

All machines shown with optional color vision systems.



System PHM 1-1 Sliding Pulsed Heat Machine



System PHM 2-2 Rotary Pulsed Heat Machine



SmarTherm HSM Series Heat Sealing Machine

System Specifications	System PHM 1-1	System PHM 2-2
Dimensions	690mm(D)x520mm(W)x800mm(H)	840mm(D)x790(W)x780mm(H)
Weight	82 kg	120 kg
Work Table Type	Sliding	Rotary
Vacuum	1 Set	2 Sets
Air Supply	0.4 to 0.6 MPa	
Power Consumption	AC110V, 60Hz, 15 Amp max.	
Working Area	150mm x 200mm (normal); 250mm x 200mm (maximum)	
Thermode Specifications		
Maximum Thermode Area	400 mm ²	
Maximum Thermode Length	100 mm (normal)	
Force Range	30 N @ 0.09 MPa to 600 N @ 0.6 MPa	
Thermode Stroke	50 mm	
Force Accuracy	± 2 N	
Actuation Type	Pneumatic	
Pulsed Heat Control Specifications		
Temperature Range	1° C Interval	
Idle	0 to 150° C	
Preheat	0 to 500° C	
Reflow	0 to 500° C	
Time Periods	1 Second Interval	
Preheat	0 to 200 Seconds	
Reflow	0 to 200 Seconds	
Heating Rate Control	Eight (8) Selections	
Programmable Heat Profiles	Four (4) Internal Memory	
Thermode Cooling	Air For Cooling Thermode	

SmarTherm HSM
Compressed Air 4 to 6 Bar
Vacuum Flow Rate 24L/min Maximum
Electrical Power 220 or 110 Vac (Factory Preset)
Weight Net: 91Kg, Gross 159Kg
SmarTherm Product Handling
Alignment Method Visual with CCD Camera (Optional)
Product Fixture 2 Sets
Table Rotating Method Manual (HSM 2-1) Pneumatic (HSM 2-2)
Standard Working Area 200mm x 150mm
Maximum Working Area 200mm x 260mm
SmarTherm Heat Sealing Parameters
Temperature Range 50° to 400°C
Temperature Accuracy ± 1°C
Bond Timer (selectable) 0 to 5, 0 to 12 or 0 to 30 Seconds
Bond Air Pressure 1.2 to 6.0 Bar (0.1 to 0.6 MPa)
Pressure Accuracy ±0.5 Bar (±0.05 MPa)
Maximum Bonding Force 1,175 N Maximum (up to 3,900 N Optional)



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Hot Bar Soldering & Heat Seal Systems:

Now, meet the challenges of specialized bonding & soldering applications.



Typical Applications

Precise, consistent heat bonding & soldering systems eliminate costly manual methods of affixing flex circuits & heat seal connectors.

