



**AMS**

ADVANCED  
MECHATRONICS  
SOLUTIONS, INC

AUTOMATION, SMT & LEAN MANUFACTURING

[www.ams-fa.com](http://www.ams-fa.com)



## **HS SERIES** Reflow Oven



### **AMS, INC.**

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## Main Features

Provides consistent performance for high volume requirements while minimizing preventative maintenance and floorspace.

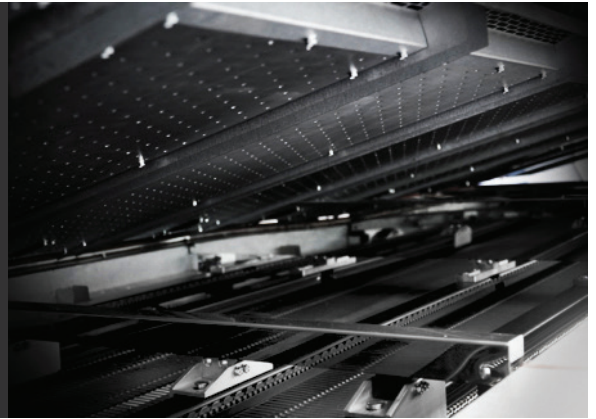
- > Lead Free
- > Pure Forced Convection Heating
- > Easy Maintenance
- > Lowest Nitrogen & Electrical Usage
- > Process Stability
- > Environmentally-aware management of resources
- > Vastly reduces consumption of energy, nitrogen, and coolant water in the standby mode
- > Outside panel temperature of max. 15° C above room temperature



## **Excellent Thermal Convection System**

Independent air velocity controlling system allows flexible processing control to easily handle complicated lead free soldering requirements.

The HS-0802 has 2 ramp-up zones, 4 soaking zones, 2 reflow zones, and 2 cooling zones.



## **KEY FEATURES**

**1**

Provides maximum heat capacity to quickly reach temperature setting points at low rates of power consumption within a short period of time. The special process chambers makes the air convection uniform and temperature profile changeover simple.

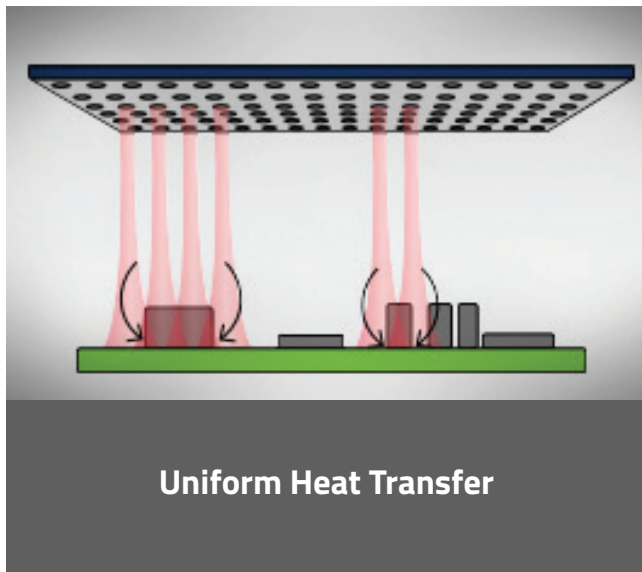
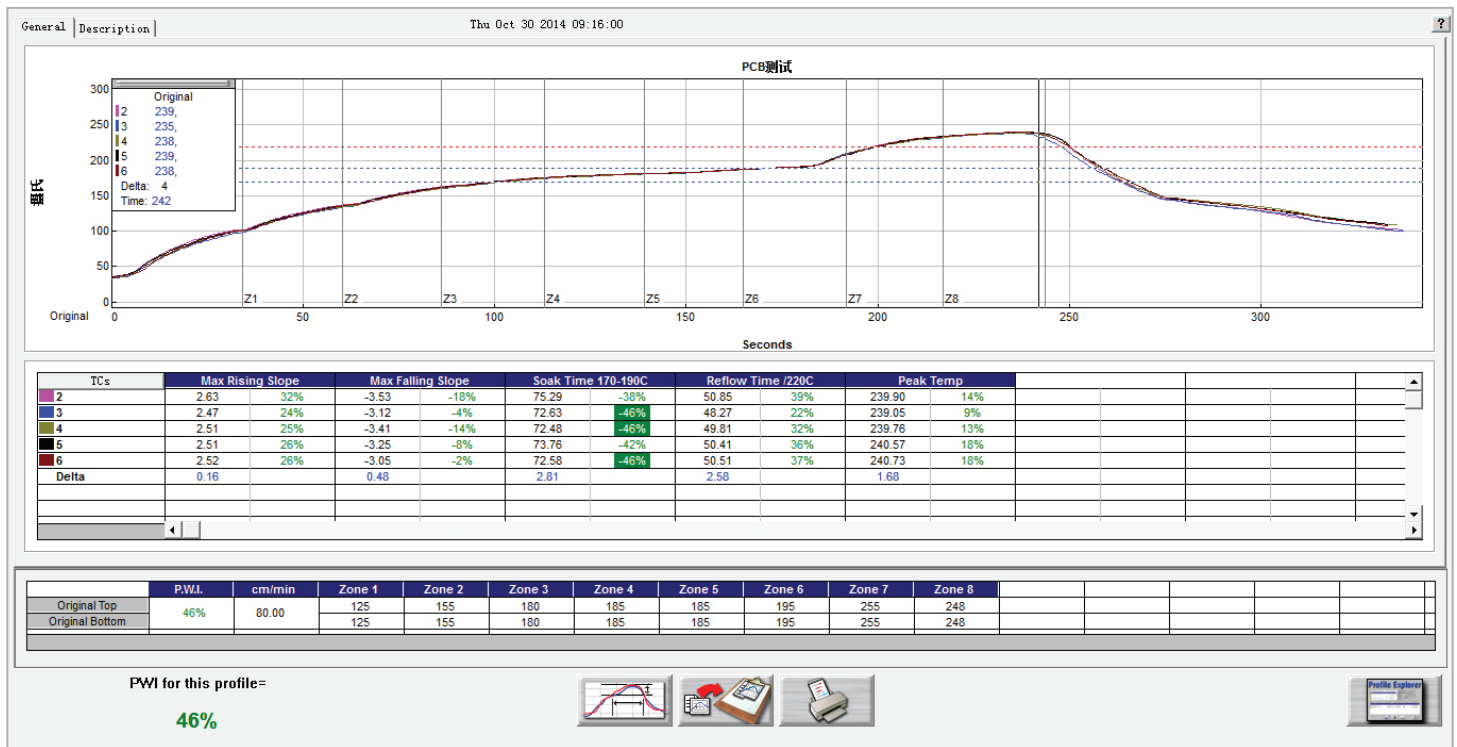
**2**

