

JUNE

2025

PRODUCTS FOR INDUSTRY

NEED

NEW EQUIPMENT TEST®

LEADERS *in* MANUFACTURING

Top-tier companies forging cutting-edge tools and solutions to boost productivity and efficiency to empower manufacturers. **13**

LEADERS

THE LEADERSHIP ISSUE

BONUS SECTION

MH&L Material Handling & Logistics

How to Mitigate Supply Chain Disruptions

18

TRADE SHOW COVERAGE

AUTOMATE TRADE SHOW

Top technology innovations for industry from Automate 2025.

6

TECHNOLOGY TOOLBOX

REGARDING ROBOTS

Robots, cobots, and drones are proliferating to meet operational and business requirements.

10

FEATURED PRODUCTS



7-in-One Robotic Warehouse System

11



Exoskeleton Offers All-Day Lifting Support

25



Super Humanoid Robot Embraces AI

28



On-the-Go Thermal Imaging

33



ADVANCE LIFTS®

PRODUCTION SOLUTIONS



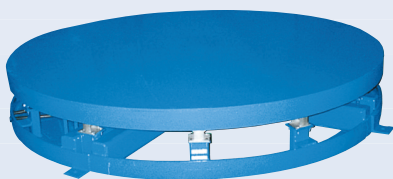
LIFT TABLES

250,000 CYCLES WARRANTY
1,000,000 CYCLES WARRANTY
3,000,000 CYCLES WARRANTY
POSITION CONTROL TO +/- .030"



DUMPERS

STANDARD DUTY
HEAVY DUTY
HIGH REACH



TURN TABLES

CAM FOLLOWER BASE
CASTER BASE
RING BEARING BASE
MANUAL OR ELECTRIC



TILT TABLES

ELECTRIC HYDRAULIC OPERATED
AIR OPERATED
BIN TILTERS

SEE MORE AT advancelifts.com



**ISO 9001:2015
Certified**



1-800-843-3625

New Equipment Digest

2 Summit Park Drive, Suite 300
Independence, OH 44131
(234) 466-0200
www.newequipment.com

Laura Davis | Editor-in-Chief

(815) 348-9052 • LDavis@endeavorB2B.com

Alexis Gajewski | Senior Content Strategist
(630) 454-7044 • AGajewski@endeavorB2B.com

Thomas Wilk | Group Editor

(630) 454-7012 • TWilk@endeavorB2B.com

Michael Annino | Art Director
MAnnino@endeavorB2B.com

CEO | Chris Ferrell

COO | Patrick Rains

CRO | Paul Andrews

CALO | Tracy Kane

CDO | Jacquie Niemiec

CMO | Amanda Landsaw

VP & Group Publisher, Manufacturing | John DiPaola



New Equipment Digest is published 4 times per year (March, June, September, December) by Endeavor Business Media, LLC, 30 Burton Hills Blvd., Ste. 185, Nashville, TN 37215. Postage paid at Fort Atkinson, WI, and additional mailing offices. **SUBSCRIPTIONS:** Publisher reserves the right to reject non-qualified subscriptions. Subscription prices: U.S. (\$87.50 per year); Canada/Mexico (\$113.75 per year); All other countries (\$138.75 per year). All subscriptions are payable in U.S. funds. Send subscription inquiries to New Equipment Digest, PO Box 3257, Northbrook, IL 60065-3257. Customer service can be reached toll-free at 877-382-9187 or at newequipmentdigest@omeda.com for magazine subscription assistance or questions.

Printed in the USA. Copyright 2025 Endeavor Business Media, LLC. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopies, recordings, or any information storage or retrieval system without permission from the publisher. Endeavor Business Media, LLC does not assume and hereby disclaims any liability to any person or company for any loss or damage caused by errors or omissions in the material herein, regardless of whether such errors result from negligence, accident, or any other cause whatsoever. The views and opinions in the articles herein are not to be taken as official expressions of the publishers, unless so stated. The publishers do not warrant either expressly or by implication, the factual accuracy of the articles herein, nor do they so warrant any views or opinions by the authors of said articles.

TABLE OF CONTENTS

VOLUME 90 • ISSUE 2 | NEWEQUIPMENT.COM

TWITTER.COM/NEWEQUIPMENT

FACEBOOK.COM/NEWEQUIPMENT

COVER STORY



Editor's Choice	4
Automate Trade Show	6
New Sources	8
Technology Toolbox	10
General Products	11
MH&L	18
Lit Digest	30
Product Express	31
Product Guide	32
Ad Index	32
From the Editor	33
Checklist	34

PRODUCT SPOTLIGHT

p 12



DataMan 290 & 390 barcode readers from Cognex use AI and multiple readers to scan a large area of different barcodes at once.

p 26



FAULHABER's 1218 and 1228 SXR DC motors offer flexible voltage variants and enhanced performance for precision-driven industries.

p 29



The ARTIC SS Chevron from Harpak-ULMA offers tool-less changeovers to reduce downtime and enhance packaging flexibility.

p 32



Greene Tweed's Arlon 3160XT PEEK material offers creep and flame resistance with electrical insulation for challenging hydrogen applications.

THE RIGHT STAMPING. THE RIGHT WASHER. RIGHT NOW.

BOKER'S WILL BE THERE.

For over 100 years, nearly every industry across the globe has trusted Boker's to provide quality components, world-class service and fast delivery.

**SUBMIT YOUR PART SPECS &
Get a Fast Quote**

(800)-WASHERS | bokers.com

BOKER'S, INC.
STAMPING & WASHER SPECIALISTS SINCE 1919

9 Years

100% virgin urethane (no regrind waste) makes stronger, longer lasting belts.

LONG-LIFE BELTS MOVE HEAVY LOADS

When a competitor's belts failed after only nine months service in a large postal distribution center, Dura-Belt's **Long-Life HT belts** replaced them. **Nine years** later, HT belts are still going strong -- moving your mail on conveyors that run 24 hours/day, 7 days/week.

Even though some postal tubs have soft bottoms and carry over-weight loads, HT belts take the punishment and keep the mail moving. Over **120 million** are in service on powered-roller conveyor systems. For longer-life and heavier loads, try time-tested HT (high tension) O-ring belts -- the only ones colored **"Post Office Blue"**.

Dura-Belt **800-770-2358** 614-777-0295
Fax: 614-777-9448 www.durabelt.com

Zero-Low Dock Lift
4,000 to 50,000 pounds

LIFTING PRODUCTIVITY

Over 2,500 standard models to choose, ... and yes, we can modify it for you!

