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August-September 2023



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Tandem ESD Sales: Providing Static Protective ESD Packaging Products and Material Handling Applications



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FEATURED ARTICLE: **TANDEM** | Beverly, MA

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The August issue of the Gateway features the work of our own Richard Taylor shedding some light on Tandem Equipment Sales out of Beverly, Massachusetts. It's also features Tandem ESD Packaging Sales which is an additional arm of the parent company. Richard tells the story of static protective ESD packaging and the various industries and applications Tandem serves. Thanks, Richard!

The second spotlight comes to us from our friends at DELMIA who have been hitting our email continuously, really taking advantage of the opportunity to tell their story to their target audience here in The Gateway. This time around they're they explain what digital twin technology is and how it best serves manufacturers in the automotive, industrial, and oil & gas sectors. Read the piece to learn how the effectiveness of virtual twin technology saw plant effectiveness increase by 250% after the installation of a virtual twin. The twin provided an in-depth analysis of inefficiencies and provided the manufacturer with simulation models that would help to combat those inefficiencies. Alongside this, employee safety and fulfillment rose by 5% in time savings.

We're in August folks. We hope you're enjoying the second half of summer, which has felt like Seattle here in the Northeast. Constant rain seems to cloud the days, but we have to be catching a break at some point, right? Here's to some sunshine and a bit of collective growth as we begin looking towards fall, and *gasp*, Q4.

Good luck out there!



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Tandem ESD Sales provides its customers throughout the U.S. and Europe, with access to quality industrial packaging materials & supplies, material handling products, ESD/Static control products, & custom foam packaging services.

Tandem ESD Sales is a VETERAN OWNED BUSINESS which provides products that ensure components and equipment are protected throughout the entire handling process—from receiving, manufacturing, testing, storage, and shipping. The company's material handling products include storage racks, plastic bins, modular totes, carts, flow racks, and metro shelving.

Tandem represents leading manufacturers of static control products, ESD containers, conductive containers, meters, packaging materials, material handling equipment, and lighting and microscope products including replacement bulbs and more.

We have the in-house capability and ESD products to serve a wide breadth of industries to include:

- Aerospace
- Medical
- Defense/Military
- High Tech
- Pharmaceutical packaging
- Commercial/Industrial

Key Manufacturers Represented

Tandem draws from some the most recognizable manufacturer names in their respective industries such as Daubert Cromwell (VCI papers & films), Static Solutions, (CCI) Conductive Containers Inc., Phoenix/Benchline (workstations), Lewis Bins, Pure-Stat, ESD Systems, Micro-Lite (microscope lighting and replacement bulbs), and Protoktive Pak to satisfy and meet all requirements.

For the molding of ESD trays and containers we employ Royallite conductive, Zelux static dissipative, high temp (270 degrees F/133C) and static dissipative Lubrizol Stat-Rite plastic sheets, .015" through .080" thicknesses with .040" seeming to be a favorite thickness.

Our Core Group Of Offerings

Moisture Vapor Barrier Packaging

In order to protect your equipment from damage during shipping and storage, it may be necessary to employ the use of moisture vapor barrier packaging (MVBP) utilized to prevent metal corrosion by the reduction and elimination of moisture vapor transmission rate (MVTR).

It's often a challenge to know exactly how long a piece of equipment or component will be exposed to harsh environmental conditions, particularly if products are shipped overseas to high humidity areas. So, before you risk costly damage to your metal equipment, we recommend you contact Tandem Equipment Sales to discuss a moisture vapor barrier packaging solution.

Volatile Corrosion Inhibitor Products Including VCI Paper and Film

Tandem equipment is proud to represent Daubert Cromwell and stocks its VCI (Volatile Corrosion Inhibitors) product line. When metals are wrapped or packaged in VCI, the chemistry volatilizes in the packaging environment and forms a protective molecular layer on the surface of the metal. It is this



protective layer which prevents the oxidation and corrosion of metal surfaces. Simply store or ship metal parts in VCI packaging. When the parts are unwrapped, the protective layer immediately begins to dissipate. The metal parts are clean, corrosion free, and ready to use. No washing, dipping, or cleaning is necessary and absolutely safe.