Profile spikes per zone is eliminated with better zone segregation and decrease cross flow. The nozzle plate design allows the covering of boards with hot air in all direction for good uniformity.

**3**

Our heater generates the desired temperature faster than any other reflow heat source and responds in less than half a second to temperature change of less than 0.1°C, thus maintaining the highest level of temperature repeatability.

**Excellent Thermal Convection System**



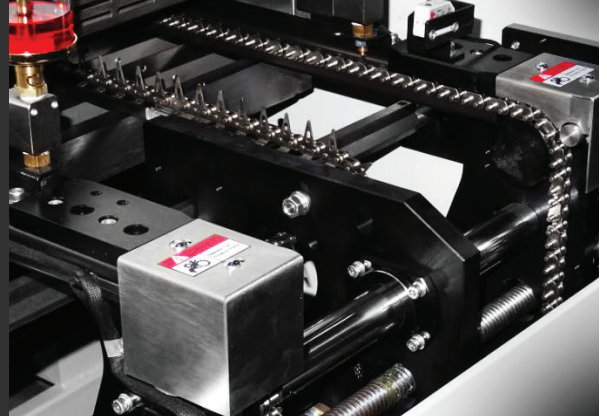
The HS reflow oven offers flexible, controllable preheating zones within while your PCB is preheated and prepared for the actual soldering process. The individual zones can be controlled independently via fan frequency to assure the best possible process.

The system is equipped with special nozzle plate for optimized heat transfer by means of uniform air flow over the PCBs. Flow speeds in the upper and lower heat zones can be separately controlled, assuring that your PCB is heated up thoroughly.



## Transportation Conveyor Rail. More Reliability

Due to our secure transport system and the arrangement of the transport mechanism, you will receive a stable process while reducing maintenance expenses and machine downtime.



## KEY FEATURES

**1**

Center support system for deformation prevention of PCB board puzzle (Optional). The unique, retractable center support system is easy to use with maximum flexibility. It can hide itself when it's not used and will not hit the components on double sided boards or boards with long components leads.

**2**

Our security transportation rail has a special multi-segment design which allows the conveyor rail to easily avoid deformation and be in good condition for lifetime usage without any problem.

