



SO-300 High-Speed Offline Selective Soldering Machine

Single-head selective wave soldering for PCB rework, offline stations and flexible THT production.

**300 x 300
mm**

Max solder area

+/-0.1 mm

Position accuracy

15 kg

Solder pot capacity

Manual

Loading / unloading



Offline Selective Soldering for Flexible PCB Production



SO-300 is a compact offline selective soldering machine that combines selective fluxing, bottom preheating and selective soldering within the same XYZ motion platform.

All-in-one offline station

Fluxing, preheating and soldering are integrated into one compact machine.

PCB moving table

The PCB moves above fixed fluxing, preheating and soldering modules.

Line-side flexibility

Can be placed beside production lines where an offline soldering station is preferred.

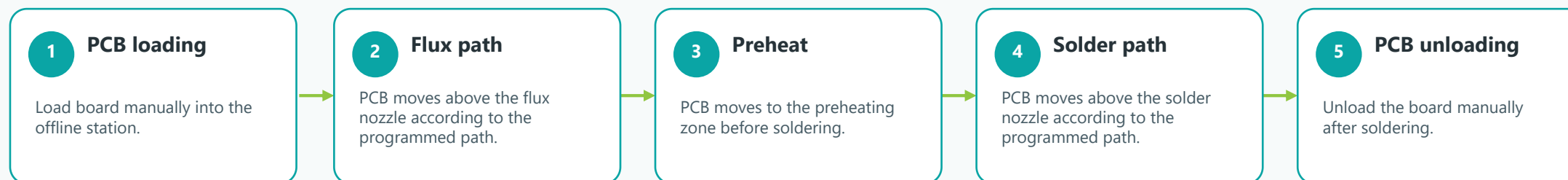
Recipe traceability

PC settings can be saved by PCB menu for repeatable process setup.

Reference configuration. Final specifications are subject to technical confirmation according to the application.

Manual Loading, Programmed Fluxing, Preheating and Soldering

System process



Core motion concept

The PCB is moved by the XYZ table, while the fluxer nozzle, preheater and solder pot remain fixed. This structure supports compact offline production and controlled soldering paths.

Core Processing and Control Functions

Selective fluxing + soldering

The same XYZ motion table combines selective fluxing and soldering in one offline machine.

Bottom IR preheating

Bottom preheating is included in the standard machine configuration and can be adjusted by process settings.

Full PC control

Motion path, solder temperature, flux type, solder type and N2 temperature can be set and saved by recipe.

Live camera monitoring

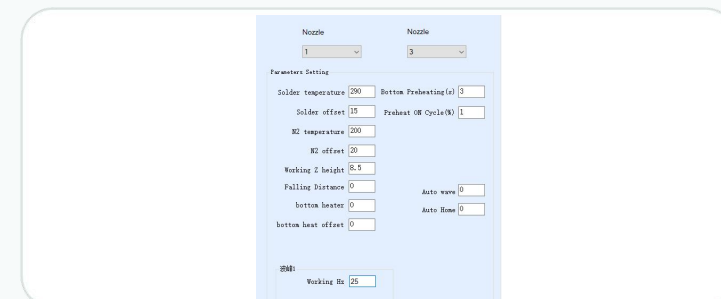
The soldering process can be shown on the monitor through a camera for operation observation.

Servo motion platform

XYZ motion uses servo control with ball screw and linear guide rail for stable movement.

Line-side flexible use

Suitable for offline soldering work beside a production line when production layout needs flexibility.



