

TARANTULA Automatic Dispensing System

Version 1.6 / February 2023

Specifications

		TARANTULA
Process	Dispensing speed up to ⁽¹⁾	Piezo jet valve 145'000 dots/h Shockwave jet valve 77'000 dots/h Time/pressure valve 26'000 dots/h Archimedean screw valve 22'000 dots/h Volume dispenser valve 22'000 dots/h
	Dispensing mode	Dot, line, 3D, curve, interpolated curves on multiple layers ⁽²⁾
	Programmable z-stroke	80 mm (3.35")
	Process height	± 18 mm (0.71") from zero height ⁽³⁾
	Number of processes	Up to 3x valves simultaneously
Accuracy	Linear encoder resolution (x,y)	0.2 µm
	Dispensing accuracy XY dots	± 40 µm (3σ) ⁽⁴⁾
	Positioning accuracy Z axis	± 20 µm (3σ)
PCB	Min. PCB dimensions	50 x 50mm (2 x 2")
	Max. PCB dimensions	560 x 610 mm (22 x 24")
	PCB thickness	0.5 – 5.0 mm (0.02 - 0.2")
	PCB edge clearance	Top side 3.0 mm (0.11") Bottom side 5.0 mm (0.2")
	Max. board weight	4 kg (8.8 lb)
	Conveyor height	SMEMA 940 – 965 mm
	Clearance below PCB	27 mm (1.1") ⁽³⁾

Machine Dimensions, Packaging and Supplies

Machine dimensions	Machine footprint without hood (L x W)	1380 x 1330 mm (54 x 52")
	Machine footprint with hood (L x W)	1557 x 1357 (61 x 53")
	Operating floor space (L x W)	2500 x 2200 mm (98 x 87")
	Machine height (without / with light tower)	1582 mm (62") / 1942 mm (76")
	Approx. machine weight	1670 kg (3680 lb)
	Approx. floor loading	910 kg/m ² (1.3 lb/sq.in)
	Packaging weight	80 kg (176 lb)
Supplies	Electrical	3 x 400 VAC/50Hz (or 3 x 208VAC/60Hz with optional transformer)
	Power consumption (peak)	3 kW
	Entry fuse	16A / 400V
	Min. wire cross section	1.5 mm ²
	Electrical connector	400V, CEE-16, 16A, 400V, 5P 3L+N+PE 6h, red 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 ³)
	Air consumption	max. 60 NI/min (2.1 cfm) (depends on valve and application)
Environment	Air connection	Push-in connector for outer hose Ø8 mm
	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)