Paper as a packaging material has its own unique advantages:

- Easy to use
- Good tensile strength
- Scratch and abrasion resistant
- Ideal for work layout
- High heat resistance, rigidity
- Sets up VCI protection quickly

Daubert Cromwell papers come in a variety of grades. Larger or irregular shaped products should be protected with heavier grades of paper, while smaller parts can use lighter basis weights. Several Daubert Cromwell products feature special substrates that combine corrosion protection with barrier packaging. Barrier coated papers and films protect against moisture and grease; laminated grades afford heavy duty protection against adverse environmental conditions.

Call us for your static protective static needs: [1.800.696.9169](tel:1.800.696.9169)

Daubert Cromwell papers are available in standard 36" or 48" rolls, and widths up to 120". Papers can be converted into bags, envelopes, wrappers for individual parts, shrouds for large pieces or stacks of parts, covers and liners for container storage. The company has several weights of kraft, plain or barrier coated papers to protect against moisture and grease. Laminated grades are available with polyethylene for heavy duty protection against the environment as well.

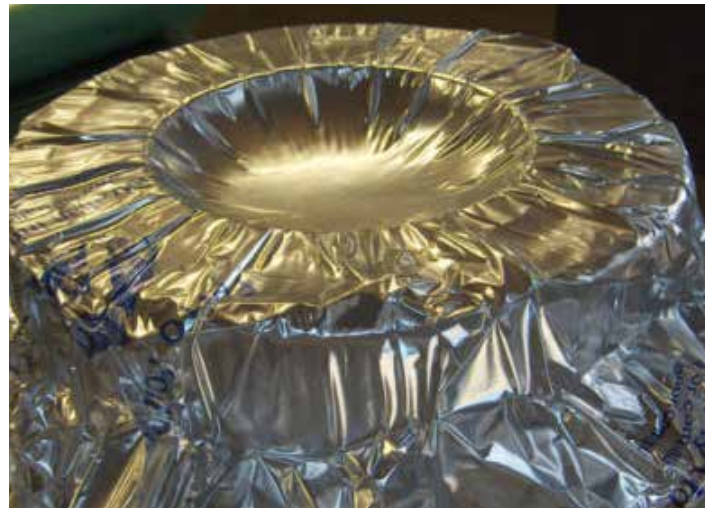
Daubert Cromwell can custom-print paper with your logo for easy brand identification to your customers. Your logo, instructions or message appears in crisp, clear detail.



Daubert Cromwell VCI Films

Tandem also distributes the Daubert Cromwell VCI film products which provide proven corrosion protection. Through volatilization and contact, the nitrite-free VCI chemicals protect metal parts against the corrosive effects of moisture, salt, and other contaminants while they are in process, storage, or transit. They also are ready to use immediately after removal from the packaging without additional cleaning.

Protektive Pak: A leader in the manufacturing of corrugated boxes, containers, device carriers, and trays for static control and static dissipative purposes.



Of importance: These products take an electric charge to ground in a controlled dissipative rate to prevent the creation of "a spark" which could degrade a device.

Our proud relationship continues with this company's core product groups which are manufactured for ESD control in electronics manufacturing areas.

CCI (Conductive Containers Inc.): Again; our longstanding relationships continue as we represent this industry leader in conductive fluted plastics along with Durastat tote boxes, custom printing, and die cutting.

Also, a leader in the manufacturing of corrugated boxes, containers, device carriers, and trays for static control and static dissipative purposes.

ESD Workstations

Electrostatic discharge is the enemy in the workspace as it can cause irreparable damage to expensive and highly sensitive equipment - resulting in costly delays in your business operations.

Allow the experts at Tandem Equipment Sales to provide you with ESD workstations solution that will ensure that you are protected throughout all phases of material handling. We are an authorized distributor of leading manufacturers who offer high quality industrial workstations designed specifically to eliminate ESD events from occurring.