Reversible Boom Crane
1,000 to 20,000 pounds

Off-the-shelf or beyond your wildest dreams, call **888-857-6263** and let us help you **MAKE IT HAPPEN!**

SHOP ONLINE

AIR TECHNICAL INDUSTRIES
MANUFACTURING - INNOVATIVE LIFTING SOLUTIONS SINCE 1964

Upender Inverter
2,000 to 50,000 pounds

www.airtechnical.com
7501 Clover Ave | Mentor, OH 44060
e-mail: ati@airtechnical.com

JUNE 2025 | NEWEQUIPMENT.COM 3

Advanced Metrology 3D Scanner

A new category of handheld scanning, the **FARO Leap ST** is an advanced handheld 3D metrology solution for measuring and verifying a variety of surfaces and parts. It features five operating modes: Ultra-fast scanning, hyperfine scanning, photogrammetry, deep hole scanning, and large-area scanning. The optical configuration allows for a large target interdistance, saving you time applying targets to your parts. The easy switch between operating modes lets users continuously capture exactly what's needed without pausing the scan.

Faro Technologies, Inc.

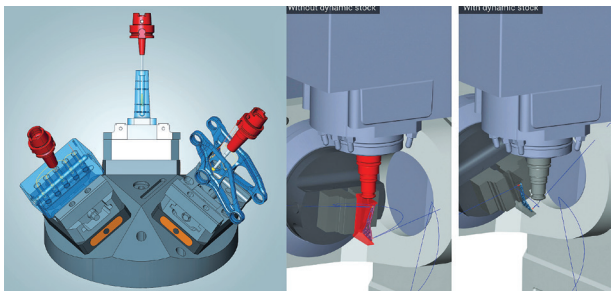


More online: newequipment.com/55283031

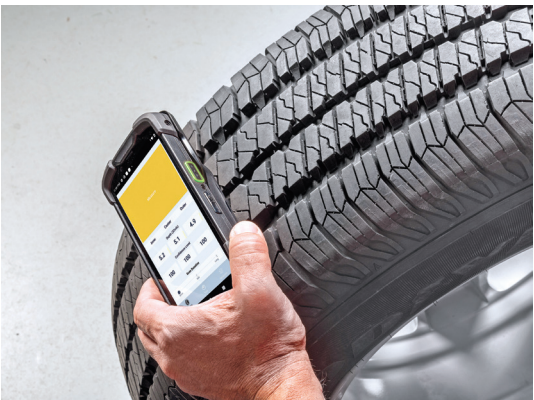
CAM Software Improves 5-Axis Machining Paths

hyperMILL 2025 CAM Software is a CAD/CAM software suite designed for efficient and precise 2.5D, 3D, 5-axis, and mill/turn machining. It introduces an automatic tool orientation mode for 5-axis machining, a fast hole deburring strategy, improved 3D roughing with high feed cutters, and Dynamic Stock technology for real-time stock updates, helping streamline programming and improve machining results.

OPEN MIND Technologies USA, Inc.



More online: newequipment.com/55286315

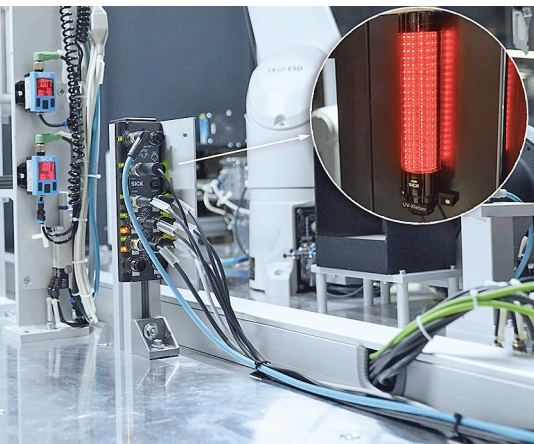


Automate Tire Inspections

Designed to work with Zebra's TC78 and TC58e mobile computers as a snap-on accessory, **Zebra Tread Intel** automates tire tread depth measurements using Zebra OCR Wedge optical recognition software to capture essential data and enhance passenger safety. With a simple swipe across anywhere on the tire, quickly and easily identify when tires need to be replaced, are defective, or have been recalled. And tire manufacturers can easily perform quality checks and verify tread depth on defective tires returned for insurance claims. It measures tire tread depth within 1/32 of an inch (0.79 mm) in less than 5 seconds, and works on dry, wet, or even dirty tires. You can also capture VIN, TIN, license plates, and driver's licenses.

Zebra Technologies Corporation

More online: newequipment.com/55277811



Master I/O Connects Sensors With Built-In Logic

The **SIG300 IO-Link Master** streamlines industrial automation by connecting sensors and actuators to control systems. It features onboard logic processing, reducing data transfer needs and cloud costs. With easy integration into diverse fieldbuses like EtherCAT and PROFINET, it simplifies automation without extra software. The device's USB-C interface and IODD interpreter enable simple configuration and parameterization, making it ideal for both new and existing automation systems.

SICK USA

More online: newequipment.com/55285582



Digital HVAC Diagnostic Tool

Flex-X Manifold Gauge is a digital HVAC diagnostic tool designed to replace traditional analog gauges. It includes a high-visibility GUI that simplifies complex data into animated visuals for faster, more intuitive readings. The unit includes a rechargeable lithium battery that provides up to 100 h of runtime with automatic power-off functionality. The gauge supports 72 refrigerants, eliminating the need for multiple analog units. The device delivers Class 0.4 accuracy and real-time data visualization.

NAVAC

More online: newequipment.com/55287400



Palletizing Vacuum Robot Gripper

The **VGP30 vacuum gripper** handles payloads up to 66 lb (30 kg) for palletizing boxes and handling irregular shapes and porous surfaces. Using an external air supply, it delivers an airflow capacity of 116 gal/min (440 L/min) with a vacuum control system that automatically adjusts to any box size. The VGP30 offers plug-and-play deployment for quick integration with major robot brands and its dual-channel system allows independent control so users can tailor its suction for different tasks.

OnRobot A/S

More online: newequipment.com/55272913

YOUR SOURCE ►

**FOR ULTRA HIGH-QUALITY,
ULTRA HIGH-PERFORMANCE,
100% SYNTHETIC LUBRICANTS**



Lubriplate's ultra-high-performance, 100% synthetic lubricants have been engineered to provide unsurpassed performance in the most demanding plant environments. They provide a wide range of benefits designed to make your plant run better. Benefits include: extended lubrication intervals, lubrication consolidation through multiple application capability, reduced friction, extended machinery life and reduced downtime. Products include...

HIGH-PERFORMANCE SYNTHETIC GEAR OILS

SYNTHETIC AIR COMPRESSOR FLUIDS

SYNTHETIC HYDRAULIC FLUIDS

HIGH-PERFORMANCE SYNTHETIC GREASES

NSF H1 REGISTERED FOOD GRADE LUBRICANTS

ECO-FRIENDLY SYNTHETIC LUBRICANTS

SPECIALTY LUBRICANTS



Scan the QR Code for More Information
About Lubriplate's Products and Services.



