

# AUTO DIP SOLDERING MACHINE ADS-3530



## Quick Overview:

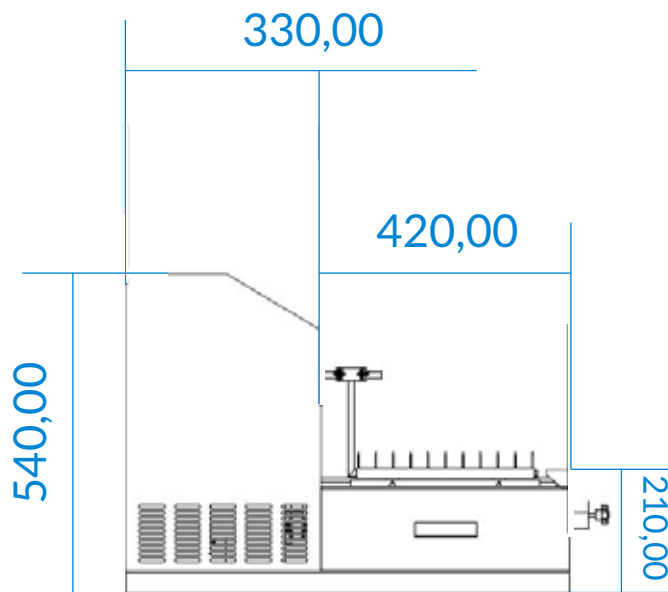
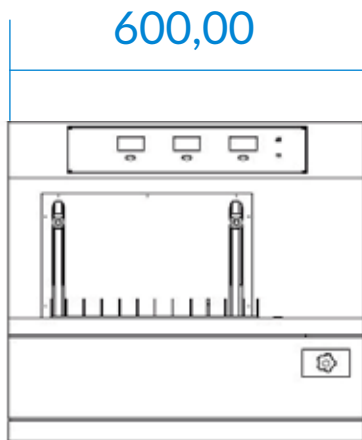
The ADS- 3530 is ideal for electronic assemblers looking for an easy and affordable way to improve soldering speed and consistency.

Dramatically more efficient and reliable than hand soldering or manual dipping, the ADS- 3530 features a pin-type, fixture-less board holder for PCBs up to 350 x 300 mm . Multiple boards as small as 60 x 60 mm ,can be soldered simultaneously by simply placing as many on the holder as space allows.

Independent dial-adjustable speed controls of the left and right elevator motors regulate dipping speed and angle.

## ADS-3530 Can handle PCBs up to 350x300mm

- 350 x 300 mm PCB Capacity
- Stainless steel Solder Pot
- (70 Kg Cap./Lead-Free)
- Dial Adjustable Dip Speed and Dip Angle Control
- Digital Controllers for Solder Dip Time/Temperature



## Auto Dip Soldering Machine ADS-3530 Features:

- Pin-type, "bed-of-nails" PCB holder for boards from 60 x 60 mm (2.4" x 2.4") to 350 x 300 mm (13.8" x 11.8"); no special fixturing or pallets needed
- Multiple small boards can be processed simultaneously, provided they fit within the 350 x 300mm area; pin supports allow random placement of PCBs and assemblies in loading area
- Independent, dial-adjustable, speed controls for left and right elevator motors control dipping angle and speed to simulate wave soldering
- Digital timer for setting solder dwell time; typically 3-5 seconds
- Stainless steel solder pot; holds approx. 70 Kg (154 lbs.) lead-free SAC; approx. 85 Kg (187 lbs.) SnPb, Titanium solder pot is optional .
- Digital PID solder pot temperature controller for lead-free SAC or SnPb solders
- Automatic dross skimmer and collection trough; cycles prior to dip soldering function
- Multi-day, 24-hr. timer for automatic startup; allows melting of solder and heating to desired solder bath temperature prior to production
- Foot pedal for hands-free actuation of soldering cycle
- Optional spray fluxer accessory available

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## Auto Dip Soldering Machine ADS-3530 Details



The Auto-Dip 3530 includes the standard pin-type PCB holder that allows multi-board processing with easy loading/unloading



Stainless steel solder pot;  
Titanium solder pot is optional

## Auto Dip Soldering Machine ADS-3530 Details



Pedestal is optional .  
L600\*W750\*H677



Independent, dial-adjustable, speed controls for left and right elevator motors control dipping angle and speed to simulate wave soldering.

