

# FOX SMD Pick & Place System

Specifications

		FOX <sup>1</sup>		FOX <sup>2</sup>		FOX <sup>4</sup>	
		Stand Alone	In Line	Stand Alone	In Line	Stand Alone	In Line
Productivity <sup>(1)</sup>	Optimum placement speed Chip	7 <b>′000</b> cph		12′000 cph		18′800 cph	
	Speed (IPC 9850)	Chip <b>6'100</b> cph QFP <b>5'600 cph</b>		Chip <b>10'800</b> cph QFP <b>5'600</b> cph		Chip <b>16'100</b> cph QFP <b>7'600 cph</b>	
	Speed (IPC 9850A)	Chip         5'900 cph         Chip         10'300           QFP         4'500 cph         QFP         4'500			'300 cph '500 cph	Chip 15'000 cph	
	Dispensing speed up to	Jet valve: 100'000 dots/h			QFP 5'600 cph		
	Job changeover time	< 1 min (loading job, adjust conveyor/table, restart production)					ction)
Feeder <sup>(2)</sup>	Feeder system	hyQ (intelligent single feed CLM (intelligent cassette feed <sup>(*)</sup> on FOX <sup>4</sup> not front-side mounting				der) (*)	
	Feeder capacity (8mm tape)	180	120	180	120		120 / 140 <sup>(*)</sup> al Extended Rack
Components	Component size range	<ul> <li>0201 – 33 x 33 mm incl. leads</li> <li>0201 – 80 x 33 mm incl. leads</li> <li>With optional MFOV<sup>(*)</sup> software license</li> <li>With opt. MFOV license and Vision Box<sup>(**)</sup></li> <li>With opt. Nozzle 0 and hyQ feeder type</li> <li>(*) Multi Field of View</li> <li>(*) Requires space of up to 10 Feeder lanes front side</li> </ul>					
	Mass moment of inertia	60 g x cm <sup>2</sup>					
	Min. lead pitch	0.3 mm (12mil)					
	Min. ball diameter / pitch	0.2 mm					
	Min. component height	> 0.0 mm					
	Max. component height	Standard: 18 mm / On request 25 mm					
	Process height	$\pm$ 18 mm (0.71") from zero height					
Accuracy	Linear encoder resolution (x,y)	0.2 µm 0.007°					
	Rotation axis resolution						
	Overall placement accuracy XY Chips	± 50 μ <b>m (3σ)</b> <sup>(3)</sup>					
	Overall placement accuracy XY QFP 64/100	± 45 μ <b>m (3σ)</b> <sup>(3)</sup>					
PCB	Min. PCB dimensions	20 x 20 mm (0.8 x 0.8")	50 x 50mm (2 x 2")	(0.8 x 0.8")	50 x 50mm (2 x 2")	20 x 20 mm (0.8 x 0.8")	50 x 50mm (2 x 2")
	Max. PCB dimensions		-	406 x 305 i	mm (16 x 12″	)	
	PCB thickness	0.5-3.5 mm (0.02 - <b>0.13"</b> )	0.5-5.0 mm (0.02 - 0.2")	(0.02 - <b>0.13</b> ")		(0.02 - <b>0.13</b> ")	0.5-5.0 mm (0.02 - 0.2")
	PCB edge clearance	3.0-5.0 mm (0.11 <b>– 0.2")</b> (varies with PCB thickness)	T: 3.0 mm (0.11") B: 5.0 mm (0.2")	3.0-5.0 mm (0.11 – <b>0.2")</b> (varies with PCB thickness)	T: 3.0 mm (0.11") B: 5.0 mm (0.2")	3.0-5.0 mm (0.11 <b>– 0.2")</b> (varies with PCB thickness)	T: 3.0 mm (0.11") B: 5.0 mm (0.2")
	Max. Board weight	-	4 kg (8.8 lb)	-	4 kg (8.8 lb)	-	4 kg (8.8 lb)
	Max. Board weight Conveyor height	-	4 kg (8.8 lb) SMEMA 940 – 965 mm	,	4 kg (8.8 lb) SMEMA 940 – 965 mm	-	4 kg (8.8 lb) SMEMA 940 – 965 mn