Lubriplate®
Lubricants

Newark, NJ 07105 / Toledo, OH 43605 / 800-733-4755
To learn more visit us at: www.lubriplate.com



INCLUDED AT NO ADDITIONAL CHARGE

Lubriplate's
ESP

Complimentary Extra Services Package

**COLOR CODED LUBE CHARTS & MACHINERY TAGS
PLANT SURVEYS / TECH SUPPORT / TRAINING
LUBRICATION SOFTWARE / FOLLOW-UP OIL ANALYSIS**



AUTOMATE



AI Vision System Enables Real-Time Inspection
The **High-Speed AI Flying-Trigger Inspection System** combines AI and vision to perform quality inspections while parts remain in motion. This real-time approach eliminates downtime and significantly improves production efficiency. With inspection times reduced by 40 to 50%, the system enhances cycle times and lowers labor costs. It's especially well-suited for automotive seat components and server assembly applications where speed and precision are critical.

Techman Robot, Inc.
More online: newequipment.com/55290569



Autonomous Robot Handles Up to 7,700 lb Loads
The **MILES autonomous mobile robot** is a complete transport solution combining hardware, software, and service to support intralogistics. With a load capacity of up to 7,700 lb (3,500 kg), it navigates autonomously using real-time mapping and 360-degree obstacle detection. A modular design, intelligent fleet management, and contactless charging allow for flexible use and round-the-clock operation in dynamic industrial environments.

Zimmer Group US, Inc.
More online: newequipment.com/55291053



Autonomous System Simplifies Bin Picking
AI-powered bin picking system enables a robot to autonomously detect, select, pick, and organize parts using only a CAD file. Eliminating the need for custom programming or complex integration, the system lowers the barrier to automating part-sorting tasks. Powered by real-time AI processing, the solution supports high-mix and high-volume manufacturing environments, making automation more accessible and cost-effective.

Vention
More online: newequipment.com/55291029



Dual-Arm Platform Enables Synchronized Lifting
The **Embodied Dual-Arm Platform** features two 6-DoF robotic arms with synchronized motion control, making it ideal for collaborative lifting, handling, and manipulation tasks. Engineered for logistics automation and embodied AI research, the platform delivers flexible operation in complex environments where coordination and precision are essential.

RealMan Robotics
More online: newequipment.com/55290538

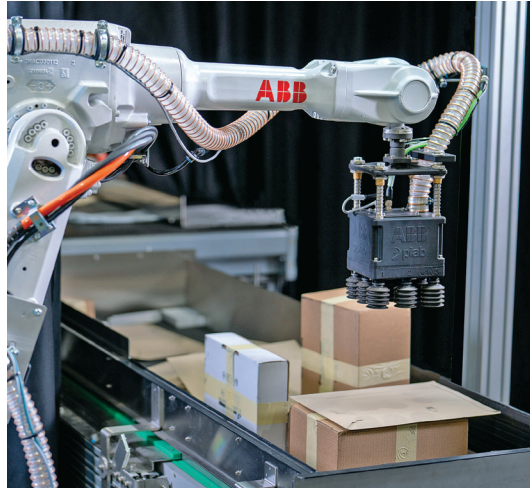


3D Ultrasonic Sensor Enhances Robot Safety

The **ADAR 3D ultrasonic sensor** is a depth-sensing device that uses airborne sound waves to provide 360-degree obstacle detection for autonomous mobile robots. With a 180 x 180 field of view and a 16.4 ft (5 m) range, it enables real-time, omnidirectional awareness in shared human-robot environments. Its compact size and low power requirements support easy integration and compliance with ISO13849:2023 PL d/SIL2 safety standards.

Sonair

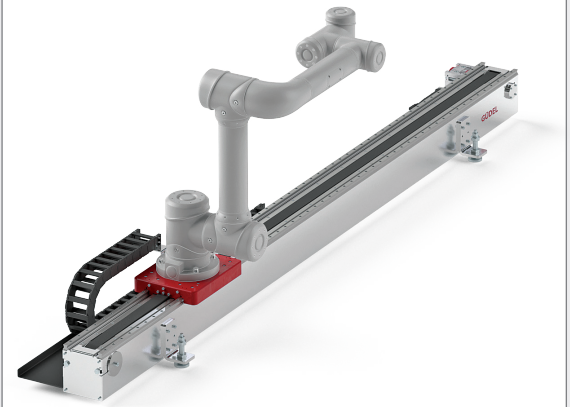
More online: newequipment.com/55290729



AI Vision Modules Boost Packaging Speed
Robotic Fashion Inductor and **Robotic Parcel Inductor** are AI-powered functional modules that automate item singulation and sorter induction in logistics operations. Designed to handle randomly arranged items, the modules deliver over 99.5% picking accuracy and speeds of up to 1,500 picks/h. Integrated motion planning software enables collision-free paths, and the systems are pre-integrated for deployment in as little as one week.

ABB

More online: newequipment.com/55288131



Linear Track Extends Cobot Work Envelope

The **CoboMover** is a 7th-axis linear track designed for collaborative and small industrial robots. It extends the robot's range up to 16.4 ft (5 m), enabling it to move between workstations without manual repositioning. With a 172 lb (33 kg) payload capacity and repeatability of ± 0.002 in (± 0.05 mm), it supports over 60 robot models and offers multiple stroke lengths to fit various production layouts.

Güdel, Inc.

More online: newequipment.com/55290765

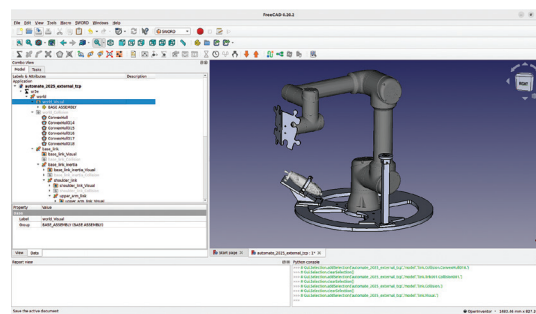


Tools Simplify Robot Setup, Recovery

RCS product series includes portable and in-process tools that streamline robot setup, health checks, and recovery. The series addresses challenges like manual calibration and maintenance, helping reduce deployment time and improve repeatability. Supported by a dedicated software suite, the lineup enables automated routines, performance testing, and in-process metrology to enhance productivity and reduce downtime in industrial automation applications.

Renishaw, Inc.