Multi-day, 24-hr. timer for automatic startup; Digital timer for setting solder dwell time;

Digital PID solder pot temperature controller for lead-free SAC or SnPb solders



PLC control , CE certificated wiring

## Auto Dip Soldering Machine ADS-3530 Specifications

MODEL	ADS-3530	ADS-3530G	ADS-3530T
PCB Size	60 mm x 60 mm min.	350 mm x 300 mm max. 60 mm x 60 mm min.	350 mm x 300 mm max. 60 mm x 60 mm min.
Solder Pot Size	400 mm W x 340 mm D x 80 mm H	400 mm W x 340 mm D x 80 mm H	400 mm W x 340 mm D x 80 mm H
Solder Pot Cap	Approx. 70 Kg	Approx. 70 Kg	Approx. 70 Kg
Solder Pot Temperature	Recommended 265 °C SnPb 450 °C max.	Recommended 285 °C Lead-Free SAC Recommended 265 °C SnPb 450 °C max.	Recommended 285 °C Lead-Free SAC Recommended 265 °C SnPb 450 °C max.
Solder Dwell Time	None	1-10 S	1-10 S
Preheat time	None	1-10 S, timer control	Programmable, PLC and touch screen control
Control system	PLC with relay control	PLC with relay control	PLC with Touch screen control
Control panel	Integrated with machine	Independent	Independent
Overall Dimensions	600 mm W x 750 mm D x 540 mm H	600 mm W x 750 mm D x 740 mm H	600 mm W x 750 mm D x 740 mm H
Weight	80 Kg	80 Kg	80 Kg
Power Requirements	Single Phase ,50/60 Hz ,20A 3.6KW	220V ,Single Phase ,50/60 Hz ,20A 3.6KW	220V ,Single Phase, 50/60 Hz ,20A 3.6KW
Shipping Weight	Approx. 125 Kg	Approx. 125 Kg	Approx. 125 Kg

## Auto Dip Soldering Machine ADS-3530 Includes

- PCB holder for boards from 60x60mm to 350x300mm
  - Dial adjustable dip speed/dip angle controls
  - Digital timer for solder dwell time
  - SUS solder pot , approx. 70 Kg (154 lbs.) Lead-Free SAC
  - Digital PID solder pot temperature controller
  - Automatic dross skimmer and collection trough
  - Multi-day, 24-hr. timer for automatic startup
  - Foot pedal actuation
  - PCB handling tongs included
  - 1-Year Warranty On All Parts
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## Auto Dip Soldering Machine ADS-3530 Option

- Titanium solder pot
- Flux spraying machine FS-350



## AUTO DIP SOLDERING MACHINE ADS-3530

### USER MANUAL

If further help is needed, please contact us through followed contact number or address:

PCB Unlimited, Inc.  
10191 SW Avery Street  
Tualatin, OR 97062  
United States

Call (800) 348-9250 or (503) 639-7601,  
or email us at [support@pcbunlimited.com](mailto:support@pcbunlimited.com)  
Fax: (503) 639-3863

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## CHAPTER 1

# Summarize

ADS-3530TC auto dip soldering machine are mainly used in the whole welding of through hole PCB, which can automatically complete the PCB preheating and soldering process.

Independent control box equipped with PLC , touch screen ,step motor and it's driving system ,Machine can precisely control the dip soldering speed , angle and time . electronic assemblers who wish to automate their manual soldering operations, but need features like programmable preheat and positive control of dip height, will find the ADS- 3530T an excellent choice.