Key ESD workstation and product manufacturers we represent:

- Phoenix | Manufactures a wide selection of fully welded and assembled ESD workstations that may be customized to accommodate existing or future requirements, offering design options and accessories for its line of industrial workstations. Anti-static workstations include:
 - Series 100 Heavy Duty
 - Series 200 Production
 - Series 300, 400, 600 Ergonomic
- LEWISBins+™ | Manufactures a superior line of ESD containers, bins, tote boxes, and metal storage systems that are designed to be both durable and to control ESD within an ESD critical workstation environment.

Gravity Flow Racks

Tandem Gravity Flow Racks Help Increase Productivity By 40%



If your company is picking orders from inventory on shelves and first-in/first-out is important, consider adding gravity flow rack systems. Keneco gravity flow systems allow a greater concentration of product within a defined space and a decrease in time for order retrieval, guaranteeing first-in/first-out. While these storage systems are certainly not limited to product with a definite shelf life, the requirement for first-in/first out product flow, essential when dealing with pharmaceutical and sterile products means greater customer satisfaction, with your company's performance.

Static Solutions Inc.

As a distributor for Static Solutions products, we can offer competitive pricing on a large selection of antistatic products to secure the work environment, which includes some of the following:

ESD testers from Static Solutions Inc.

- The RT-Series Megohmmeters work to measure resistivity as well as temperature and humidity in work environments to keep conditions in line with industry standards (S20.20-2007).
- ESD products from Static Solutions
 - To reduce the effect of static caused by personnel we recommend ESD Wrist straps from the OHM-STATT Wriststrap Series and UltimatT Rubber two-layer static dissipative mats.

Protective Mats and Anti-Fatigue Mats From U.S. Mat and Rubber

Definitely for the employee who must stand much of the day and whose productivity begins to wane as the day progresses because, frankly, his or her feet and legs are giving out.

Management can do themselves and their employees a favor and try to lessen the burden of standing by using a raised diamond shaped vinyl surface mat.

Manufactured by U.S. Mat & Rubber; these mats are made

Call us for your static protective static needs: [1.800.696.9169](tel:1.800.696.9169)

“anti-fatigue” by means of having the raised diamond surface permanently bonded to a buoyant sponge with a mesh base designed to remove much of the muscle strain of standing long periods of time and also keeping the mat from shifting under the employee/worker.

With the Diamond Plate Deluxe F7D industrial mat you will realize comfort plus safety, reducing fatigue, and enhancing employee performance.

Construction:

- 1/2” and 5/8” thicknesses
- Chemical and grease resistant
- Raised diamond shaped vinyl surface
- Safety yellow border for enhanced visibility
- Beveled non-trip edges for safety
- Available for a static controlled environment as a conductive mat equipped with 8’ grounding wires

Tandem ESD Services

At Tandem, we offer customers complimentary ESD audits by trained Tandem staff that entails a thorough inspection of your work environment to ensure it is operating safely within industry specific static levels, (S 20.20- 2007) particularly for clean rooms.

This process involves:

- Meters used to measure all product handling areas to check sources and amplitude of static contamination.
- Our recommendations made to neutralize static with the use of personnel grounding material, ESD equipment, air ionizers, etc. to comply with industry requirements.
- Report provided to customers to utilize as a model to develop in-house static control plan.

Tandem ESD Sales Providing Quality Die Cut Parts and Gaskets

Tandem ESD Sales (Beverly, MA) has over Forty Years of experience working with non-metallic materials in the manufacturing of gaskets, seals, and other products. Working always with our customers to make sure that the products which we produce are products that will fit with their own unique applications and meets their specifications.

John O’Neill, the company’s longtime owner, says “we bring our experience and expertise in materials and manufacturing to our customer’s most demanding prototype and mass production applications. We have earned our reputation as a highly reputable custom fabricators for die cutting, kiss cutting, slitting, and lamination of electronic and industrial components. We service the entire United States!”



