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# EMST Stallion PLC TT-JW

EMS TECHNOLOGIES

## Wave Soldering Machine

EMST Stallion PLC TT-JW is a new table top wave soldering machine from EMS Technologies, the soldering specialists. After the world wide success of the previous table top model, EMST Stallion, it is upgraded from manual controls to PLC based control with added features. Spray fluxer is also available as an option. The new model comes with the same quality and reliability in terms of mechanical as well as electrical/electronics parts. EMS Technologies has now emerged as a leading Indian supplier of all SMT machines including Stencil Printers, Wave Soldering Machines, and also low cost, entry level Pick and Place machines. EMS Stallion is a compact, economical simple bench top wave soldering machine designed to process both the through hole leaded components and surface mount devices (SMDs). The EMS Stallion is ergonomically designed for easy accessibility for maintenance.

#### **Rugged Construction**

The solder pot is constructed from high quality stainless steel with internal heaters. It is specially designed for low watt consumption / high efficiency.

#### Power saving - 5kW+5kW=5kW!

The preheater and solder pot have power of 5kW each. 'An intelligent circuit' allows switching power on the right priority alternatively, thus ensuring a total consumption of 5kW only.



#### Description

#### Foam Fluxer

It uses a 5 litre tank for the foam fluxing unit with a porous tube (candle), a nozzle and a flow control valve and operates on External Compressed air, which has to be provided. The system is suitable to work with resin / rosin based, water soluble, no clean, low solid content fluxes. After the fluxing unit an air blade removes excess flux from the PCB's and accelerates the solvent's evaporation.





#### Spray Fluxer

Alternatively, in place of Foam fluxer, a Spray Fluxer unit can also be fixed. The high quality spray nozzle produces a Solid Cone pattern of extremely fine mist of flux spray. Due to large passage the nozzle is also clog free. The nozzle moves on a rodless cylinder and with input PCB sensor and Width sensor, spray is limited to length and width of board. The flux and thinner are stored in a gravity tank.





#### **PCB** Carrier

The EMS Stallion can solder boards upto 304mm wide and 406mm long with components upto 80mm high. The PCB carrier has titanium fingers on adjustable supports. The shallow depth allows easy assembly of the PCBs directly on the carriers. Optional extra finger support bars are available for holding more number of small PCBs. Optional extra long (506mm) carrier is available on request.





#### Solder Pot

The solder pot is made of 2.5mm thick stainless steel body with Boardex insulation from five sides. Three cartridge heaters are located inside the solder pot which gives better heating efficiency thus saving power. Brushless AC variable speed motor with speed controller ensures constant speed of the pump to get uniform and stable wave height. Two adjustable baffle plates are provided to arrest free fall of solder thus reducing dross formation. Solder pot temperature is controlled by an independent PID controller for stability and repeatability. As a safety factor another, thermocouple is provided to Cut-off the heater power, in case of over temperature with independent over temperature controller.

#### Chip nozzle for wave soldering

The 'Chip Nozzle wave' is designed to generate Jet movement of solder. The jet action of the 'chip nozzle wave' eliminates all the shadow areas around the components on th PCBs while pushing away the trapped gas and allowing a perfect soldering of complex SMD assemblies too. When not required, the 'Chip Nozzle wave' can be switched off for standard wave use.

#### Preheater

A long life, less colour sensitive, maintenance free IR unit working at average 4.5 micrometers wavelength provides uniform preheating of the PCB assemblies. The upper hot surface is protected by a special quality glass which offers directional heater distribution. The mirror-finish stainless steel cover on the top of preheater unit provides a tunnel effect which ensures a uniform increase of the PCBs temperature. The preheater temperature is controlled by an independent PID controller for stability and repeatability.

### 'Orbital wave' ('O-wave') for soldering of SMD components (Optional) -

The 'O-wave' is designed to generate orbital movement of grid placed into the nozzle. The turbulent action of the 'O-wave' eliminates all shadow areas around the components on the PCBs while pushing away the trapped gas and allowing a perfect soldering of complex SMD assemblies too. When not required, the 'O'-wave can be switched off, for standard wave use. It uses only one pump both for standard and SMD orbital wave thus saving Power, size of the solder bath and maintenance troubles.

#### **Operator Interface**

The Staliion plc tt is controlled thru a PLC and a Touchscreen interface. The independent PID controllers communicate to the PLC thru RS 485 and the PLC also controls all three motors – conveyor, main wave and SMD O-wave thru analog voltage enabling precise setting. An Encoder provides feedback for conveyor motor speed for stable movement of carrier.

Also with a PCB sensor at the entry the PLC provides Auto Flux ON to reduce flux evaporation and Auto Wave ON function to reduce dross formation. Weekly/-Daily Timer function is also provided.

Touchscreen interface provides setting of all parameters as well as display of current values. Recipe for 99 pcbs can be stored making the machine ideal for regular production of variety of boards. Password protection for multiple levels of operation is also available.







## **Specifications**

Technical changes reserved.

Overall dimensions	L: 1730mm x W: 880 mm (2ft 10 inches) H: 825 mm (2ft 70 inches)	
Weight	200 kgs. (441 lb) max weight, without solder alloy	
Supply voltage	Standard – 415V, 3phase, 50 Hz Optional – Other voltages and frequency on request	
Power consumption	5 kVA total max	
Conveyer	Carrier conveyor for PCBs of max size: 304 x 406 mm (12 x 16 inches) Carriers for PCBs longer than 406 mm (16 inches) are available on request Variable speed: from 0 to 2 m/min. (0 to 6 1/2 feet/min) Incline – 3°, 4°, 5°	
Fluxer unit	Any one can be fitted.	
	Foam Fluxer Flux bath capacity : 5 litres (l. l. gal.) External Compressed Air required	Spray Fluxer 5 litres gravity tank and 1 litre solvent tank. Requires compressed air at 5 kg/cm <sup>3</sup> , 120 lit/min.
Pre - Heater unit	IR at 4.5 micrometers wavelength average Power requirement: 5 kW Temperature adjustable	
Soldering unit	Solder bath capacity: 150Kgs Lead Free / 170Kgs Leaded Solder Power consumption : 5 kW Standard unit : - with single, mono-direction, dry wave or SMT unit (factory fitted option) - with dry 'O' wave Temperature and wave height adjustable	
Control unit & interface	Front panel with TouchScreen , Control ON switch and Emergency Stop Button. Touchscreen- providesAuto Mode and Manual Modes of Operation, Diagnosis with I/O status, Alarms , fault data logging through USB interface.	
Extraction requirements	Extract duct 150mm (5.9 inches) diameter External blower requirement: 400 mm³/h (235 cu ft./min)	
Packing information	Wooden crate dimensions – 194 cms x 107 cms x 92 cms (LxWxH)	
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Owing to continuous Research and Development, specifications are subject to change without notice.

#### Manufactured by



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#### Sold & Serviced by



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