Auto Dip Soldering Machine ADS-3530T Features:

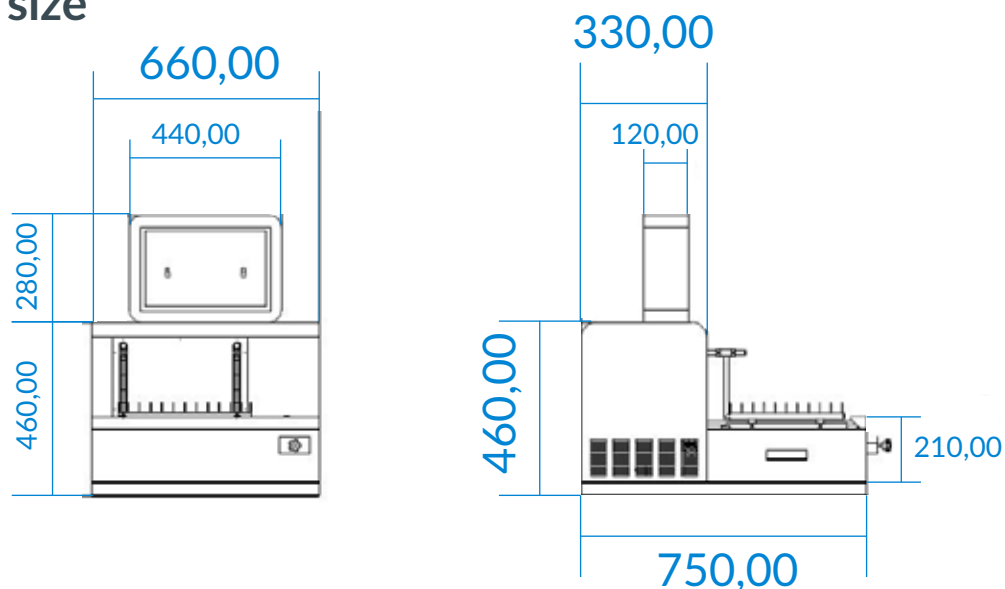
- 1.Pin-type, "bed-of-nails" PCB holder for boards from 60 x 60 mm (2.4" x 2.4") to 350 x 300 mm (13.8" x 11.8"); no special fixturing or pallets needed.
- 2.Multiple small boards can be processed simultaneously, provided they fit within the 350 x 300mm area; pin supports allow random placement of PCBs and assemblies in loading area.
- 3.Programmable parameters include preheat time and position, solder time and position, dip angle, lift angle, angle speed, multiple elevator descent and ascent speeds.
- 4.Stainless steel solder pot; holds approx. 70 Kg (154 lbs.) lead-free SAC; approx. 85 Kg (187 lbs.) SnPb, Titanium solder pot is optional .
- 5.Digital PID solder pot temperature controller for lead-free SAC or SnPb solders.
- 6.Automatic dross skimmer and collection trough with programmable frequency.
- 7.Automatic startup with programmable time and day input via touch-screen.
- 8.Foot pedal for hands-free actuation of soldering cycle.
- 9.Optional spray fluxer accessory available.



## Auto Dip Soldering Machine ADS-3530T Specifications

MODEL	ADS-3530T
PCB Size	350 mm x 300 mm max. 60 mm x 60 mm min.
Solder Pot Size	400 mm W x 340 mm D x 80 mm H
Solder Pot Capacity	Approx. 70 Kg
Solder Pot Temperature	Recommended 285 °C Lead-Free SAC Recommended 265 °C SnPb 450 °C max.
Solder Dwell Time	1-10 S
Preheat time	Programmable, PLC and touch screen control
Control system	PLC with Touch screen control
Control panel	Independent
Overall Dimensions	600 mm W x 750 mm D x 740 mm H
Weight	80 Kg
Power Requirements	220V ,Single Phase, 50/60 Hz ,20A 3.6KW
Shipping Weight	Approx. 125 Kg

### Machine size



## CHAPTER 2

# Installation

I. Install the optional pedestal if it is been purchased as figure (1) :



Figure 1



Figure 2

II. Put the machine on the pedestal and tighten screws as shown in figure (2) .

III. Plug in the connector to control box .

IV. Connect power with machine

- a. Connect machine with suitable power as shown on the nameplate .
- b. The machine must be earthed well.
- c. Install temperature controller and Switch on the heater breaker as below image:



d. Check the electrical box if the screws is loose or not , and tighten screws if it is loose.