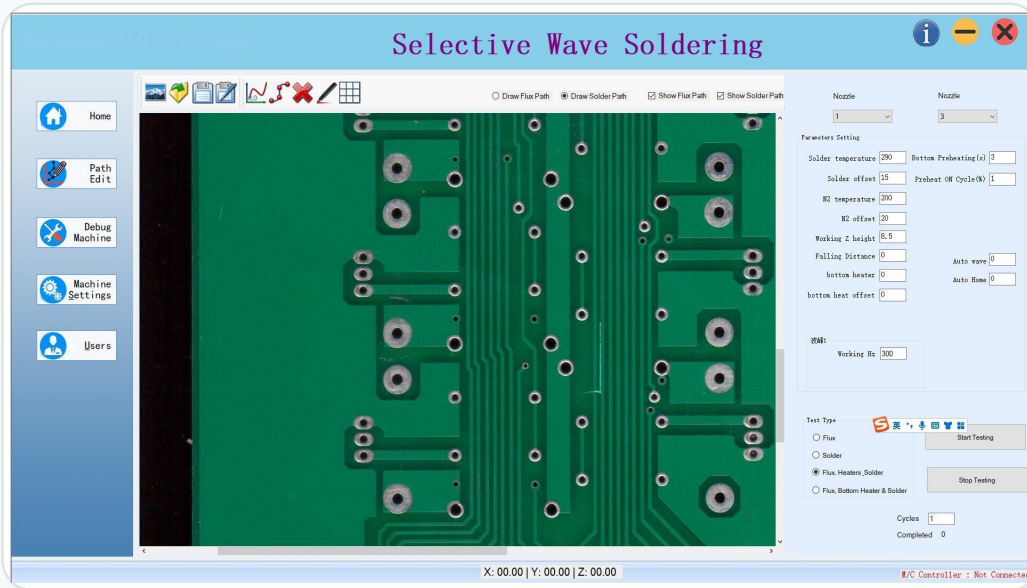
Standard Machine Configuration

System	Included content	Quantity
Control system	Industrial PC & monitor; live monitor camera; controller and motion control card	1 set
PCB motion table	XYZ motion table with ball screw, linear guide rail, servo motor and driver	1 set
Fluxing system	Imported fluxing jet valve; flux tank; flux pneumatic system	1 set
Preheating system	Bottom IR heater	1 set
Soldering pot	15 kg solder pot, impeller, tunnel, servo motor, solder temperature control and N2 inline heating	1 set
Solder nozzles	Standard 5 nozzles: ID 4 mm x 3 pcs, 5 mm, 6 mm	Standard
Machine chassis	Machine frame/cover and surface coating	1 set



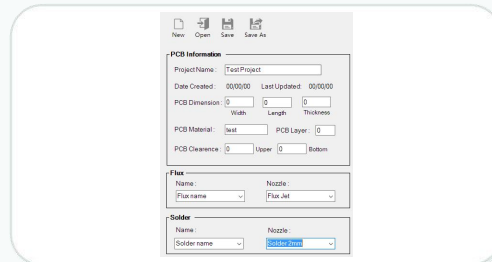
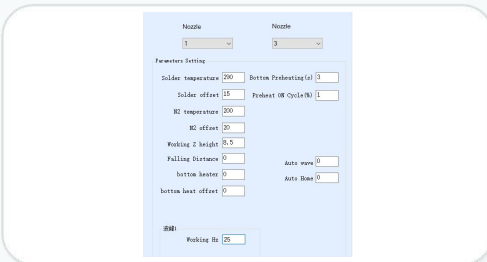
Configuration names are translated and reorganized from the original technical proposal.