More online: newequipment.com/55291047

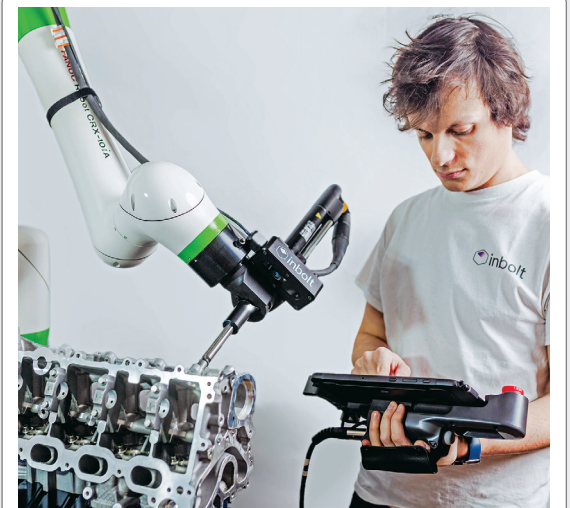


Offline Robot Programming in CAD

SWORD is an offline robotics programming software that allows users to model, plan, and execute robotic motion within a 3D CAD environment. The software connects visualizations to ROS modules to convert digital simulations into executable robot paths. It enables manufacturing engineers with CAD knowledge to generate motion plans, configure robotic arms and tools, and build custom planning pipelines—without requiring manual coding.

Southwest Research Institute (SwRI)

More online: newequipment.com/55290112



Robotic Vision System for Line Tasks

FANUC CRX robots with Inbolt AI integration are robotic systems that combine real-time 3D vision and adaptive motion control to automate tasks like screw insertion and bolt rundown on continuously moving parts. By eliminating the need for indexing, jigs, or added infrastructure, the system reduces complexity and improves efficiency in space-constrained General Assembly environments.

Inbolt

More online: newequipment.com/55291043



AI Assistant Boosts Field Technician Speed

ServiceMax AI is a generative AI-powered field service management assistant that helps technicians complete jobs faster and more efficiently. It automates documentation and scheduling, reviews asset history, and offers predictive maintenance guidance. The assistant also answers technician questions by intelligently searching manuals, troubleshooting guides, and service records, improving decision-making and reducing downtime in the field.

PTC Electronics, Inc.

More online: [newequipment.com/55291072](https://www.newequipment.com/55291072)



Edge Amplifier Enhances IT/OT Connectivity

The **digiBOX edge amplifier** is a multichannel, modular device designed for industrial and weighing applications that require real-time data processing. It enables seamless integration between IT and OT systems and supports a range of sensors including strain gauges, load cells, and piezoelectric sensors. With IP67-rated housing and firmware options tailored to specific use cases, the amplifier ensures durability, precision, and reliable performance in harsh production environments.

Hottinger Brüel & Kjaer (HBK)

More online: [newequipment.com/55291069](https://www.newequipment.com/55291069)



Personal Carrier Features 4-Wheel Drive Stability

The **V Series powered personal carrier** is a 4-wheel-drive industrial transport vehicle designed for indoor and outdoor use in high-demand environments. It supports standing or seated operation with multiple seat options available, including ones for mobility-impaired users. Reaching speeds up to 25 mph (40 km/h), it can carry loads up to 1,100 lb (500 kg) with its optional trailer. Independent suspension, disc brakes, and a 31-mi (50 km) range support safe, efficient operation across varied terrain.

R.J. Mobility Alliance (RJMA)

More online: [newequipment.com/55288485](https://www.newequipment.com/55288485)



Protect Your Columns

The **Column Sentry FIT System** is comprised of 3 separate, interchangeable parts that work together to expand protection for larger and odd-sized columns. Each of the FIT pieces slides along a patented interactive spine, connecting with its neighboring pieces, offering adjustability and spreading impact absorption, allowing equal protection around the column. The FIT small and medium expand or contract to fit different square column sizes between 4 and 12 in (10 and 30 cm). The extension pieces extend the reach of any side of the column. Built with the same spine as the corner pieces, these energy-absorbent molded pieces can be added to each other to cover larger column sizes.

Sentry Protection Products

More online: [newequipment.com/55276367](https://www.newequipment.com/55276367)

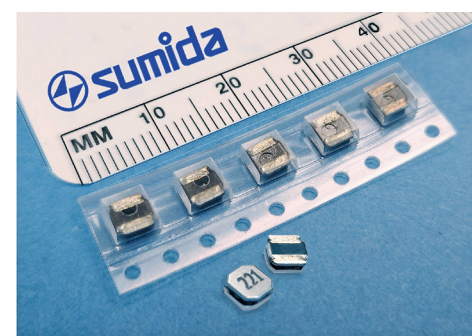


Smart Speed Motor

VIDAR is a new type of motor that embeds variable-speed intelligence into the motor to improve operations in pumps, fans, and fluid process systems. Its precise motor speed control also ensures consistent flow rates, lowering energy usage and CO₂ emissions by only using the exact amount of energy needed. With direct AC-to-AC power conversion, it removes bulky capacitors, allowing the motor and VFD to be combined into a single device, easily fitting into the footprint of a conventional NEMA motor. It offers an output power of up to 75 hp at 460V and speeds of up to 4,500 rpm.

VIDAR

More online: [newequipment.com/55275614](https://www.newequipment.com/55275614)



sumida SMD RESIN-SHIELDED INDUCTORS
www.sumida.com/news/index.php?categoryid=3&newsid=693 (Ferrite Resin Shielded)
www.sumida.com/news/index.php?categoryid=3&newsid=932 (Metal Composite Resin Shielded).

Surface-Mount Inductors Improve EMI Shielding

Resin-Shielded Surface-Mount Power Inductors are designed to enhance electromagnetic interference protection and mechanical durability in compact electronic assemblies. Available in ferrite or metal composite cores, the inductors use a magnetic powder-infused resin coating in place of traditional ring core shielding. This construction reduces flux leakage, helps dissipate heat, and supports stability across wide temperature ranges. Sizes range from 0.13 x 0.13 x 0.05 in to 0.33 x 0.33 x 0.17 in.

Sumida Corporation

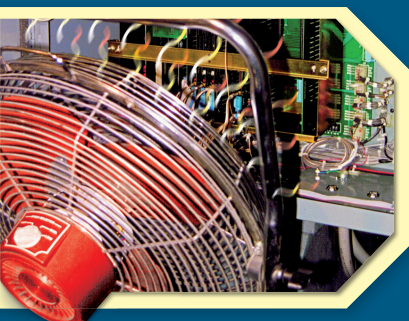
More online: [newequipment.com/55291063](https://www.newequipment.com/55291063)

The Secret to Keeping Electronics Cool!



Benefits of EXAIR® Cabinet Cooler® Systems

- Less expensive to purchase than refrigerant A/C units
- Less expensive to operate than refrigerant A/C units
- Quicker to install than heat exchangers and refrigerant A/C units
- Little to no maintenance
- More reliable in dirty, hot, or remote environments than alternative cooling products
- Not affected by machine vibration which can cause refrigerant leaks
- Ambient temperature does not affect performance like it will with alternative cooling products



Don't a Fan on an Open Cabinet!