Tandem ESD Sales works with a wide range of industries including chemical, automotive, medical, aeronautical, military, building, industrial, marine, and many more.

They manufacture DIE CUT PARTS AND GASKETS for automotive applications, enclosures, Nema 4 sealing applications, or small engines.

The company goal is to maintain high quality products in addition to high quality customer service.

A gasket is simply a mechanical seal used to fill in or pad space between two objects. Gaskets come in a wide variety of custom shapes and sizes and can be fabricated from customer specified materials such as EPDM gaskets and/or Neoprene gaskets. Many times, they are used to prevent leakage between two objects while under compression. In the end, in order for a gasket to work properly; it must fit the application precisely.

Gasket Cutting Services of Tandem ESD Sales:

- Short and long run production
- Fast prototype delivery
- Precision low tolerance cut gaskets
- Material selection

Some of the materials we die cut include:

- Neoprene
- Viton©
- EPDM
- Natural Rubber
- Nitrile
- Silicone
- SBR
- Urethane

Tandem Offers Custom Plastic Packaging Services

Tandem ESD Sales now offers the design and molding of custom trays, clamshells, covers, and containers made from the high temperature resistant (270F) and static dissipative (e7) Zelux and the transparent dissipative (e6) Pacur.

These additions to our conductive and static dissipative polyethylene, polycarbonates, and polystyrenes enable

Tandem to offer a wide range of solutions for the handling, storage, and transporting of critical static sensitive devices and printed circuit boards. The following is available: 24 x 48" x .040" sheets of Zelux and 27" x 215' rolls of Pacur, .030" for your vacuum/thermo-forming projects; or Tandem will quote you on your particular requirements.

Tandem also offers the design and fabrication of custom die cut foam cushioning, employing conductive or static dissipative foams for fragile and ESD sensitive applications. Anti-static pink polyethylene and urethanes are available for less demanding ESD requirements.



Contact Information:

*Tandem Equipment Sales, Inc.
Tandem ESD Packaging Sales
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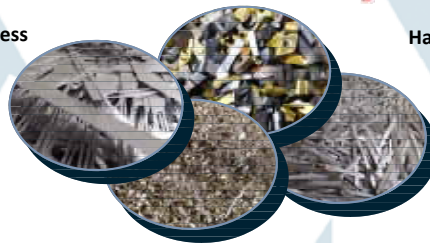
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WHAT IS DIGITAL TWIN TECHNOLOGY AND WHY IS IT IMPORTANT FOR

Digital Twin technology has quickly become a staple with many of the largest manufacturers in the automotive and industrial engineering sector around the world thanks to its ability to provide huge amounts of value in saving time and optimizing plant effectiveness. Whilst uptake in smaller manufacturing firms has been slower, those within the sector are slowly starting to see the value that digital twin technology can bring, no matter the size of the business.

In this article, Prashanth Mysore, Strategic Business Development and Industry Marketing Director at DELMIA, part of the Dassault Systèmes Group, gives us some more insight into what Digital twin technology is, as well as virtual twin, and how it can play a hugely important role for manufacturers around the globe.

What is Digital Twin & Virtual Twin Technology?

Digital twin technology allows manufacturers to gain a digital representation of a real-world system – the digital twin mirrors the software or model to gain data and insight that can update

Digital twin is actually an executable model of a physical system. The physical system can be a factory or a plant or a mine or resource any of them. Which brings in learning and experiences from the physical part, so that you can continuously update your distribution model. The next step up from digital twin is virtual twins, which provide a far more dynamic look factory systems. Virtual twins provide businesses with the ability to visualize models and simulate sophisticated experiences—whereas digital twin solutions are static. Virtual twin essentially shows manufacturers exactly what can be executed and implemented in the real world, it's primary focus is to give actionable solutions to improve efficiencies.