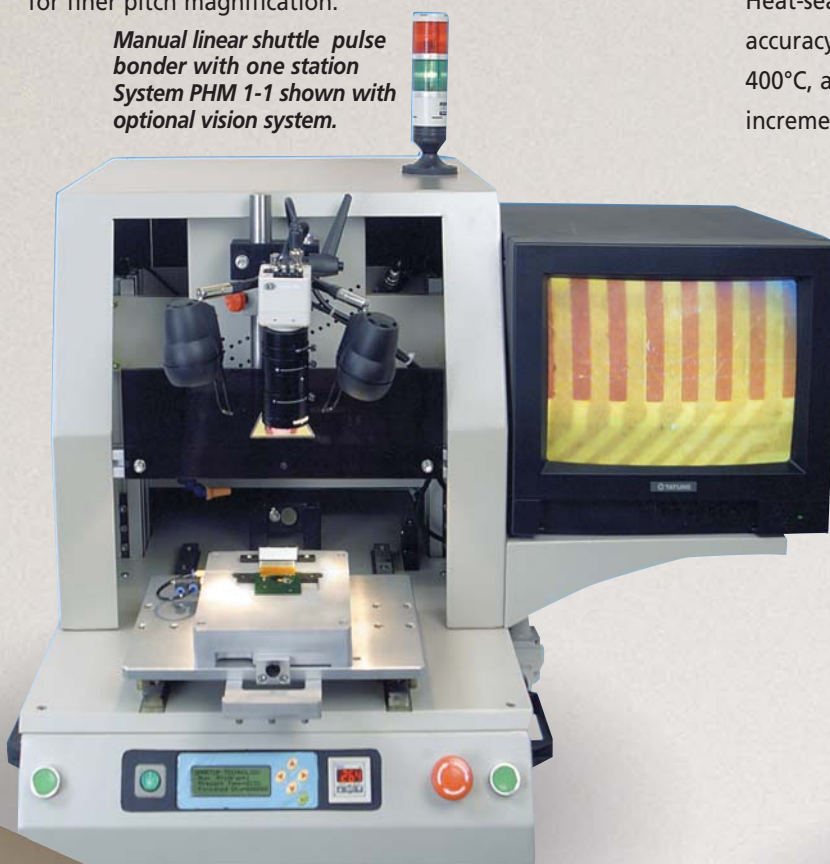
THE PHM SERIES PULSED HEAT BONDING SYSTEMS

- Easily programmable profiles for total flexibility, including idle, preheat and reflow temperatures
- Unique pulse head floating thermode and digital pressure control for uniform temperature distribution, fast heating and cool-down
- Microprocessor-based controller for exact temperature control.

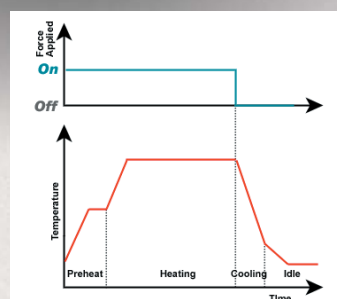
Fancort's PHM pulsed heat bonders, also known as hot bar soldering systems, will bond flex circuits to printed wiring boards or to ceramic substrates. These bench-top machines also solder intricate surface-mounted edge connectors and ribbon cables to circuit boards. Unlike the fixed temperature heat seal system (shown on opposite page), the PHM provides unlimited flexibility with easily programmable heat profiles to attain exact ramp-up, control, solder and cool-down temperatures. All controls are front-mounted for ease of access. System components include a floating titanium thermode to control temperatures and pressure throughout the production sequence, plus a custom holding fixture, available through Fancort, to retain circuit board or substrate during repeated bonding sequences. A sliding linear shuttle is also

included with System PHM 1-1. The upgraded System PHM 2-2, provides a rotary, 2-station shuttle — speeding production by permitting the loading of a second fixture while processing takes place on the first. An optional B&W or color camera system with monitor is available for finer pitch magnification.

Manual linear shuttle pulse bonder with one station System PHM 1-1 shown with optional vision system.



System PHM 2-2 pneumatic rotary pulse bonder with two-station shuttle. Vision is also available.



For added flexibility, PHM systems offer profiling capability.

THE HSM 'SMARTHERM' HEAT SEALING SYSTEM

- Pneumatic bonding head provides up to 1,175N force
- Rotary table design permits fast cycle time
- Digital control and floating thermode ensure consistent pressure and heat transfer
- Temperature range 50° to 400°C
- High quality heat seal application up to 0.25mm pitch or less.

SmarTherm is a fast-throughput microprocessor-controlled machine indispensable for producing flexible connections between components, such as HSC-to-LCD, HSC-to-PCB or TAB-to-HSC and other applications. The system requires no profiling capability since few variables govern its operation. Heat-sealing temperatures, maintained to an accuracy of $\pm 1^\circ\text{C}$, are merely pre-set from 50° to 400°C, and dwell times are also selectable in increments of 0 to 5, 0 to 12 and 0 to 30 seconds.

The bonding cycle, triggered by a real time pressure sensor, occurs as the floating thermode ensures consistent pressure while heat transfer takes place along the flexfoil to LCD and/or PCB. Precision holding fixtures are available for a wide range of applications with optional hold-downs, vacuum and micrometers when required to maintain alignment. Available as an option is a B&W or color camera system for finer pitch magnification.



Digital pressure control is throughout entire production cycle.



Rotary work feeder for fast load/unload. Operated manually or pneumatic power as option.

Efficient and cost-effective heat sealing with SmarTherm. Shown with optional vision system.



Typical FIXtures