It is an OSHA violation that presents a shock hazard to personnel.

The fan blows hot, humid, dirty air at the electronics.

The Real Solution!

Stop electronic downtime with an EXAIR Cabinet Cooler System! The complete line of low cost Cabinet Cooler Systems are in stock and can ship today. They mount in minutes through an ordinary electrical knockout and have no moving parts to wear out. Thermostat control to minimize compressed air use is available for all models. All Cabinet Coolers are UL Listed to US and Canadian safety standards.

EXAIR® Cabinet Cooler® Systems



NEMA 12

For large heat loads up to 5,600 Btu/hr.

- Enclosure remains dust-tight and oil-tight
- Measures 8" (203mm) high
- Mounts top, side or bottom



NEMA 4 and 4X

For heat loads up to 5,600 Btu/hr.

- Enclosure remains dust-tight, oil-tight and splash resistant
- Suitable for wet locations where coolant spray or washdown can occur



Type 316 Stainless Steel

For NEMA 4X applications available for heat loads up to 5,600 Btu/hr.

- Resists harsh environments not suitable for Type 303/304SS
- Ideal for food and chemical processing, pharmaceutical, foundries, heat treating and other corrosive environments



Hazardous Location and ATEX

For use with classified enclosure purge and pressurization systems. Available for classified environments up to 5,600 Btu/hr.

- Maintain NEMA 4/4X integrity
- For hazardous/explosive environments
- CE compliant



High Temperature

For NEMA 12, 4 and 4X applications. Available for heat loads in many capacities up to 5,600 Btu/hr.

- Suitable for ambients up to 200°F (93°C)
- Ideal for mounting near ovens, furnaces, and other hot locations



Non-Hazardous Purge

Keep a slight positive pressure on the enclosure to keep dirt from entering through small holes or conduits. For use in non-hazardous locations.

- Uses only 1 SCFM in purge mode
- For heat loads up to 5,600 Btu/hr.
- NEMA 12, 4 and 4X

If you would like to discuss an application, contact:

EXAIR®

11510 Goldcoast Drive Cincinnati, Ohio 45249-1621
(800) 903-9247/fax: (513) 671-3363

GO TO https://exair.co/61_440



Regarding Robotics

Robots, cobots, and drones are proliferating to meet operational and business requirements.

By Sheila Kennedy, CMRP

Robotic automation solutions for manufacturers, warehouses, and distribution centers deliver precision, efficiency, and power where it's needed most. New and improved solutions tackle today's industry challenges, and a novel technology toolkit facilitates the development of AI-powered robotic applications.

Enhanced Solutions

Flying robots help to automate processes such as warehouse inventory audits. The **Corvus One Autonomous Inventory Management System** from Corvus Robotics is a drone system that scans barcodes, counts cases, and identifies stockouts, even in lights-out environments. Key enablers include computer vision and a proprietary AI large world model (LWM) that provides a learning-based approach to autonomy. Integration of SwiftDecoder barcode-decoding software from Honeywell accelerates inventory counting at the case- and pallet-level by capturing many barcodes at the same time.

"The latest version of Corvus One can now autonomously operate in total darkness, fly in aisles as narrow as 50 in (130 cm), and count cases automatically," says Corvus Robotics CEO Jackie Wu. "Built to handle the cold, Corvus One works reliably in chilled environments down to 34°F (1°C), giving warehouses and distribution centers hands-free, accurate inventory tracking in virtually any warehouse condition."

The new **Autonomous Buffer Management (ABM)** solution from Seegrid supports end-to-end material handling automation. The manufacturer of autonomous mobile robots (AMR) for palletized material handling developed ABM to optimize buffer management with its Lift AMR solutions, improving efficiency and predictability.

Seegrid CTO Tom Panzarella explains that buffers are essentially a collection of discrete material staging locations organized in a particular way. "Our technology gives modern manufacturers the flexibility to optimize staging and storage with precision, reducing bottlenecks and maximizing operational efficiency. With seamless integration into existing workflows, it empowers facilities to focus their available manual labor on higher-value tasks while automation handles the rest," he adds.



Seegrid's ABM enables lower, more accurate inventory levels while reducing forklift use, labor needs, and material flow errors.

Zebra Symmetry Fulfillment from Zebra Technologies (see page 11) is an AMR-assisted picking technology designed to enhance warehouse operations. It combines the company's new Zebra Connect Fulfillment AMRs, wearable technologies, software, and analytics to increase productivity and throughput while reducing costs.

"Powered by Team Intelligence, Zebra Symmetry Fulfillment coordinates workers and robots in a precise workflow, allowing pickers to handle more items faster," observes Matthew Wicks, VP of robotics automation at Zebra Technologies. "Detachable carts with larger capacity support a broader range of product sizes and up to 300% more volume, increasing pick density and eliminating AMR wait times. Decoupling AMRs from carts at key points lets robots return to picking tasks immediately, reducing the number of robots needed by up to 30%."

Power and Precision Innovations

For robust palletizing and material handling applications, the new **VGP30** from OnRobot (see page 4) is the company's most powerful vacuum gripper to date. It is engineered to handle payloads of up to 66 lb (30 kg) while offering the flexibility to grip one or two boxes, even off-center. Collaborative applications benefit from a low noise level of 59 dB(A). An optional continuous monitoring feature provides real-time feedback on air flow.

"Unlike our electric grippers, the VGP30 is air-driven and intelligently regulates vacuum levels to reduce compressed air consumption and overall operating costs. What truly sets it apart is its seamless integration into OnRobot's unified platform, delivering advanced performance



Corvus One warehouse drones autonomously take off and land, charge, and transfer data on premises at the landing pad.



Zebra Symmetry Fulfillment lets you pick more, pick faster, and pick smarter.

without the complexity typically seen in traditional pneumatic solutions," says Jesper Fuglsig, R&D director at OnRobot.

The **M-950iA/500** from Fanuc America is a new heavy-weight industrial robot designed to handle payloads up to 1,100 lb (500 kg) with flexibility and adaptability to tight workspaces. Its serial-link design offers a wider range of motion than standard parallel-link robots, including the ability to flip over backwards.

The robot's long 110 in (2,830 mm) reach and powerful wrist enable large and heavy part lifting, palletizing, and similarly demanding material handling tasks. An optional accuracy and stiffness enhancement for the M-950iA ensures precision under external forces, making it suitable for applications such as friction stir welding, drilling, and riveting.

Physical AI for Cobots

AI Accelerator from Universal Robots (UR), designed in collaboration with NVIDIA, is a toolkit that offers developers of UR collaborative robot (i.e., cobot) solutions a full go-to-market architecture straight out of the box. It enables features such as pose estimation, tracking, object detection, path planning, image classification, quality inspection, and state detection.

