

## Global Kitting

Unique container protects against static damage

### Protecting Against Static Discharge

Single container protects electronic components from static and electro-magnetic interference damage throughout the manufacturing cycle of kitting, storage, assembly and transportation

The cost of delicate electronic components used in the hand assembly of critical circuit boards for medical apparatus and engine controls have quadrupled in just the last four years. Thus, few manufacturers are willing to risk the damage which a charge as small as 5V can do to these devices. The gravity of the problem is compounded in that the damaged component may pass all factory tests – yet fail in the field. If it happens to be part of a life-protecting collision detector, radar or engine control system – unpredictable failure could contribute to a disaster.

The Partfolio system offered by Global Kitting, Inc., Roseburg, OR, gives electronics manufacturers a unique means to protect costly parts against static discharge and electro-magnetic interference damage through the entire manufacturing cycle: kitting, storage, assembly and transport. The covers and parts bins within are vacuum-formed of KYDEX® thermoplastic sheet from Kleerdex Company, LLC, Bloomsburg, PA. Key to the effective functioning of Partfolio, the plastic has an electrical resistance of 10/9 to 10/12 hms/square—which it retains even after thermoforming. This latter characteristic is not common among thermoformed plastics which may have initial electrical resistance – most lose it after the forming operation.

Partfolio is composed of a set of interleaving parts trays and covers that unfold to allow operator easy access to the parts, yet fold up to retain parts and components securely, even if turned upside down. Partfolio allows manufacturers to kit, or systematically collect and contain all the parts needed for a specialized board.

The kits are kept in a secure area and issued to production line workers—or set up on the line appropriate workstations. They give assemblers easy, organized access to all parts required for a specific job. And, since the workers put finished assemblies back into the Partfolio, it continues to act as a protective housing and means of safe storage throughout the manufacturing cycle. If subassemblies are sent to another location for further work, the units act as both protective housing and shipping container.



*Interleaving trays of the Partfolio system offer easy access to electronic parts during kitting and assembly, and secure containment during storage and shipping. Components are thermoformed and fabricated of KYDEX® GND conductive sheet to protect against ESD and EMI.*

### **Kleerdex Company, LLC**

ISO 9001 and ISO 14001 Certified

#### Customer Service

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### New Life For an Old Idea

"The Partfolio concept apparently has no competition," notes the President of Global Kitting, Inc, Ulrich Wettstein . It was originally developed as a means of storing small parts for hobbyists: fly-tying materials or model train parts, for example. Wettstein saw the specialized potential of the container as a means of electronic parts protection after he encountered the original containers at a hobby show. "All that was needed to make it work was a thermoformable material which retained a high electrical resistance after forming," points out Wettstein. "We found that, bought the patent and manufacturing rights – and went into business."

### Switching to KYDEX Sheet Made Manufacturing Easier

The Partfolio was originally made from thermoformed polycarbonate sheet. "We switched to KYDEX<sup>®</sup> GND grade a year ago," notes Global Kitting President, Ulrich Wittstein With a modulus rating of 300.50 psi x 10<sup>2</sup> and a Rockwell hardness of 82, KYDEX<sup>®</sup> GND easily matched the requirements set up for the original polycarbonate. "In addition to retaining its protective electrical characteristics after forming, the KYDEX yielded significant manufacturing advantages," Wettstein continued. "For example, we were able to use thinner sections because of the superior thermoforming capability of KYDEX sheet, which yields about a 4% savings. Also the vacuum formers we use like the fact that the KYDEX sheet needs no drying and doesn't outgas during processing."

With annual static event damage estimated at over \$13 billion and growing, Partfolio gives manufacturers vital protection throughout the manufacturing cycle. By allowing easy, safe storage and shipping as well, the device makes it easier for electronics components makers to hold protected products in storage and comply easily with their customers' J.I.T. requirements. Are expansions of the two-size line anticipated? Quite possibly. Wettstein notes, "we're thinking about producing units made of a more common plastic for hobbyists – and of a clear, sterilizable plastic for EMI medicine kits which could be assembled, sterilized and stockpiled for use on EMI vehicles."

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