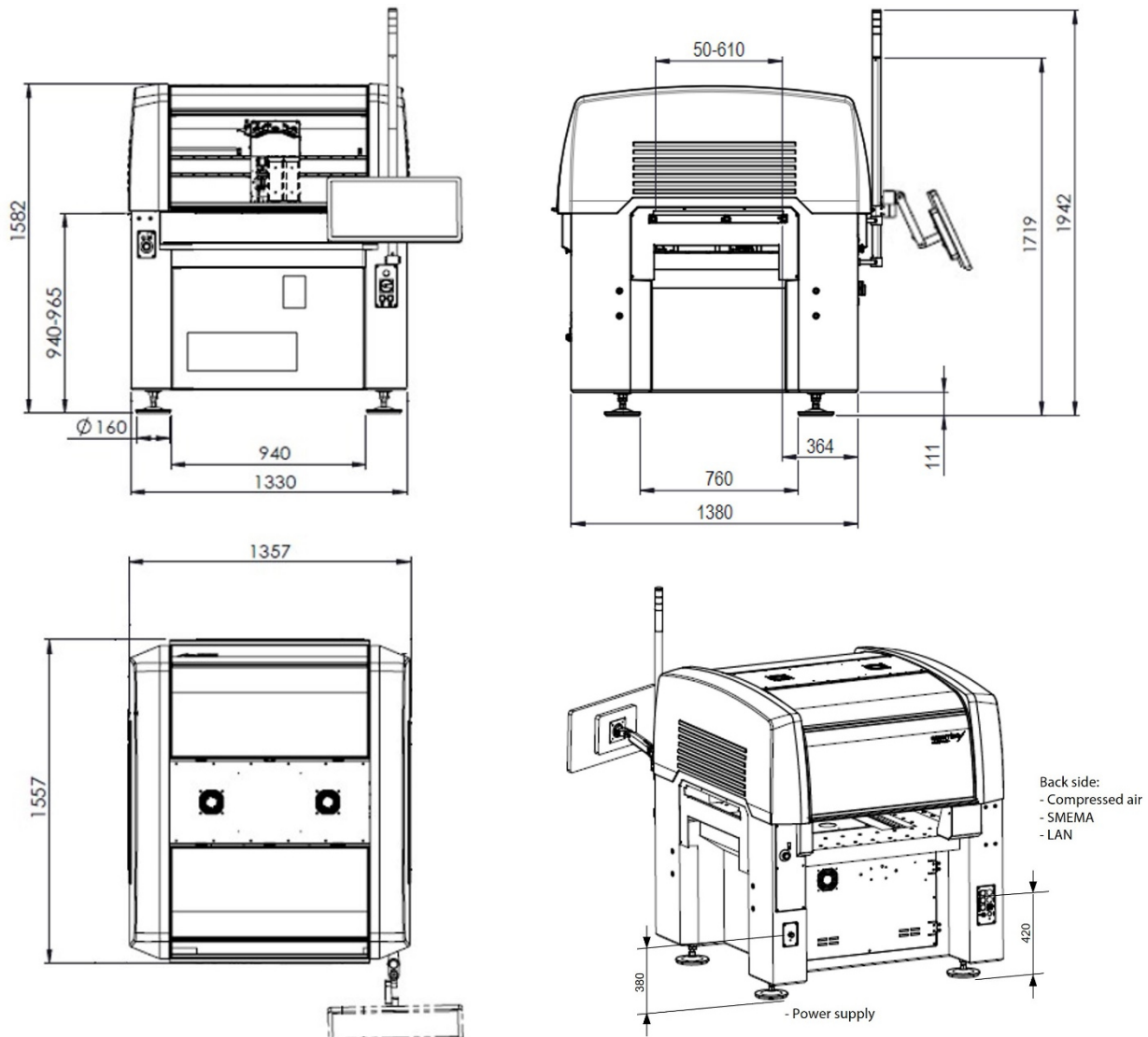
Configuration

		TARANTULA
Machine base	In line type (conveyor 3 stage, support pins, manual width adjust.)	●
	Dispensing basic kit (dot plate, purge and z-height calibration station)	●
	Interior lighting LED	●
	Signal tower (3 color)	●
	Clean room compatible ISO7 (class 10'000)	●
PCB Handling	IPC-HERMES-9852, SMEMA interface	●
	Conveyor direction L/R, R/L, batch mode R/R, L/L	●
	Automatic width adjustment	○
	Conveyor extensions	○
	PCB inspection station on conveyor	○
Control and software	ePlace Dispensing software (En, De, Fr, Ru, Pl, Zh, Es, Cs, Ja)	●
	Machine PC with Windows 11 OS and 21.5" touch screen	●
	Technical support software	●
Alignment systems	Cognex base vision license (extended fiducial recognition)	●
	Red and blue color illumination for top camera	●
Dispensing valves (Cartridge sizes)	Piezo jet valve (5, 10, 30 cm ³)	○
	Shockwave jet valve (5, 10, 30 cm ³)	○
	Time/pressure valve (5, 10, 30 cm ³)	○
	Archimedean screw valve (5, 10, 30 cm ³)	○
	Volume Dispenser valve (10, 30, 55 cm ³)	○
	Cartridge level control	○
	Dispenser needle heating	○
		○
Dispensing options	Laser height measurement ⁽⁵⁾	⊙
	High precision scale (only for Jet valves)	○
	Valve heating system (available for all valves)	○
	Vacuum cleaning station for needles	○
	Disp. Process Control Adjustment & Stabilization (PCAS) (software)	○
	Lifting table with heating or vacuum	○
Various (extract)	Standard user level management (software)	●
	Bad mark sensing with vision (software)	●
	Universal CAD conversion (software)	●
	Calibration set dispensing	●
	Maintenance kit	●
	Key Performance Indicator (KPI with SEMI E10 standard) (software)	○
	Barcode reading over top camera (software)	○
	Second touch screen for machine backside	○
	Keyboard and mouse holder underneath monitor	○
	Clean room option ISO7 (class 10'000)	○
	Full traceability package for medium and valves (software)	○
	Recipe import in ePlace (software)	○
	Interface for host communication: IPC-CFX, ITAC, SECS/GEM, OIC, EEIP etc. (software)	○
		○
		○

● standard feature ○ optional feature ⊙ mandatory option, model to choose



Dimension Drawings



- 1) Conditions: Full speed, dot size 0.5mm, dot matrix 0.8 x 0.8 mm, 1000 x dots, medium Loctite 3621, zero height level and within performance temperature / humidity range
- 2) All 2.5D/3D applications need to be checked and approved by Essemtec Customer Application Engineering
- 3) Other heights on request
- 4) Conditions: Full speed, dot size 1.0 mm, medium Loctite 3621, zero height level and within performance temperature / humidity range
- 5) Mandatory option: Two laser models available, to choose depending on needed application

For more information ask for the TARANTULA System Description and Product Notes.

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