

SPIDER Automatic Dispensing System

Version 1.9 / December 2025

Specifications

		SPIDER (Inline)	
Process	Jet speed solder paste up to Shockwave valve	Optimum ⁽¹⁾ Dot matrix ⁽²⁾ Application average ⁽³⁾	1'100'000 dots/h 665'000 dots/h 350'000 dots/h
	Jet speed glue up to Piezo valve	Optimum ⁽⁴⁾ Dot matrix Jet-on-the-Fly ⁽⁵⁾ Dot matrix Stop 'n Jet ⁽⁵⁾	2'000'000 dots/h 780'000 dots/h 177'000 dots/h
	Dispensing speed up to ⁽⁵⁾	Time/pressure valve Archimedean screw valve Volume dispenser valve	38'000 dots/h 30'000 dots/h 26'000 dots/h
	Dispensing mode	Dot, line, 3D, curve, interpolated curves on multiple layers ⁽⁶⁾	
	Programmable Z-stroke	80 mm (3.35")	
	Process height	± 18 mm (0.71") from zero height ⁽⁷⁾	
	Number of processes	Up to 2x valves simultaneously	
Accuracy	Linear encoder resolution XY	0.2 µm	
	Dispensing accuracy XY dots	± 40 µm (3σ) ⁽⁸⁾	
	Positioning accuracy Z axis	± 20 µm (3σ)	
PCB	Min. PCB dimensions	50 x 50mm (2 x 2")	
	Max. PCB dimensions	406 x 305 mm (16 x 12")	
	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") ⁽⁷⁾	

SPIDER Specifications

Machine Dimensions, Packaging and Supplies

Machine dimensions	Footprint without hood (L x W)	880 x 1090 mm (34.7 x 43")
	Footprint with hood (L x W)	1027 x 1117 mm (40.4 x 44")
	Approx. operating floor space (L x W)	1050 x 1150 mm (41.3 x 45.3")
	Height (without / with light tower)	1578 mm (62") / 1939 mm (76")
	Approx. weight	875 kg (1929 lb)
	Approx. floor loading	912 kg/m ² (1.3 lb/sq.in)
	Packaging weight	70 kg (154 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 ²
	Electrical connector	230V, CEE-16, 16A, 230V, 3P L+N+PE 6h, blue color, cable length 2.7 m 120V, CEE-16, 16A, 120V, 3P L+N+PE 4h, yellow color, cable length 2.7 m
	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)
Air connection	With dispensing option vacuum cleaning station max. 90 NI/min (3.2 cfm) Push-in connector for outer hose Ø8 mm	
Environment	Performance temperature / humidity range	22 - 24°C / 50 - 70% RH
	Operational temperature / humidity range	15 - 30°C / 30 - 70% RH (non condensing)
	Noise level	max. 75 dB (A)