In fact, Virtual Twin technology helps us visualize a model not only of the product, but manufacturing and operations as well. When thinking about the capabilities of digital twins, they operate in a closed loop of “ability to ability”, but virtual twin goes beyond that. It provides the opportunity where you can control the real world with the virtual world with this closed loop ability and we can bring innovation to expand on that. Virtual Twin solutions can be beneficial for almost any manufacturing organization, both small and large. It also empowers workforce of the future, and considering current conditions, it's like bringing in new resiliency while people are working in the new or next normal due to this pandemic.

Which Industries Can Benefit from Digital & Virtual Twin?

Digital twins initially found their way into a select few industries where businesses could easily see value and return on investment. The automotive & industrial equipment sectors were the two main areas that invested in digital twin technology initially, along with oil and gas shortly after. These industries had a clear need for the insights provided by digital twins to streamline processes and provide extra efficiency.

In more recent times, manufacturing and life sciences are beginning to really catch up on the benefits that are brought about by digital twins as they're really relying on the twin's ability to provide sophisticated models that can be acted upon. In manufacturing and the operations industries, the overall goal for most businesses is to achieve greater profitability in a safe and sustainable way.

The length and breadth of industries that can adopt this type of technology stretches far and wide, and the same can be said about virtual twin technology, as this is essentially a step further than the insights offer by digital twins.

Why Are Digital/Virtual Twins So Important for Manufacturers?

There are many benefits to having digital or virtual twins integrated into your workflow as a

manufacturing business, though the most pertinent are normally time, cost and resource savings, increased levels of safety for all employees.

In recent years, there's been an increased focus on sustainable manufacturing and a 'circular economy', with real emphasis being placed on improving the overall productivity and safety of processes. Alongside this, there's been a real shift in manufacturing bosses looking for more control over production, whilst also minimizing costs. All of this is covered by digital/virtual twins, as they give manufacturers access to important information about cutting costs whilst maintaining, and improving, workflows.

Whilst manufacturing and operations industries are becoming ever more complex due to the digitalization and innovation within each sector, so it's important that things are made as simple as possible. Operation lead times can begin to become longer and longer if inefficiencies in the new workflow aren't ironed out, and that's where digital and virtual twin technology comes in to play. Having the insight and agility to make changes in manufacturing is exceptionally important, especially with the supply chain issues that are currently facing the vast majority of manufacturers around the world.

To really emphasize the effectiveness of virtual twin technology in particular, in one case study, DELMIA saw plant effectiveness increase by 250% after the installation of a virtual twin. The twin provided an in-depth analysis of inefficiencies and provided the manufacturer with simulation models that would help

to combat those inefficiencies. Alongside this, employee safety and fulfillment rose by 5% in time savings.

In a separate case study, DELMIA saw another company increase on time deliveries by 50% thanks to better planning techniques and technologies. There was also a 50% reduction in lead times, which enabled the company to maintain high levels of orders, whilst shipping a higher percentage out on time to consumers. This is obviously exceptionally important when you consider how consumers are changing their behavior when it comes to reduced lead and delivery times.

In summary, digital and virtual twins are quickly becoming the staple within many industries thanks to the number of benefits they bring to each company. Manufacturing and logistics in particular can benefit from the technologies, thanks to vastly reduced lead times and help when it comes to planning efficiently. There's no denying that virtual twin technology is especially useful for many business, so if you'd like to find out more about how virtual twin technology can help your business, head over to 3DS DELMIA's virtual twin experience page.

Contact Information:

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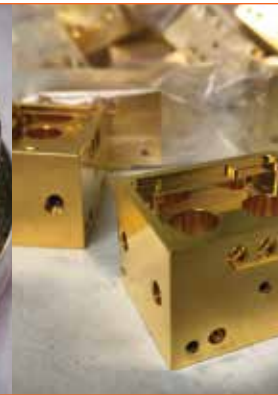
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KORE Power Receives Conditional Commitment for \$850 Million from the U.S. Department of Energy’s Loan Programs Office for the KOREPlex Advanced Battery Manufacturing Facility

Coeur d’Alene, Idaho, June 9, 2023 – KORE Power, Inc. (KORE) has received a conditional commitment from the U.S. Department of Energy’s Loan Programs Office (LPO) for a loan in the principal amount of \$850 million under the Advanced Technology Vehicles Manufacturing (ATVM) Loan Program.