The toolkit "significantly decreases deployment time and de-risks the development of AI-based robotic solutions. A case in point was the recent NVIDIA GTC conference, where five robotics companies showcased new AI-powered applications developed in record time—some of them in just a couple of weeks—using the AI Accelerator," notes Anders Beck, VP of innovation and strategy at Universal Robots. **NED**

Technology Toolbox is a monthly feature by Sheila Kennedy, CMRP, that appears in our sister publication Plant Services. Email sheila@addcomm.com with products for consideration. The full Tech Toolbox library is available at: www.plantservices.com/voices/technology-toolbox.



OnRobot's VGP30 offers plug-and-play deployment for quick integration with major robot brands.



Built for payloads up to 1,100 lb, FANUC's M-950iA/500 serial-link robot offers precise, versatile motion—even in tight spaces.

FROM THE COVER KICKER



7-in-One Robotic Warehouse System

RoboGlide is the first industrial humanoid-inspired system designed for fully automated inbound warehouse operations.

RoboGlide's patented dual-arm picking robotics, advanced Percept0 vision system, and intelligent decision-making capabilities allow it to handle diverse inventory while reducing inefficiencies, forming a scalable logistics framework.

In development for 2+ years, Lab0's technology integrates multiple warehouse logistics operations, including shipping container unloading, product identification, damage detection, weighing, sorting, palletizing, and wrapping into one scalable, modular system.

Using its in-house robotic technology, NVIDIA's Isaac Lab & NVIDIA Omniverse for physical AI learning and simulation, and advanced AI and machine learning, Lab0 applies a simulation-first design approach for AI-powered precision in logistics automation.

Lab0

More online: newequipment.com/55275952



AI Fulfillment Boosts Warehouse Throughput

Zebra Symmetry Fulfillment combines autonomous mobile robots, wearables, software, and analytics to enhance warehouse efficiency. Its AI-driven approach, featuring Zebra Connect Fulfillment AMRs and Team Intelligence, coordinates workers with robots to reduce wait times and boost pick density. Detachable carts increase capacity and flexibility, while built-in analytics improve real-time decision-making. The system enables faster picking and unloading without requiring each AMR to remain tied to a specific cart or task.

Zebra Technologies Corporation

More online: newequipment.com/55277872



Fleet Software Adapter for AMRs

MiR's **VDA 5050 Adapter** bridges its AMRs with VDA 5050-compatible, 3rd-party fleet management systems, creating interoperability for warehouses, distribution centers, and manufacturing facilities seeking a standardized approach to managing diverse robot fleets. It enables communication between multiple AMR robot types from various suppliers using a common control system, allowing customers to improve traffic management and coordinate operations when using different automated vehicles. The adapter connects MiR's existing RESTFUL robot interface with the MQTT protocols facilitating VDA message exchange between MiR AMRs and 3rd-party systems.

Mobile Industrial Robots, Inc. (MiR)

More online: newequipment.com/55276947



Autonomous Forklift Loads Trailers Solo

FoxBot Mk3 autonomous forklift enables fully automated dock operations by adding trailer loading to its existing unloading capabilities. Equipped with auto-adjusting fork tines, 360-degree obstacle detection, and trained visual models, it handles various pallet types and configurations without manual intervention. Enhanced software integrations connect to warehouse systems for seamless coordination, while expanded sensors ensure safety and precision. The system supports complex workflows, enabling reliable autonomous performance across long shifts.

Fox Robotics, Inc.

More online: newequipment.com/55276978



High-Resolution Barcode Scanner

The **FS80 fixed industrial scanner** tackles challenges in warehouse, logistics, and distribution center environments with integrated lighting, enhanced read rates, and extended depth-of-field to improve automated applications. Featuring high-resolution sensors and LED lighting to enhance readability in a wide area and at long range, the scanner delivers fast and precise data capture of barcodes of any type, size, and quality. Models available include 5, 9, 12, and 16 MP.

Zebra Technologies Corporation

More online: newequipment.com/55277773



Compact Laser Isolators

Mini Free-Space Optical Isolators are compact components that protect ultrafast and continuous-wave lasers by blocking back-reflected light. With dimensions of ~ Ø 10 x 10.5 mm (0.4 x 0.4 in), these isolators support high isolation performance while maintaining forward transmission. Their small footprint supports integration in space, weight, and power-constrained environments (SWaP), such as aerospace, quantum, and research systems. Designed for embedded systems and production modules, these isolators help ensure clean mode-locking, reduced jitter, and stable power output.

Edmund Optics

More online: newequipment.com/55285172

AI Barcode Readers Handle Any Application

The **DataMan 290** and **390** barcode readers use AI technology to deliver reliable decoding performance across a broad range of applications. With their AI capabilities, users can reliably read codes with a single click, simplifying setup and maintenance even for non-technical users. The barcode readers handle a variety of code types and symbologies, including damaged or low-quality codes, along with high read rates in low-visibility environments due to its integrated all-in-one light. The DataMan 290 solves most barcode reading applications out of the box while the DataMan 390 delivers higher resolution for more complex applications.

Cognex Corporation



More online: newequipment.com/55273936



EC Motor Improves Efficiency in Ventilation

The **PrecisionFlow ECM** is an electronically commutated motor designed for ventilation applications where efficiency and speed control are critical. It delivers up to 85% efficiency and maintains constant torque, with multiple voltage and configuration options. The motor helps meet rising energy-efficiency standards, making it a reliable choice for ventilation systems used in demanding industrial environments.

Nidec Motor Corp.

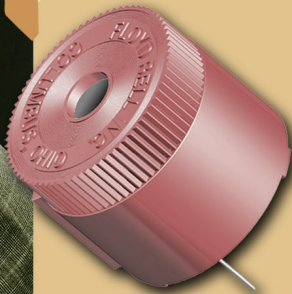
More online:
newequipment.com/55287253

Sound Solutions Since the 1970s

Since 1972, Floyd Bell Inc has been providing solutions for audible alarms. We're now the industry leader in alarm technology, expanding into LED alerts, voice-capable products, combination components and CAN technology.



- Durable Piezoelectric Alarms
- Bright LED Panel Indicators
- Combination Light/Alarm Components
- Programmable Speaker Products



M-80



CAN-96-930-H
J1939 CAN-Ready
Piezo Alarm



Vacuum Pump Adds One-Touch Oil Test

NP8DSV Smart Vacuum Pump is an HVAC evacuation tool and the first vacuum pump to feature a built-in oil health test function, allowing technicians to assess oil condition with one click. This helps extend oil life and cut operating costs by eliminating guesswork around oil changes. The pump includes 8 CFM dual-stage performance and reaches a 15- μ m ultimate vacuum. Technicians can set target vacuum levels and automatically run decay tests with on-screen results. Additional features include a built-in solenoid valve for vacuum preservation and storage for the vacuum gauge.