Path Programming, Recipe Saving and Process Monitoring



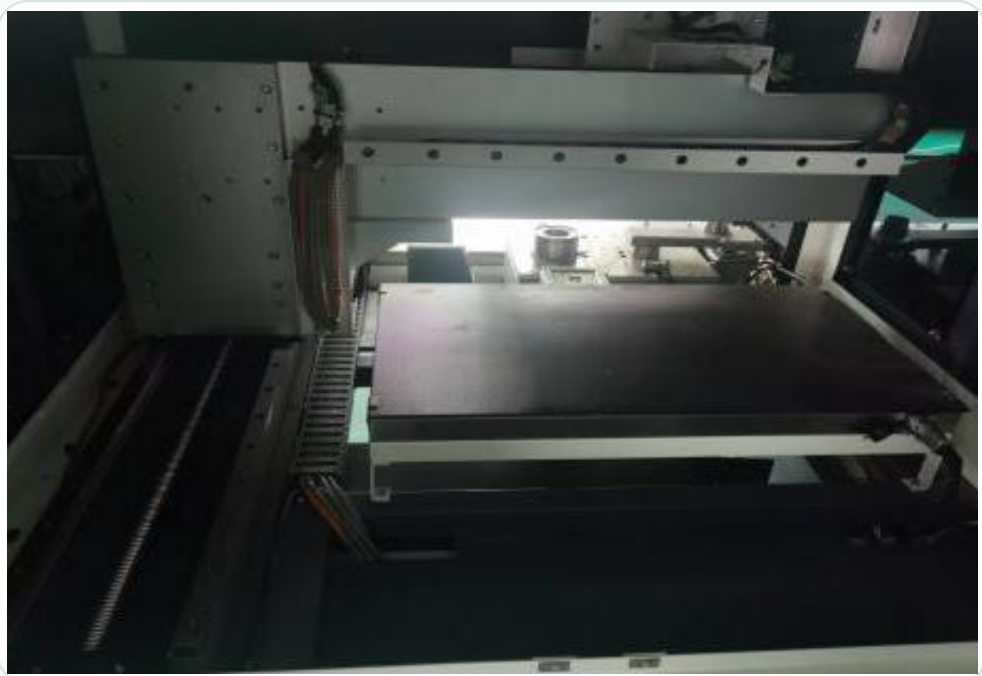
Software capability

- Windows-based software interface for operation and traceability.
- Scanned PCB image can be used as background for path programming.
- Moving speed, dwell time, empty move speed, Z height and wave height can be programmed for different soldering sites.
- Critical parameters can be monitored in the PC software, including temperature, speed and pressure.
- Process can be observed through live camera display.



Final operating system and interface version are subject to project confirmation.

XYZ Motion Platform and Servo Control



Motion platform design

- Lightweight motion table design supports faster movement while maintaining platform rigidity.
- Servo motor and driver provide stable motion power.
- Ball screw and linear guide rails support precise positioning, lower noise and stable movement.
- Motion axes: X, Y and Z.
- Position accuracy: +/-0.1 mm according to the technical proposal.

X / Y / Z

Motion axes

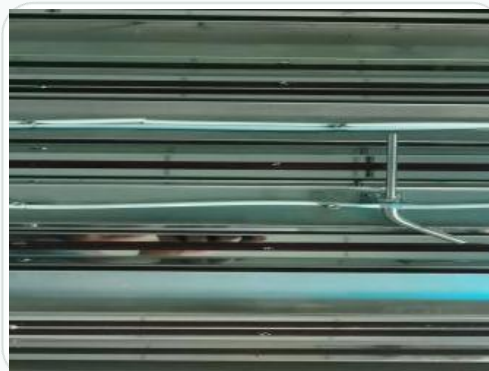
Servo

Motion control

+/-0.1 mm

Position accuracy

Fluxing and Preheating System



Preheat settings

Bottom IR preheating
3 kW heater power
25-240 deg C range
Heating ratio: 0-100%

Fluxing system

Uses a jet valve for selective flux application. The flux tank is designed to keep spraying pressure stable.

Preheating system

Bottom preheating is standard equipped. Position and heating ratio can be adjusted according to process requirements.

Process note

Flux, preheat and solder settings should be confirmed against PCB size, thermal mass, solder material and quality requirements.

Soldering Pot and N2 Management



Selective soldering module

- Solder temperature, N2 temperature, wave height and wave calibration can be set in the software.
- 15 kg solder pot capacity in the reference configuration.
- N2 online heating supports solder wetting and helps reduce solder dross depending on process conditions.
- Standard nozzles: 5 pcs per pot, including ID 4 mm x 3 pcs, 5 mm and 6 mm.
- Nozzle shape can be customized according to soldering requirements.

