.5 g acceleration.
- **Forte MAX –** high throughput, accurate dual-valve dispensing in two modes with patented*real-time correction.
- **Canvas® dispensing software –** delivers on and offline programming, dispensing simulation, and powerful insight and control over your process.
- **Reduced operator maintenance and intervention** with a standard integrated dual-valve service station, patented closed-loop process controls, and nozzle-cleaning rail.

*Nordson US Patents 9,707,584; 10,150,131; 10,737,286 and other patents pending.

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Specifications

Motion System	X-Y acceleration	1.5 g peak			
	X-Y velocity	1.0 m/s (39.4 in/s) maximum			
	Minimum Z dispense gap	50 µm (0.002 in.)			
Compatible Valves	IntelliJet® Jetting System with ReadiSet® Jet Cartridge NexJet® 8 Jetting System with ReadiSet® Jet Cartridge DispenseJet® DJ-9500 high-speed jet DV-8000C Heli-Flow® auger pump				
Dispense Area **Single Lane System**	X-Y single valve: Maximum dispense area (1) 342 x 407 mm (13.5 x 16.0 in.)				
	X-Y dual valve: • 233 x 396 mm (9.2 x 15.6 in.) @ 55 mm pitch between valves — the height sensor, camera, and both valves provide full coverage. • 386 x 396 mm (15.2 x 15.6 in.) @ 55 mm pitch between valves — provides added flexibility with limitations: not all areas can be viewed by the camera or reached by individual valves. For more information, see the User Manual.				
Dispense Area **Forte MAX(2) (Dual-Valve)**	Pitch	Dispense Area X (Includes camera, height sensor, valve one, and valve two)	Dispense Area Y (Includes camera, height sensor, valve one, and valve two)	Dispense Area X (Includes two valves)	Dispense Area Y (Includes two valves)
	Standard Slide Bracket				
	45-64 mm 53-72 mm 60-79 mm 68-87 mm	223-242 mm 208-227 mm 193-212 mm 178-197 mm	396 mm 396 mm 396 mm 396 mm	266-285 mm 251-270 mm 236-255 mm 221-240 mm	396 mm 396 mm 396 mm 396 mm
	Extended Pitch Slide Bracket				
	45-89 mm 53-97 mm 60-104 mm 68-112 mm	173-217 mm 158-202 mm 143-187 mm 128-172 mm	396 mm 396 mm 396 mm 396 mm	216-260 mm 201-245 mm 186-230 mm 171-215 mm	396 mm 396 mm 396 mm 396 mm
Wet Dispense X-Y Placement Accuracy(3) and Repeatability(4)	Single valve		Accuracy Mode 42,800 DPH (5)		Throughput Mode 55,900 DPH (5)
			Cp ≥ 1.0 ± 35 µm (0.0014 in.) Cp ≥ 1.33 ± 47 µm (0.0019 in.) Cp ≥ 1.67 ± 59 µm (0.0023 in.)		± 50 µm (0.0020 in.) ± 67 µm (0.0026 in.) ± 83 µm (0.0033 in.)
			Cpk ≥ 1.0 ± 45 µm (0.0018 in.)(6) Cpk ≥ 1.33 ± 60 µm (0.0024 in.) Cpk ≥ 1.67 ± 75 µm (0.0030 in.)		± 60 µm (0.0024 in.) ± 80 µm (0.0031 in.) ± 100 µm (0.0039 in.)
	Dual valve		Accuracy Mode 72,000 DPH (5)		
			Cp ≥ 1.0 ± 65 µm (0.0026 in.)		
			Cpk ≥ 1.0 ± 75 µm (0.0030 in.)		
Conveyance	Transport height		Conforms to SMEMA standard for conveyor height; Minimum adjustable from 913-965 mm (35.9 to 37.9 inches) from the floor to the pass line (bottom of the transported part); contact factory for heights < 913 mm		
	Flow direction		Standard left-to-right flow with fixed front rail. Right-to-left adaptable.		
	Operation modes		Automatic (SMEMA), manual and pass-through		

(1) The dispense area dimensions are given in X-Y format: X is the direction of conveyor motion; Y is measured from the front conveyor rail to the back of the system. Indicated area includes mounted camera and laser height sensor.
(2) Delta-X and Y travel on valve two is ± 2.5 mm, and delta-Z travel on valve one is 10 mm.
(3) The precision to which a dot can be placed with local fiducials. Wet dispense accuracy is verified using ASYMTEK method on a 722-dot grid.
(4) Wet dispense repeatability is verified using ASYMTEK method on a 722-dot grid.
(5) DPH: Dots Per Hour.
(6) Line placement path accuracy is ±40 µm.