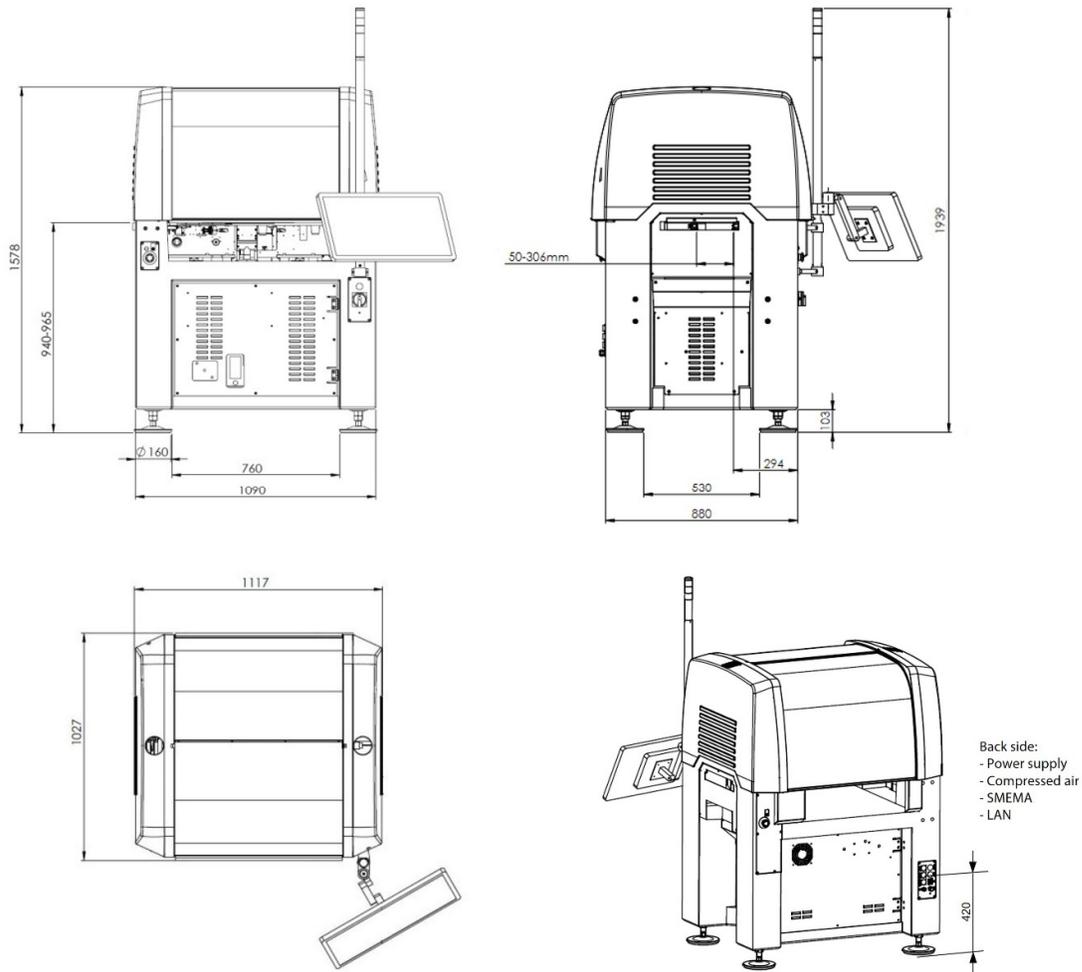
Configuration

		SPIDER
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)	●
PCB Handling	IPC-HERMES-9852, SMEMA interface	●
	Conveyor direction L/R, R/L, batch mode R/R, L/L	●
	Automatic conveyor 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 ²)	○
	Shockwave jet valve (5, 10, 30 cm ²)	○
	Time/pressure valve (5, 10, 30 cm ²)	○
	Archimedean screw valve (5, 10, 30 cm ²)	○
	Volume dispenser valve (10, 30, 55 cm ²)	○
	Cartridge level control	○
	Dispenser needle heating	○
	Laser height measurement ⁽⁹⁾	⊙
Dispensing options	High precision scale (only for Jet valves, not for solder paste applications)	○
	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
Bad mark sensing with vision		●
Universal CAD conversion		●
Calibration set dispensing		●
Maintenance kit		●
Key Performance Indicator (KPI with SEMI E10 standard)		○
Barcode reading over top camera		○
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		○
Recipe import in ePlace		○
Communication interfaces: IPC-CFX, HERMES, ITAC, SECS/GEM, OIC, EEIP etc.		○
Integrated inspection system for dispensing (SW-I2S)		○
Jet-on-the-Fly - Extended Speed Performance (SW-ESP), see Application Matrix		○

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



Dimension Drawings



- 1) Maximum valve frequency, using settings from solder paste Application Matrix with Jet-on-the-Fly capability (req. SW-ESP license)
- 2) Dot matrix 33x33 with pitch 1.0 x 1.0 mm, using settings from solder paste Application Matrix with Jet-on-the-Fly capability (req. SW-ESP license)
- 3) Average of 17x different industrial PCBs, using settings from solder paste Application Matrix with Jet-on-the-Fly capability (req. SW-ESP license)
- 4) Maximum valve frequency
- 5) Dot matrix 33 x 33 with pitch 0.8 x 0.8 mm, dot size 0.5mm, medium Loctite 3621
- 6) All 2.5D/3D applications need to be checked and approved by Essemtec Customer Application Engineering
- 7) Other heights on request
- 8) Full speed, dot size 1.0 mm, medium Loctite 3621
- 9) Mandatory option: Two laser models available, to choose depending on needed application

All measurements realized at machine zero height level and within performance temperature / humidity range.

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

Disclaimer & Copyright:

We reserve the right to make changes without notice. All materials contained in this brochure are copyright © Essemtec AG, Switzerland, December 2025.