The loan will be used to fund the construction of KORE’s advanced battery cell manufacturing facility in Buckeye, Arizona. The KOREPlex, a 1,330,000-square-foot facility, will house multiple production lines to manufacture batteries for electric vehicles (EV) and energy storage systems in the United States. The KOREPlex will produce cells using two chemistries: nickel manganese cobalt (NMC) and lithium-ion iron phosphate (LFP).

“We are focused on building a facility where American workers will build the battery cells that power our energy and mobility future,” said Lindsay Gorrill, Founder and CEO of KORE. “Domestic manufacturing will unlock the benefits of clean energy investments for U.S. workers across the supply chain.”

KORE serves utility, commercial, industrial, and e-mobility including EV manufacturers and fast-charging infrastructure companies. KORE recently announced offtake for energy storage projects in Arkansas and Illinois.

“This support from the LPO will help KORE expand its U.S. leadership in the rapidly growing energy storage and e-mobility sectors while growing our business, allowing us to power the energy transition with American products,” said KORE’s Chief Financial Officer Alexander Nickolatos. “We thank the LPO team who worked with us throughout this process.”



Arizona Senator Kyrsten Sinema, co-author and lead negotiator of the bipartisan infrastructure law, commended the announcement.

“My bipartisan infrastructure law continues to deliver real, lasting results across our state,” she said. “Today’s announcement creates strong careers for everyday Arizonans, boosts national security by reducing reliance on foreign nations, and strengthens America’s energy independence and leadership.”

Arizona Senator Mark Kelly commented that KORE’s advancement will help grow Arizona’s clean energy sector.

“This is big news for Arizona and the country, supporting KORE Power’s gigafactory in Arizona will bring manufacturing back to America for a critical supply chain, while creating good-paying jobs. The administration is taking advantage of the resources we provided through the Inflation Reduction Act to not just boost jobs in Arizona, but also to strengthen our national security by reducing our dependence on foreign sources of battery components for everything from electric vehicles to energy storage. Thanks to KORE Power and the rest of our emerging battery sector, Arizona will be front and center leading the country in developing and manufacturing the technology that will power our economy into the future.”

The construction of the KOREPlex, which began civil works late last year, is expected to create 700 jobs. The facility itself is expected to create 1,250 direct jobs when operating at capacity.

KORE is working with local colleges and universities in Arizona to establish training initiatives and programs for the KOREPlex workforce that will be needed to create a U.S.-made supply of batteries for EV and stationary energy storage.

With its initial lines fully operational, the KOREPlex will have an annual production capacity of 6 GWh of battery cells for customers in the e-mobility and energy storage space. KORE has the ability to further increase annual domestic production based on demand for lithium-ion batteries. The facility is expected to begin delivering product by the end of 2024 or early 2025. KORE sources its battery materials from abroad.

About KORE Power:

KORE is a leading U.S.-based developer of battery cell technology and integrated solution manufacturer for the energy storage and e-mobility sectors. With clients in energy storage, e-mobility, utility, industrial and defense markets, KORE provides battery products and solutions that are the backbone for decarbonization across the globe. KORE is uniquely positioned to serve these markets as an integrated provider of cells, batteries, and solutions. Commercial production at the KOREPlex is targeted for the end of 2024, early 2025. The KOREPlex will have an initial annual production capacity of 6 GWh of battery cells, which may be expanded to 12 GWh to meet market demand. KORE is headquartered in Coeur d'Alene, Idaho, with operations in Waterbury, Vermont, and Buckeye, Arizona.

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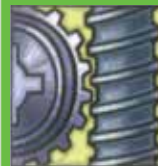


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