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Specifications

Single Lane Conveyor	Rail lengths	1 station: 600 mm (23.6 in.) 2 stations: 847 mm (33.3 in.) 3 stations: 1095 mm (43.1 in.)
	Conveyor edge clearance (1)	5 to 6 mm (0.2-0.24 in.)
	Conveyor overboard clearance	30 mm (1.2 in.) standard
	Conveyor underboard clearance	4.5 mm @ 4 to 5.75 mm from edge ; 55 mm beyond 5.75 mm from edge
	Board/carrier size with lift table (LxW)	Max. 1 station: 340 x 535 mm (13.4 x 21.0 in.) Max. 3 stations: 320 x 535 mm (12.6 x 21.0 in.) Minimum: 25 x 34 mm (1.0 x 1.3 in.)
	Carrier thickness	Max: 12.5 mm (0.5 in.)
	Maximum capacity (2)	4-mm flat belt — 1 kg (2.2 lb.); 6-mm flat belt — 2 kg (4.4 lb.)
	Belt temperature	4-mm flat belt — continuous: 100 °C (212 °F); Max: 140 °C (284 °F) 6-mm flat belt — continuous: 100 °C (212 °F); Max: 140 °C (284 °F)
Dual Lane Conveyor	Adjustable rail pitch (between fixed rails 2-4)	Max. 320 mm (12.6 in.); Min. 200 mm (7.9 in.)
	Board width at maximum pitch (rails 2-4 = 320 mm)	Lane 1: Max. 206 mm (8.1 in.); Min. 34 mm (1.3 in.) Lane 2: Max. 246 mm (9.7 in.); Min. 34 mm (1.3 in.)
	Board width at minimum pitch (rails 2-4 = 200 mm)	Lane 1: Max. 327 mm (12.9 in.); Min. 34 mm (1.3 in.) Lane 2: Max. 127 mm (5.0 in.); Min. 34 mm (1.3 in.)
	Board length at any pitch (x-axis)	1 station: 340 mm (13.4 in.) 3 stations: 320 mm (12.6 in.)
Facilities Requirements	System footprint	600 (conveyor rail end-to-end) x 1374 mm (23.6 [conveyor rail end-to-end] x 54.1 in.) all doors closed. See System Dimensions.
	Power (mains)	200-240 VAC, 3 wire, single phase, 30A, 50/60 Hz, <10% THD, connected through 2.5 meter cord with male locking plug, NEMA L6-30P [Europe only male plug: IEC 60309, 2.4 meter].
	SCCR	1 KVA (CB Type K for facility)
	Facility circuit requirement	30A
	Air supply	Two air supplies: one with 1 CFM @ 100 psi for the system (“MAIN1”), a second one with 3 CFM @ 100 psi for contact tooling and service station (“MAIN2”). To run the machine both Main 1 and Main 2 shall be connected. If no contact tooling is required, Main 2 can be with 1 CFM @ 100 psi. (100 psi = 689 kPa, 6.8 atm).
	Rear pneumatic fitting	¼ male NPT x ¼ male quick disconnect, ¼” Industrial Interchange nipple, ref MIL-C4109
	System noise	<75 dBA @ 1 m
	Environmental	Shipping: 0-55 °C, 5-90% RH Operating: 5-40 °C, 5-90% RH
	Ventilation	Vent port diameter: 147.6 mm (5.8 in.) duct; up to 100 SCFM @ 1.0 in. water column (0.047 m3/s @ 25 mm) from the exhaust port may be required for heated applications.
	Weight	Single station/single lane/no pods: 443 kg (975 lbs.) Pre/post-queue stations : 23 kg (50 lbs.) each Dual lane adder: +6.8 kg (15 lbs.) for dual lane
	Standards compliance	SEMI-S2; SEMI-S8; SEMI-F47; SEMI-E78; IEC 61340-5-1; CE; SMEMA

(1) 5 mm edge clearance is standard, 6 mm includes rail clamp thickness.
(2) Total weight of all parts on conveyor at any one time.

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System Packages

Nordson Electronics Solutions builds the future of electronics reliability all across the globe. We're proud of the decades of service and solutions we've provided to enhance consumer electronics reliability. No matter where you are, you've likely manufactured or purchased a product made reliable with our equipment. The Forte® Series fluid dispensing system features highly dependable capabilities and is designed to last, continuing a time-honored tradition.

Explore the Forte Series system packages. Continue to see how we support the future.

For more information, contact us at info-electronics@nordson.com.

Essential	Single valve essential dispensing.	An invaluable system that easily tackles high-volume printed circuit board, flexible circuit, MEMs, and electromechanical assembly applications with outstanding productivity and accuracy.
Productivity	Dual valve throughput.	Accelerate throughput with Forte MAX dual-valve jetting and patented* real-time correction that automatically adjusts for skewed parts and component height variation in the x, y, and z-axis.
High Yield Productivity	Dual valve throughput and yield.	The High Yield Productivity system addresses the fundamental process challenge of speed vs. accuracy by combining Forte MAX dual valve capabilities with a precision scale for maximum productivity and accuracy for optimal yield.