## CHAPTER 3

# Melting tin preparation and Notes

### I. Solder pot capacity:

1.1 With lead (Sn63Pb37) :  
melting tin capacity is 85Kg

1.2 Lead free (Sn99.4Cu0.7):  
melting tin capacity is 70Kg

The above capacity is general. It can change according to the different solder paste composition.

### II. Notes:

2.1 The lead content of tin bar with lead cannot be more than 45%. Otherwise, the machine cannot meet the requirements of welding.

2.2 The machine is for high temperature operation. Please keep away in addition to operating personnel.

2.3 Please don't move the machine when tin in the liquid state

### III. Melting tin preparation, loose screws of PCB holder and remove the PCB holder

3.1 The solder machine is bottom heating. The tin bars need to be full of the bottom of solder pot.

3.2 After completing the above steps, please open the heating button and begin to melt tin.

3.3 Solder machine temperature setting:

With lead Sn63Pb37 generally set at 265-265 °C , the more capacity, the higher the temperature setting.

Lead free Sn99.4 Cu0.7 generally set at 275-300 °C

3.4 The best height of soldering tin is lower than 2-3 cm of furnace wall.

### IV. Notes of changing tin

4.1 Please heat to the setting temperature.

4.2 Please stop heating after half an hour of constant temperature and shut off the power.

4.3 Scooped out the tin in the solder pot and change the new tin and then heating again.

**4.4 Under the condition of no tin in the solder pot, heating can damage machine. Please pay special attention !**

## CHAPTER 4

### Dross skimmer adjustment

- I. The dross skimmer consist of dross collection box and dross skimmer
- II. Adjust the dross skimmer height according to the cleaning situation.

## CHAPTER 5

### Operation

- I. The control panel is as below image

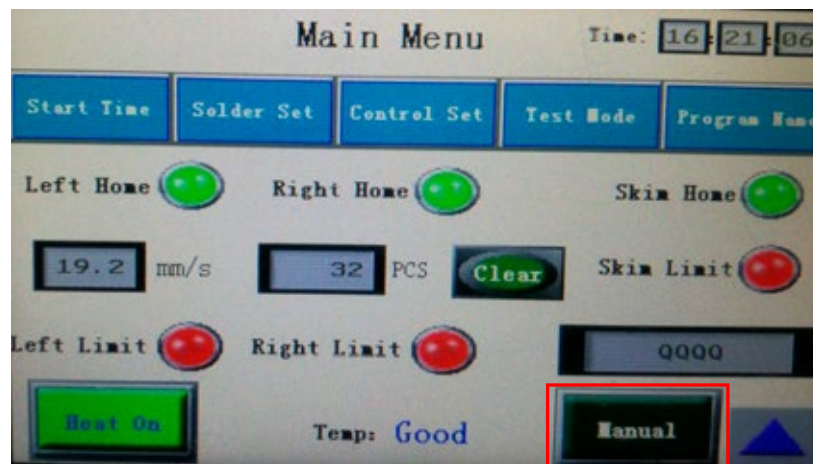


- 1.1 Main power: power on/off system.
- 1.2 Touch screen: the input using window of function and parameter setting.
- 1.3 Solder pot temperature: set using temperature and protection temperature of solder pot , and display setting and real-time temperature.
- 1.4 Start /Reset: starting function keys and reset setting after chang ing the function.

#### II. Software operation

- 2.1 Power on system, the n click the triangle symbol key to enter main menu as below image.

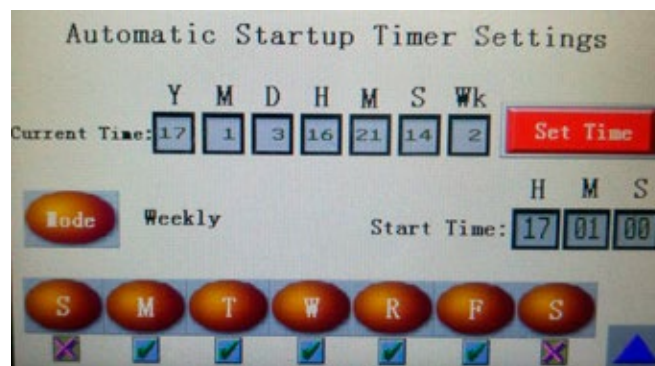




2.2 Start time: automatic heating function ,machine can automatically start heating before production to save time ,select Auto to activate automatic heating function ,select manual to use manual heating function.

