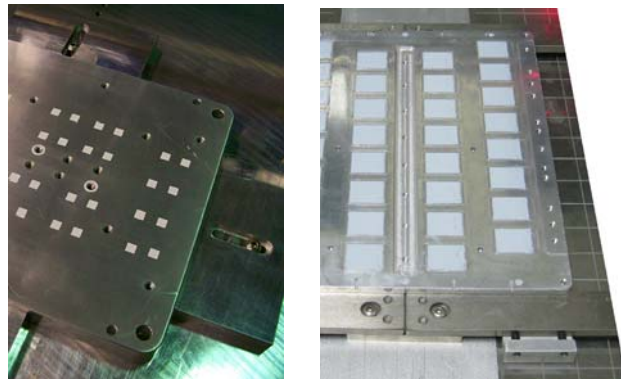


THERMAL GREASE SCREEN PRINTERS

Surface Mount Techniques (SMT) announces stencil/screen printers specifically designed for thermal grease applications.

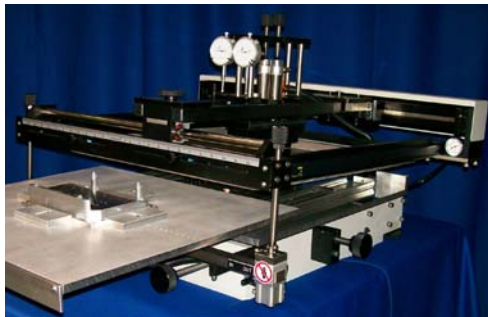
Highly concentrated heat sources found in ever shrinking electronic designs have increased the demand for better heat dissipation. The demand is seen across many industries; power electronics, Electric Vehicles (EV), ever shrinking handheld devices & notebook computers, flat panel displays, and many others. Heat sink designs are highly integrated and much more complex. Thermal Interface Material (TIM) suppliers have met industry demands with higher performance thermally conductive materials. Among various TIM offerings, thermal grease can provide the lowest thermal resistance at the junction between the heat source and heat sink; however, this junction can still be the weak link in a thermal path. If the grease is not applied properly heat is trapped at the source and failures occur. For additional information on thermal grease usage see "Silicone Grease Solutions for Your Thermal Interface Needs" (3Mb download).

http://smtprinters.com/smt_news/11-1712-01.pdf



Heat sinks, thermal grease applied using SMT's automatic printers. The pictures illustrate the use of a .004-inch thick screen (left), a .006 inch stencil (right).

When discussing the application of thermal grease, heat sink designers want better process control, manufacturers want the same, as well as higher production rates. What's needed is the accuracy and repeatability of automated printers such as those used to apply solder paste on Printed Circuit Boards (PCB). These stencil/screen print machines control the squeegee speed and pressure to apply a consistent thickness of paste (grease) in precise locations.



SMT's 1616TCS printer with odd shaped heat sink ready for printing

Although the printing process is similar, the substrates are very different. PCBs are lightweight and usually .062-inches thick compared to heat sinks that are large (up to 5.0 inches thick), bulky and heavy. Unlike PCBs the heat sink may not have a single plane and/or it may have obstructions protruding above the print surface where grease needs to be applied.

SMT has introduced several machines that accommodate larger, odd shaped substrates. The machines offer the same speed, precision, and repeatability found on SMT's solder paste printers. The 1616TC and 1616TCS printers are tabletop machines that are used for R&D or production. The 1616TC is a standard clamshell style printer. For heat sinks that are too cumbersome to handle the 1616TCS includes a shuttle mechanism to extend the tooling plate from under the screen/stencil. This allows simpler loading/unloading of the heat sink.



SMT's 1616TC stencil/screen printer

Engineers use the 1616TC for printing on prototype heat sinks. Application of the grease is held constant to insure test data is not contaminated by inconsistencies resulting from manual operations. When the correct process is determined by engineering the proper machine parameters are easily transferred to production.



SMT's 2220TC production printer

The 2220TC is a production machine with many options available such as automatic vision alignment and post-print vision inspection. The 2220TC has a large work area accessible from three sides of the machine for additional pre or post-print automation including custom handling (load/unload) and custom assembly (pick & place robotics). SMT also provides engineering assistance as required for custom tooling to register and secure odd shaped substrates during the print process.

In conclusion, heat sink manufacturers benefit from using proven, cost effective screen print technology. They realize better control of their process and higher production rates.

For more information please contact Patrick Sean at Surface Mount Techniques (714) 903-8100 or email inquiries to tcp@smtprinters.com. If you'd like an evaluation of thermal grease printing for your heat sink please email a detailed drawing (2D DXF file or 3D STP file) of your product.