NAVAC

More online:
newequipment.com/55287416



View our complete line of products at FloydBell.com
or call
888-Floyd-Bell



LEADERS PROFILE

EXAIR

Static Control Products

EXAIR's new **Varistat Benchtop Ionizer** is a mountable hands-free device for static elimination at assembly stations for benchtop applications. It is designed to neutralize static charges on surfaces in demanding industrial settings where static can become troublesome. With the help of ionizing technology, the Varistat supplies a constant stream of ion-balancing airflow to keep products static-free and particulate-free with hands-free operation and without the need of compressed air.

The Varistat Benchtop Ionizer is just the latest in EXAIR's large selection of Static Eliminators. These include the **Intellistat® Ion Air Gun** and **Ion Air Nozzle** for sensitive processes. They both carry a Class 5 rating for cleanrooms per ISO 14644-1. EXAIR also offers **Gen4 Static Eliminators** including the Super Ion Air Knife, Ion Air Guns, Super Ion Air Wipes, Ion Air Cannons, Ionizing Bars, all in stock. These allow you to neutralize static and clean at distance up to 20 feet. Learn more about our static eliminators at https://exair.co/61_static.



Super Air Knife Replaces Noisy Blowers

EXAIR's **Super Air Knife™** delivers a uniform, high volume, high velocity sheet of air for blowoff, cooling and drying applications. The Super Air Knife offers a more efficient way to clean, dry or cool parts, webs or conveyors. Energy use is 1/3 that of typical blowoffs, comparable to a blower without the costly downtime and maintenance. Noisy blowoffs become a whisper when replaced with the compact Super Air Knife. Even at high pressures of 80 PSIG, the sound level is quiet at 69 dBA for most applications. Air knives are CE compliant and available in one piece construction up to 108" (2743mm). Special lengths and materials are available to fit existing machines and environments. Learn more about Super Air Knives at https://exair.co/61_sak_prf.



EXAIR Profile

EXAIR manufactures Intelligent Compressed Air® products that provide innovative ways to blowoff, dry, cool, vacuum, convey, lift, and eliminate static electricity. Since 1983, EXAIR products have been engineered to improve the overall efficiency of a wide range of industrial processes. Their staff of qualified application engineers is familiar with a wide variety of manufacturing processes and offer

help to individuals trying to find the best solution to their problems.

With the world's largest selection of engineered, intelligent compressed air products we offer the widest variety of material and sizes to match your requirements. Download 3D models, CAD drawings and installation manuals from our website's knowledge base. Design compressed air

conservation and safety into your coating, cooling, conveying, cleaning and more applications with EXAIR.

EXAIR products are made in Cincinnati, OH and can be modified (special lengths, materials and sizes) to suit specific application requirements. All of the catalog products have a 30 Day Unconditional Guarantee and ship from stock.

EXAIR.com
MANUFACTURING INTELLIGENT COMPRESSED AIR PRODUCTS SINCE 1983

CONTACT

11510 Goldcoast Dr.
Cincinnati, OH 45249
(513) 671-3322
techhelp@exair.com
www.exair.com

LEADERS PROFILE

EMH OVERHEAD CRANES

Looking for a manufacturing solution source with cranes you can trust, trouble-free, and able to withstand the test of time?

Look no further than Engineering Material Handling.

Since 1988, EMH Inc, headquartered in Valley City, Ohio, has continued to serve a wide range of industries; designing, manufacturing, and selling a wide range of durable.. robust, and heavy-duty overhead material handling equipment solutions—for loads of 25 lb. to 300 tons. Our overhead material handling solutions include Bridge Cranes, Gantry Cranes, Jib Cranes, Self-Standing and Workstation Cranes, Crane Kits, and custom and standard Wire Rope Hoists and End Trucks. EMH is ISO 9001:2015 certified.

Count on global coverage with manufacturing in the USA, India, and Germany; and a network of strategically located distributors, providing local sales and service support.

Looking for local service and support you can trust? EMH offers a total service program designed with your individual service needs in mind. It's just another part of our total commitment to excellence in the material handling industry. Aptly called the EMH Total Service Program, it was created to provide any (or all) of the maintenance-related service, repairs, parts, and inspections you need—resources vital to your company's continued productivity.

At EMH Cranes, we build cranes and relationships that last, standing the test of time. It's why we take great strives to ensure that all of our customer needs are responded to in both a timely and professional manner, minimizing crane downtime. For more information, contact us today.

Engineered Material Handling®

Looking for a manufacturing solutions source with cranes you can trust, trouble-free, and able to withstand the test of time? Look no further than Engineered Material Handling.



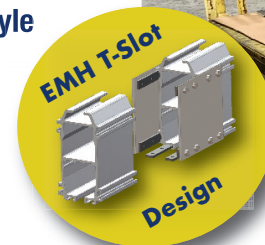
CONTACT
550 Crane Drive
Valley City, OH 44280
(330) 220-8600 ext. 225
info@emhcranes.com
www.emhcranes.com

YOUR WORKSTATION & FREESTANDING CRANE SOLUTION SOURCE... LOADS FROM 25 LBS. TO 20 TONS

Why AL SYSTEMS™ Workstation Cranes Work Better

With light weight track profiles and an exclusive EMH T-Slot design, AL Systems safely and efficiently handle a wide variety of lifters and handling devices. They are also easily configured to suit almost any application need. Plus, because the rail sections are surface treated and anodized, AL Systems Workstation Cranes are virtually maintenance-free.

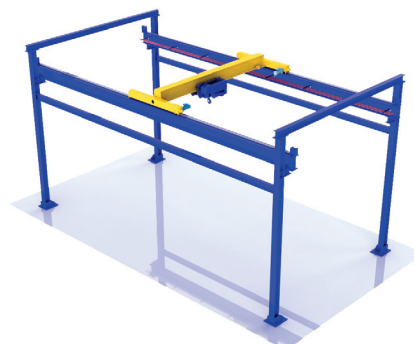
AL SYSTEMS Workstation Cranes are ideal for lighter weight installations, from 25 lbs up to 2,200 lbs. Also, ask about new AL-1 lightweight aluminum rails with capacities up to 500 lbs.



Why NOMAD® Free Standing Cranes Are Better Solutions

When manufacturing needs change, crane needs may change as well. Don't lock in your decision for crane location into a building structure. Modular NOMAD® Freestanding Crane Systems are also perfect solutions when overhead crane installation is either difficult or impractical. With bolted assembly, the NOMAD is easily dismantled, relocated and reassembled.

NOMAD® Freestanding Cranes easily handle capacities up to 10 tons. For even more capacity, up to 20 tons and 60-foot spans, ask about new NOMAD® XW Freestanding Cranes.