**3**

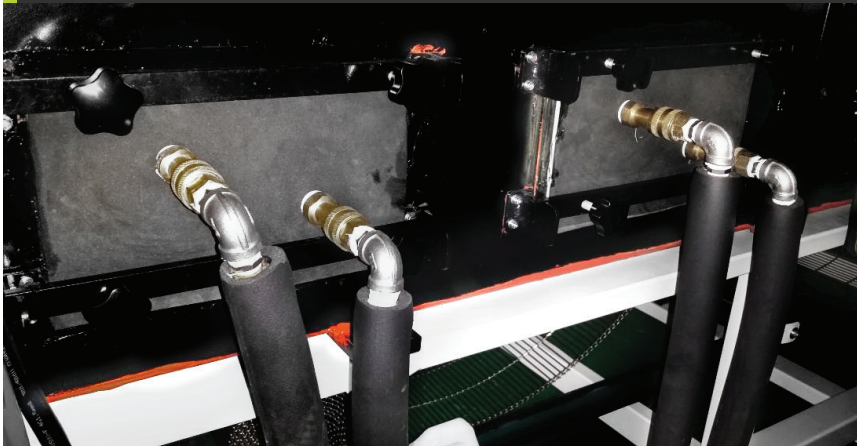
The transportation system is designed for a high temperature environment including high temperature bearing and heat-treatment rail, special conveyor chain and mesh to ensure the transportation securely running and prevent the phenomena of dropping PCB.



## Excellent Nitrogen System (Optional)

A wide range of PPM levels can be selected with nitrogen consumption rate depending upon board size. An internal oxygen sensor and proportioning valve is used to minimize nitrogen consumption and related costs by up to 50%. Uses completely sealed design inside the chamber of oven for effective protection of nitrogen.

The nitrogen system is for lead free processes regardless of single lane or dual lane options. The functions include high quality nitrogen hermetic configuration, nitrogen flow meter, oxygen analyzer, and water chiller as standard accessories.





## Powerful Cooling Technology

In order to cool complex modules, HS provides the two top cooling zones as the standard configurations. As part of this process, cold air is fed onto the board from above, where it can be cooled in a more intensive, gentle manner as a result of the process being extended.

High-mass boards are easily and effectively cooled with the Bottom Cooling option. The cold process air is blown onto the board in equal measures from above and below in order to facilitate a particularly homogeneous cooling process while reducing tension in the material. It is possible to adjust the ventilator speeds for each module.

## KEY FEATURES

CE QUALITY ELECTRICAL SYSTEM

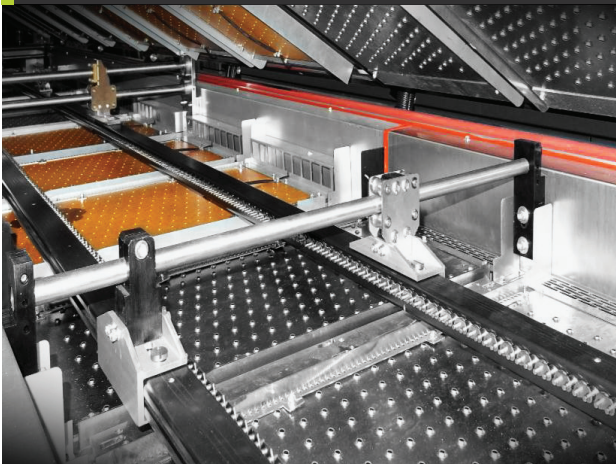
**1**

Assembled with known branded parts: LenovoPC, SIEMENS, PLC, AB American Controller, Schneider, Panasonic motor, Carlo Gavazzi relay, etc.

**2**

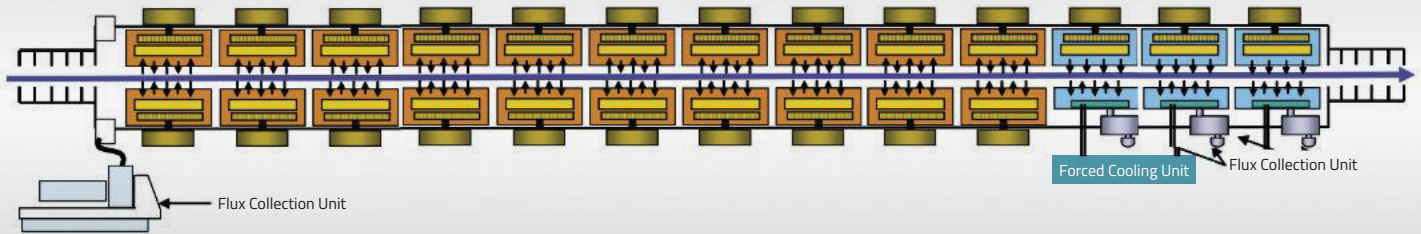
The entire electrical system completely matches the European quality standard and other international safety standards.