15 kg

Solder pot capacity

350 deg C

Max solder temperature

1-2 m3/h

N2 per nozzle

Machine Dimensions and Utility Requirements

Category	Parameter	Specification
General	Machine model	SO-300
General	Machine dimensions	1220(L) x 1000(W) x 1450(H) mm, without base
General	General power	5 kW
General	Operating power	1-3 kW
General	Power supply	Single-phase 220 V, 50 Hz
General	Net weight	380 kg
Utilities	Required air pressure	3-5 bar
Utilities	Required air flow	8-12 L/min
Utilities	Required N2 pressure	3-4 bar
Utilities	Required N2 flow	>2 m3/h
Utilities	Required N2 purity	>99.998%
Utilities	Required exhausting	500-800 CBM/h (source specification)

Values above are reorganized from the supplied technical proposal and should be confirmed before final quotation.

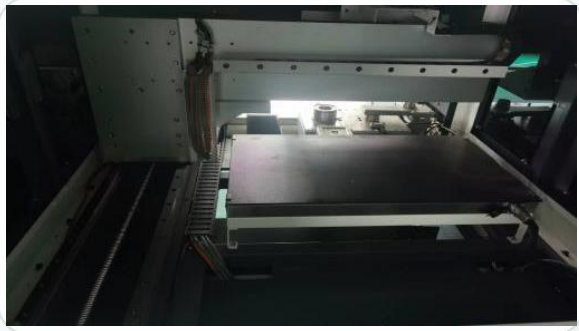
Carrier, PCB and Control Parameters

Category	Parameter	Specification
Carrier / PCB	Carrier	Can be used as needed
Carrier / PCB	Max solder area	300 x 300 mm; size can be customized
Carrier / PCB	PCB thickness	0.2-6 mm
Carrier / PCB	PCB edge	>3 mm
Control & loading	Control system	Industrial PC
Control & loading	PCB loading	Manual
Control & loading	PCB unloading	Manual
Control & loading	Operating height	900 +/- 30 mm
Clearance	PCB upper clearance	50 mm
Clearance	PCB bottom clearance	30 mm

Manual loading and unloading are part of the reference offline configuration.

Motion Table and Flux Management

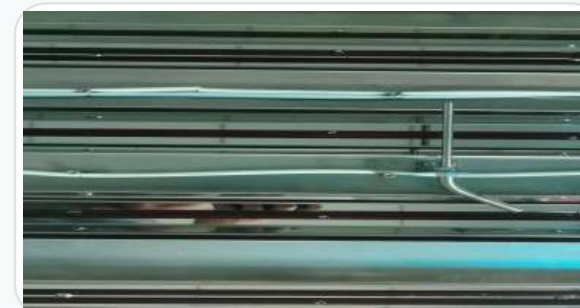
Category	Parameter	Specification
Motion table	Motion axes	X, Y, Z
Motion table	Motion control	Servo control
Motion table	Position accuracy	+/-0.1 mm
Motion table	Chassis	Welded steel structure
Flux management	Flux nozzle	Jet valve
Flux management	Flux tank capacity	1 L
Flux management	Flux tank	Flux tank / container



Motion and flux parameters should be confirmed with PCB dimensions, solder point accessibility and fixture requirements.

Preheat and Soldering Pot Parameters

Category	Parameter	Specification
Preheat	Preheat method	Bottom infrared preheating
Preheat	Preheat power	3 kW
Preheat	Temperature range	25-240 deg C
Solder pot	Standard pot number	1
Solder pot	Solder pot capacity	15 kg/pot
Solder pot	Solder temperature control	PID
Solder pot	Melting time	60-90 minutes
Solder pot	Max solder temperature	350 deg C
Solder pot	Solder heater	1.2 kW



Soldering temperature profile and preheat settings depend on PCB material, thermal mass, solder material and process requirements.

Solder Nozzles and N2 Management

Category	Parameter	Specification
Solder nozzle	Nozzle shape	Customized shape
Solder nozzle	Nozzle material	Alloy steel
Solder nozzle	Standard nozzles	5 pcs/pot: ID 4 mm x 3 pcs, 5 mm, 6 mm
N2 management	N2 heater	Standard
N2 management	N2 temperature range	0-350 deg C
N2 management	N2 consumption	1-2 m3/h/nozzle



Configuration note

Nozzle dimensions and soldering process parameters should be confirmed according to solder joint size, component clearance and fixture design.

Southern Machinery Contact

For product configuration, project evaluation and technical confirmation.

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