Surface-mount technology versus workstation design

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 In today’s modern electronic SMT assembly facilities, the design and flexibility of the workstation is critical to maintain quality, workflow and ergonomics. Unlike the old, static, welded frame workbenches and workstations of the past that were never moved or reconfigured, the modern workstations now incorporate a modular, flexible, adaptable design, with a wide variety of options, that allows the end user tremendous flexibility in reconfiguring the furniture to meet an ever changing production environment.

Circuit board assembly used to be a fully mechanical process with through-hole components relying on bent leads to secure them to the board before manually applying solder. Component preparation was also a manual or semi-automated process to form, straighten or cut leads to facilitate assembly. Today, fully automated equipment handles most of those same operations, including X-ray inspection and in-line circuit inspection. As a result, the role of the workstation has evolved to accommodate a production staff that is highly trained to perform multiple high level functions, often at the same workstation. Productivity is more important than ever to maintain a competitive edge over off-shore manufacturers, so the workstation must be designed to adapt and change as production requirements change. No longer is it acceptable to simply scrap that old workstation and start over just because it no longer meets your current needs. Workstation designs that allow for quick and easy reconfiguration is the only viable option in today’s competitive environment. Carefully researching the workstation systems on the market, while planning for future needs, will result in substantial cost savings over both the short and long term while providing considerable ergonomic advantages.

Workstations that are considered “state-of-the-art” can and will provide more than just a worksurface. Examples of features should include: ESD protection, Height adjustability, Easily add casters for mobile applications, Cleanroom certification, Shelving (solid or wire), Overhead task lighting, Tool & equipment stands, Test equipment carts, Mobile maintenance stations, Overhead mounting options for electric tools, LCD monitor arms, Tote bin bars, Tool trollies, Material transfer technology (ball transfer, conveyors, Flow racking) and Rack mount / enclosures must be part of the overall package for continued adaptability in your changing environment.

In a typical SMT assembly facility, these modular workstations can be found in a variety of areas, such as: Machine Programming centers, Solder paste / metrology set-up, Post Process assembly of non-wets and odd form components, In-line inspection, box build assembly, Rework & repair, Product packaging, Quality control, Supervisory or management areas. With a wide variety of module sizes available, nearly any possible configuration can be provided to meet the often limited footprint available in today’s modern assembly facility.

As SMT assembly trends continue to evolve into the age of nano-electronics, how is the job function of your people and equipment going to change in the future? Lean manufacturing, as well as state and federal legislation, may also have an effect on the end users requirements for workstation designs of the future. While we don’t have the answers to those questions yet, we can be certain that workstation manufacturers will be working closely with the SMT industry to insure the designs will change as the industry dictates.

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