Recommended Valves

Jet	IntelliJet® Jetting System with ReadiSet® Jet Cartridge
Auger Pump	DV-8000C Heli-Flow® auger pump

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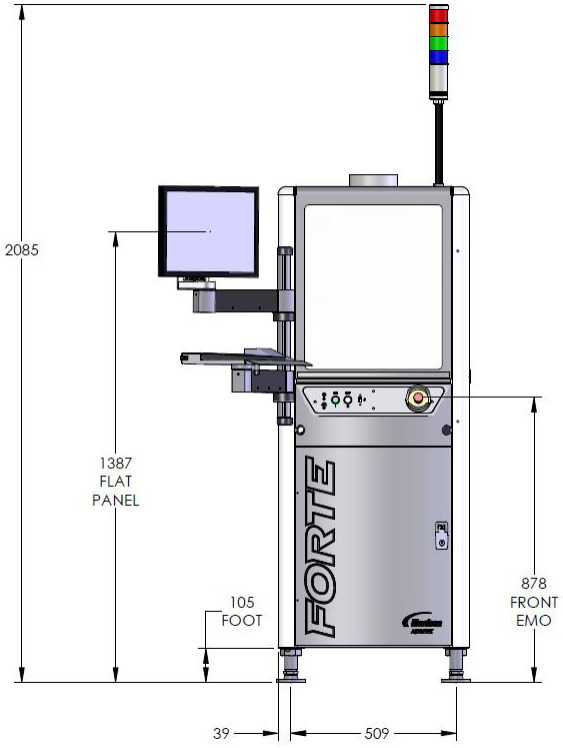
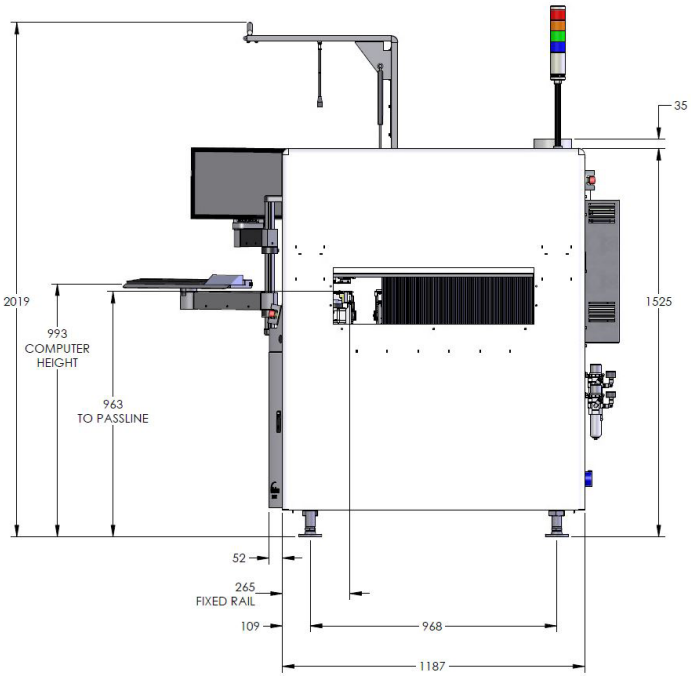
System Dimensions

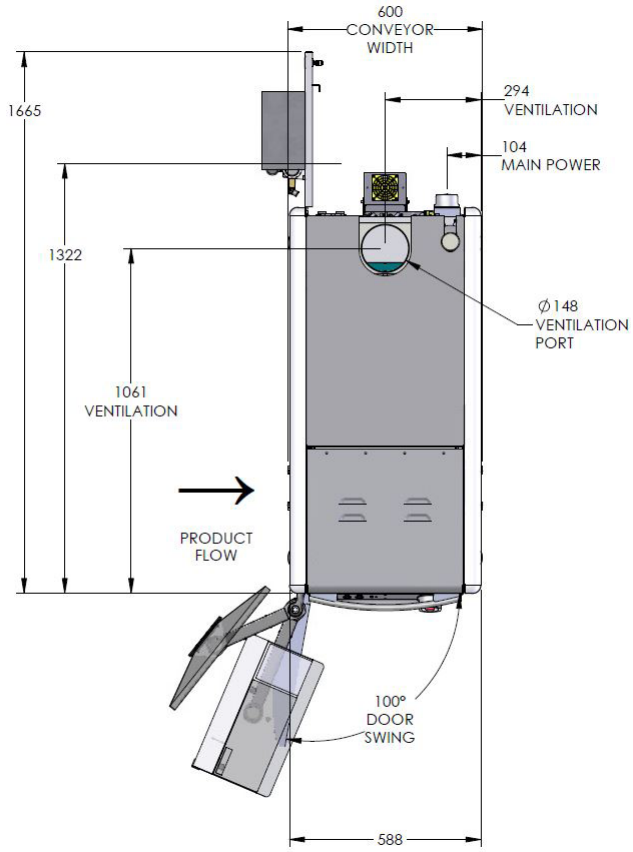
Front View



Side View



Top View



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North America
Asia Pacific
EMEA

www.nordson.com/electronics
info-electronics@nordson.com

North America Headquarters
2747 Loker Avenue West
Carlsbad, CA 92010-6603, USA

+1.760.431.1919

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