## Top and Bottom Cooling (Optional)

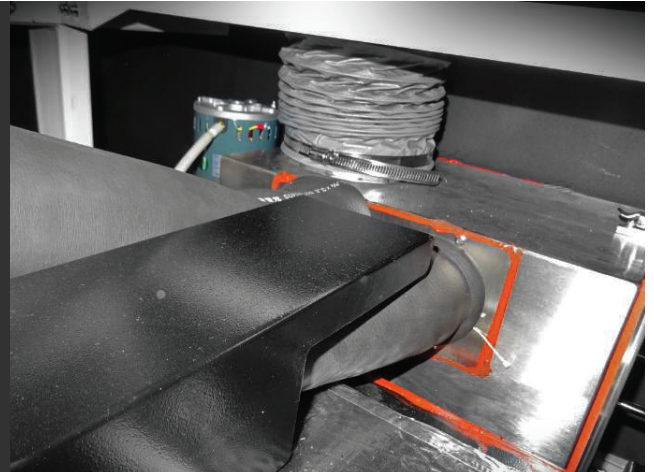


## Powerful Flux Collection System for easy maintenance

Liquid residues condense on the cooling tract's filter units, which are then removed. The system is easy to clean. The filters are changed in sets in the backside of the system.



Both front-back end exhausts are installed with quick release metallic filters similar with the heat exchanger for less and easy maintenance.





# SOLDERING SYSTEM EXPERTISE



MODEL	HS-0601	HS-0802	HS-1002	HS-1202
Dimension (L x W x H) mm	3600 x 1383 x 1490	5310 x 1353 x 1490	6100 x 1353 x 1496	6915 x 1353 x 1496
Weight (kg)	1325	2200	2400	2600
Number of heating zones	Top 6+ bottom 6	Top 8+ bottom 8	Top 10+ bottom 10	Top 12+ bottom 12
Length of heating zones (mm)	2359	3121	3891	4706
Number of cooling zones	Top 1 zone	Top 2 zones		
Nozzle Plate	High Quality Steel Sheet			
Exhaust Volume	10CBM / min *2 channel exhaust			
Power Supply Requirements	3 phase, 380V 50 / 60Hz ( optional : 3 phase, 220V 50 / 60V)			
Total Power	52kw	64kw	80kw	92kw
Startup Power	26kw	28kw	34kw	38kw
Normal Power Consumption	7kw	9kw	10kw	11kw
Warming Time	< 30 minutes			
Temp. Setting Range	Room temperature to 300°C			
Temperature Control Method	PID Close loop control +SSR Driving			
Temperature Control Precision	+/- 1.0 °C			
Temperature Deviation on PCB	+/- 1.5°C ( by HB test standard )			
Max. PCB Width	400mm ( Optional 610mm )			
Range of Rail Width	50mm -400mm (optional 50mm -610mm )			
Components Clearance	Top/Bottom clearance of PCB : 25mm			
Conveyor Direction	L to R ( Optional R to L )			
PCB Transmission Method	Chain + Mesh			
Conveyor Speed	300mm /min-2000mm / min			
Lubrication	Auto-lubrication + Manual-lubrication			
Optional	Full N2 system, Center support system, KIC RPI reflow process inspection, Dual lane			

The HS Reflow oven platform is the latest of an evolutionary history of reflow systems that have proven their capability worldwide and established a reputation for superior reliability.

Robust design combined with a unique heat transfer system consistently delivers benchmark thermal performance, precise process control, and superior value for high production in a 24 hours-a-day, 7 days-a-week environment.



### **KEY FEATURES**

- > 300°C maximum set-point temperature for any lead free process
- > Easy flux management and maintenance
- > UPS system
- > Active forced convection top and bottom cooling cells
- > Automatic lubrication system for chain conveyor
- > Automatic start-up and shut down setting by software
- > Comprehensive safety alarm system for abnormal temperature, dropped board, or signal communication
- > Standard SMEMA communication interface

### **OPTIONAL FEATURES**

- > Full nitrogen system including nitrogen atmosphere function, external water chiller cooling system, nitrogen flow meter, and oxygen analyzer
- > Center Support System
- > Dual lane with independent lane speed control
- > Dual center support system with independent lane speed control