Specifications



## Configuration

		FOX1		FOX <sup>2</sup>		FOX <sup>4</sup>	
	-	Stand Alone	In Line	Stand Alone	In Line	Stand Alone	In Line
Machine base	Pick & Place head with 1 spindle	•	•				
	Pick & Place head with 2 spindles			•	•		
	Pick & Place head with 4 spindles					•	•
	Stand Alone type	•		•			
	(PCB table, magnetic PCB holder, support pins)	•		•		•	
	In Line type (Conveyor 3 stage, support pins,		•		•		•
	manual width adjustment)		•		•		•
	Dispensing preparation kit	0	0	0	0		
	(Dot plate, purge and z-height calibration station)	0	0	0	0		
	Interior lighting LED	•	•	•	•	•	•
	Signal tower (3 color)	0	0	0	0	0	•
CB Handling	SMEMA interface		•		•		•
	Conveyor direction L/R, R/L, batch mode R/R, L/L		•		•		•
	Automatical width adjustment		0		0		•
	Conveyor extensions		0		0		0
	PCB inspection station on conveyor		0		0		0
ontrol and	ePlace P&P software (En, De, Ru, Pl, Zh, Es, Cs, Ja)	•	•	•	•	•	•
oftware	Machine PC with Windows 10 OS and 21.5" touch	•	•	•	•	•	•
	screen	•	•	•	•		
	Technical support software	•	•	•	•	•	•
Alignment systems	Cognex SMD4 PatMax vision license (fiducials,	•	•	•	•	•	
	chip, QFP, asymm. BGA and leads)	•	•	•	•		
	Multi Field of View license (MFOV)	0	0	0	0	0	0
	Vision Box for 80x80mm components	0	0	0	0	0	0
	Laser height measurement	0	0	0	0	0	0
ispensing valves	Time/pressure valve (5, 10, 30 cm <sup>3</sup> )	0	0	0	0		
Cartridge sizes)	Archimedean screw valve (5, 10, 30 cm <sup>3</sup> )	0	0	0	0		
	Volume Dispenser valve (10, 30, 50 cm <sup>3</sup> )	0	0	0	0		
	Jet valve (5, 10, 30 cm <sup>3</sup> )	0	0	0	0		
	Pneumatic-Jet valve (5, 10 cm <sup>3</sup> )	0	0	0	0		
	Cartridge level control	0	0	0	0		
	Dispenser Needle Heating	0	0	0	0		
arious	Standard User Level Management (software)	•	•	•	•	•	•
(extract)	Bad mark sensing with vision (software)	•	•	•	•	•	•
	Universal CAD conversion (software)	•	•	•	•	•	•
	Automatic Placement constraints (software)	•	•	•	•	•	•
	Basic calibration set P&P	•	•	•	•	•	•
	Maintenance kit	•	•	•	•	•	•
	Key Performance Indicator (KPI) (software)	0	0	0	0	0	0
	Process Improvement Tool P&P (PIT1) (software)	0	0	0	0	0	0
	Barcode Reading over Top Camera (software)	0	0	0	0	0	0
	Disp. Process Control Adjustment & Stabilization (PCAS) (software)	0	0	0	0		
	Second touch screen for machine backside	0	0	0	0	0	0
	Clean Room Option	0	0	0	0	0	0
	CVU (Component Verification Unit)	0	0	0	0	0	0
	Tray Slider (space for two additional trays)	O <sup>(*)</sup>	O <sup>(*)</sup>	0	0	0	0
	Extended Feeder Rack (additional feeder lanes)					0	0

• standard feature • O optional feature • Picking-area restrictions

Specifications

.....



### Machine Dimensions, Packaging and Supplies

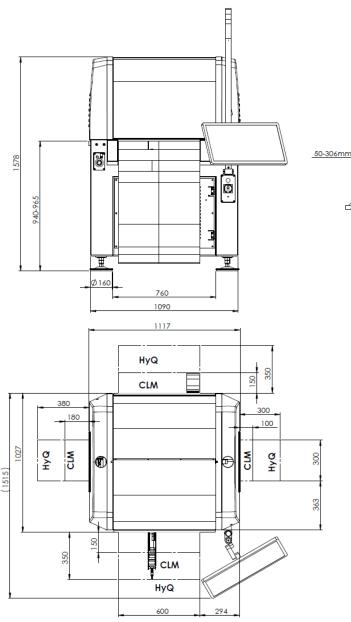
Machine dimensions	Machine footprint without hood (L x W)	880 x 1090 mm (34.7 x 43") 1027 x 1117 mm (40.4 x 44")			
	Machine footprint with hood (L x W)				
	Operating floor space (L x W)	1865 x 1797 mm (")			
	Machine height (without / with light tower)	1578 mm (62") / 1939 mm (76")			
	Approx. machine weight (without / with feeder)	875 kg (1929 lb) / 1020 kg (2249 lb)			
	Approx. floor loading (without / with feeder)	912 kg/m <sup>2</sup> (1.3 lb/sq.in) / 1065 kg/m <sup>2</sup> (1.51 lb/sq.in)			
	Packaging weight	80 kg (176 lb)			
Supplies	Electrical	230V / 50Hz or 120V / 60Hz (with optional transformer)			
	Power consumption (average / peak)	0.75 kW / 1.7 kW			
	Entry Fuse	13A / 230V			
	Min. Wire cross section	1.5 mm <sup>2</sup>			
	Electrical connector	230V, CEE-16, 16A, 230V, 3P L+N+PE 6h, blue color 120V, CEE-16, 16A, 120V, 3P L+N+PE 4h, yellow color			
	Compressed air	6 - 7 bar (87 - 102 psi), clean and filtered, dry, ISO 8573-1: class 3 (max. part diameter 5µm, dew point < -20°C, oil ≤ 1 mg/m <sup>3</sup> )			
	Air consumption	max. 60 NI/min (2.1 cfm)			
	Air connection	Push-in connector for outer hose Ø8 mm			
Environment	Performance temperature range / humidity	22 - 24°C / 50 – 70% RH			
	Operational temperature range / humidity	15 – 30°C / 30 – 70% RH (non condensing)			
	Noise level	max. 75 dB (A)			

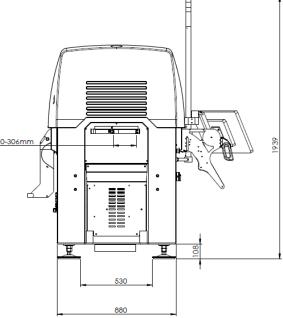
...

.....



#### **Dimension Drawings**





Specifications

1) 2) 3)

- Requires Software ePlace V23.0 and higher. Values reached using hyQ feeder type only. Some feeder type «CSM» are also compatible. See System Description for possibilities and details Used speed mode "Accurate", up to 4 different speed modes available. Only applicable at zero height and within performance temperature / humidity range.

More information available in the FOX System Description and Product Notes. Please ask for it.

#### Disclaimer & Copyright:

We reserve the right to make changes without notice. All materials contained in this brochure are copyright © Essemtec AG, Switzerland, May 2017