Note :the machine should be powered on if use automatic heating function.

The start timer can set start time of timing heating every day. Timing work mode has two kinds: day working mode, heating regularly every day; Weeks working mode, according to the choice of a week working days time heating. As below image:

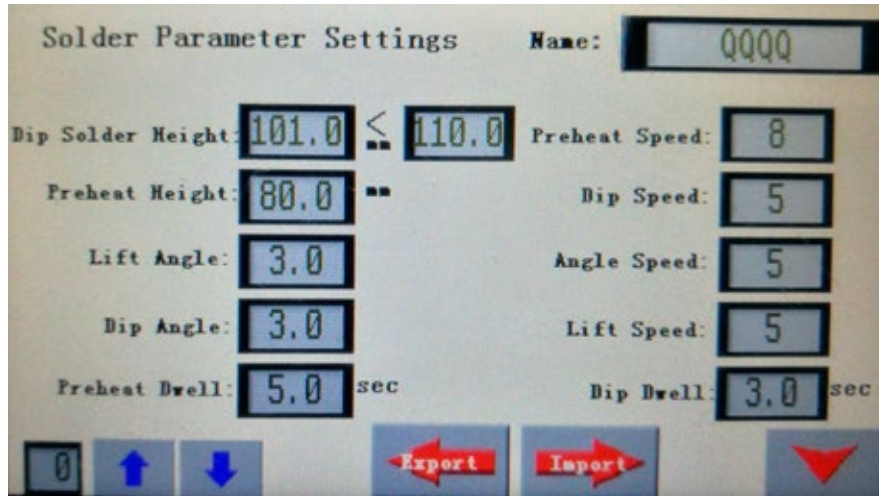


2.3 Solder set: Click solder set and Input user password:2222 ,to enter solder setting parameter interface





set the various process parameters of welding. As shown in below image:



Dip soldering height : the distance from the origin to the next stop welding;  
 Preheat height: the distance from the origin to preheat position;  
 Welding time: welding standing time;  
 Lift angle: the rising angle after the dip soldering;  
 Dip angle: the drop ping angle before dip soldering;  
 Preheat dwell:preheat time  
 Preheat speed: the speed from the origin to the beforehand hot spot;  
 Dip speed: the speed from beforehand hot spot to dip solders point;  
 Angle speed: from the solder joints back to the origin.  
 Lift speed:the rising speed after soldering  
 Dip dwell: Dip soldering time

2.4 Control settings : choose the required operation ways . As shown in below image:

Preheat :select preheat function or not.  
 Skimmer: select skimmer model before or after dip and set skim interval ;  
 Exhaust :customized function,useless on standard machine.



2.5 Test mode: Manually test PCB holder of each operation function and read some of the current data for reference . As shown in below image:

Target position : enter target position for test;

Testing speed : enter test speed for test;

Jog increment : jog distance for each time;

Current position: display the current position of distance;

Return home: click back to the origin position;

Go to target: click go to set ting height;

Jog up : once inching upward distance;

Jog down : once inching downward distance,

Test position: from the origin to the record position distance;

Position record: record the current distance;

Preheat record : record the test preheat height value for reference ;

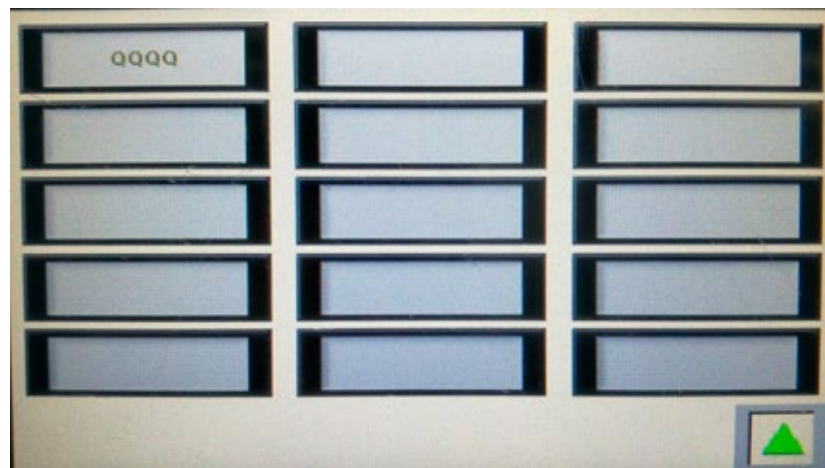
Solder record : record the test soldering height value;

Dip angle: down from the origin to test angle input;

Lift angle : up from bottom to test angle input.



2.6 Program name : display the program name.



2.7 Heat on/off: solder pot heating start and stop switch.

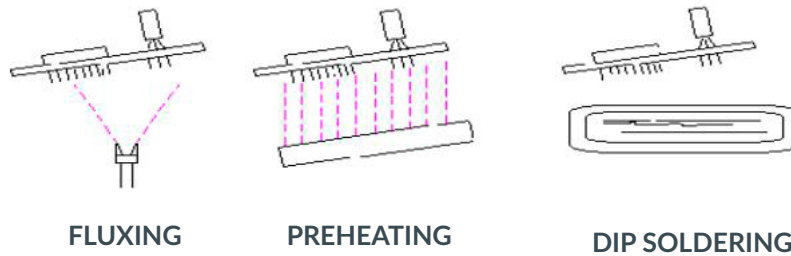
2.8 Manual/Auto : select Auto to activate automatic heating function ,select manual to use manual heating function.



### III Begin production

I. After the equipment preparation, it can start production after the actual temperature of solder pot reaches the set value.

II. The operation procedure is shown as below image:



Step 1: Put the PCB on the spray machine and spray flux uniformly on PCB

Step 2: Put PCB on the PCB holder of Auto dip soldering machine.

Step 3: Step on the foot switch, and the machine will automatically complete the PCB soldering.

## CHAPTER 6

### Common failure and trouble shooting

SOLDERING ISSUES	REASON	COUNTERMEASURE
Bad soaking tin	Oxidation of copper foil surface, component feet	Clean oxidation device
	The proportion of flux is not correct	Redeployment flux
	Component poor solderability	Check the component quality
	Flux react with copper foil	Check whether there is any problem on flux
	Flux metamorphic	Replace the flux
With tin column	Flux oxidation affect its liquidity	Check the flux
	PCB board preheat is not enough	Adjust the preheating temperature
	The proportion of flux is not correct	Check the flux
	Soldering temperature is low	Check the tin stove temp. adjustment
	Copper foil area is small, the size is too big	Improve the PCB design
	Component poor solderability	Avoid long stored components
Tin connection	PCB tin leaching time is short	Prolonged immersion tin
	PCB board preheat is not enough	Prolonged preheating
	The proportion of flux is not correct	Check the flux
	Circuit board design is bad	Improve the PCB design
Bad gloss of welding spot	Too many impurities in solder	Check the solder purity
	Oxidation of copper foil surface, component feet	Clean oxidation device
	Poor quality of flux	Check the flux
	Soldering temperature is not appropriate	Check the tin stove temperature adjustment
Cold solder joint- Bubble	Tin stove temperature low	Adjust the temperature of the stove
	Poor quality of flux	Check the flux
	PCB be affected with damp be affected with damp to produce bubbles	Dry PCB
	Copper foil area, pore size is too big	Improve the PCB design
	Solder dip Angle is not correct	Adjust the Angle of welding
Circuit board warping	Through high tin furnace temperature	Check the tin stove temperature adjustment
	The PCB material problem	Improve the PCB material Using fixed PCB fixture

## CHAPTER 7

### Daily care and maintenance

MACHINE NAME	MAINTENANCE PROJECT	MAINTENANCE METHOD	MAINTENANCE PERIOD
Auto Dip Soldering Machine	Solder splash box cleaning	Take out for cleaning and pay attention to the high temperature	2hours/time
	Solder splash cleaning	Placed a dial down to tin surface after the following press stop, and clean up the surface tin slag	Day/time
	Fastening the scrape latten screw	Using a wrench, tighten tin rod clean lubricating oil.	Month/time
	Appearance	Using alcohol to clean	Day/time