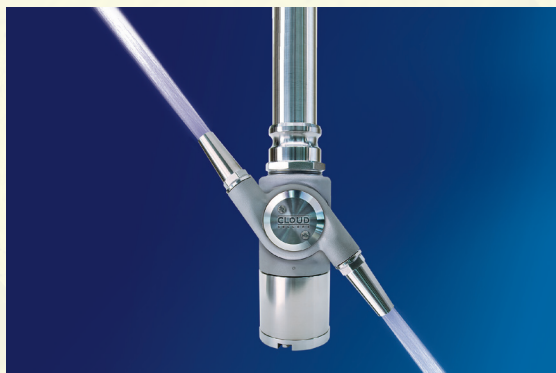


550 Crane Drive
Valley City, OH 44280
Tel: 1-330-220-8600 Ext. 225
Email: info@emhcranes.com

E·M·H®
Engineered Material Handling

LEADERS PROFILE

SPRAYING SYSTEMS CO.



Our office is on your plant floor

Choosing the right supplier is the difference between uptime and downtime, quality and waste, profit and loss. Without the product you need, when you need it, you have nothing. We are committed to being the best supplier for your business. At Spraying Systems Co., we are advancing spray technology to meet the evolving needs of industry. Focused on continuous innovation, we engineer spray technology that maximizes efficiency, reduces downtime, and ensures consistent performance. Whether you need precision-engineered nozzles, automated spray systems, or expert consultation, our team is ready with industry-leading products and first-class technical support. Backed by decades of experience and a commitment to sustainability, we push the boundaries of spray technology to help you achieve higher efficiency, better performance, and lasting results that drive productivity.

We have the nozzle for that

Whatever your challenge, if we don't have the nozzles you need, no one does. Is recycled water clogging nozzles? Are OEM-specified nozzles not keeping up with today's production demand? Is overspray creating a hazardous work environment? Is maintenance downtime too high? Or are you over-consuming resources? Whatever your challenge, if we don't have the nozzles you need, no one does. Our nozzles are more than molded parts; they are precision-crafted machinery. You can count on them to deliver consistent, repeatable results hour after hour and batch after batch, meeting your production objectives.

With strategically located manufacturing facilities, most products are locally produced with inventories ready to ship, and expedited lead times, we can shorten your supply chain to deliver fast.

Local spray expertise

Selection, quality, and ingenuity are just the beginning. No one comes close to our spray experts. With offices throughout the US, we're available when and where you need us. Partnering with you to optimize performance, lower production costs, reduce waste, save resources, and assure quality. Our local spray experts are dedicated not just to spray technology but to your product category, and each is backed by a deep bench at our regional offices.

More than 85 years of industry leadership

We have been a world leader in spray nozzle manufacturing with over 100,000 spray nozzles, accessories, and systems designed to optimize precision and efficiency across cooling, coating, cleaning, humidification, and more. Our solutions support the food and beverage, steel, automotive, pharmaceuticals, petrochemicals, and environmental management industries, to name just a few. Every day, we are helping businesses enhance product quality, conserve resources, and improve overall operational performance.

Let Spraying Systems Co. help you make every drop count.



Spraying Systems Co.®
Experts in Spray Technology

CONTACT

200 North Ave
Glendale Heights, IL 60139
1.800.95.SPRAY
spray.com



STANDING BEHIND OUR PRODUCTS BY STANDING NEXT TO YOU

With Spraying Systems Co.,
real people show up –
when and where you need us.

Every day, in plants like yours, we're assuring quality, lowering production costs, minimizing downtime, saving resources, reducing waste, and improving worker safety. Your local representative is dedicated to spray technology and understanding your operation. We keep the lines of communication open to keep your production lines humming.

Make every drop count™



Spraying Systems Co.®

1.800.95.SPRAY | spray.com



ID 31407372 © Benzok | Dreamstime.com | AI-generated

How to Mitigate Supply Chain Disruptions

These strategies will help you mitigate disruptions in a volatile global market.

by Milton Fonseca

In the high-stakes world of global supply chains, navigating disruptions has practically become an Olympic sport. Between geopolitical tensions, unexpected natural disasters, and occasional worldwide pandemics, businesses have a lot to contend with—and unfortunately, “just winging it” isn’t much of a strategy. While supply chain resilience may not sound glamorous, it’s essential for keeping the goods flowing and the spreadsheets looking rosy.

So, what’s the secret recipe for a disruption-proof supply chain? Let’s explore some strategies to make your supply chain tougher, more adaptable, and yes, a little less of a stress inducer. Spoiler alert: It involves diversifying your suppliers, investing in cool tech, and having a solid Plan B (and maybe even a Plan C).

A well-oiled supply chain keeps our interconnected world running smoothly—until it doesn’t. When one cog in this global machine breaks, it feels like everyone suddenly has a backlog of “urgent” issues to solve. If the pandemic taught us anything, it’s that “out of stock” can quickly go from minor inconvenience to

full-on disaster. Building resilience, then, is not just a nice-to-have; it’s the lifeline that keeps the business moving when things go sideways.

Diversifying Suppliers: A Fancy Way of Saying, “Don’t Put All Your Eggs in One Basket”

Relying on a single supplier is like trusting just one friend to remember all your birthdays—it works until it doesn’t. In a traditional supply chain, businesses often lean on a handful of suppliers for the sake of simplicity. But simplicity comes at a price, as the saying goes, and that price is usually “expensive delays” and “widespread panic.” A diversified supplier network is the name of the game here.

Broadening the Supplier Base: Think of this as spreading the risk around, kind of like choosing backup buddies for a trivia team. By having suppliers from different regions (and continents), businesses can avoid getting caught off guard by regional

issues—whether that’s political drama, hurricanes, or spontaneous volcano eruptions. If you’ve got multiple suppliers in the mix, one regional disruption doesn’t spell “game over.”

Building Strong Supplier Relationships: Getting along with your suppliers is as essential as befriending your neighbor with the lawnmower. A good supplier relationship means easier communication and faster solutions when things go wrong. Instead of simply having a bunch of suppliers in your contacts, you’re creating a network of people you can rely on, who understand your goals and can respond when it matters most.

Assessing Supplier Risk Profiles: But let’s not be naive—it’s not about grabbing the next supplier on the list. Taking the time to review each supplier’s reliability (their financial stability, quality standards, geographical risk) can make all the difference. This calculated approach helps ensure that your supply chain won’t suddenly hit a major snag when you least expect it.

Implementing Advanced Technologies: The Smart Way to Keep an Eye on Everything (Because You Can’t be Everywhere)

It’s 2025, and tech tools are here to save the day. From real-time data and artificial intelligence to that blockchain everyone keeps talking about, new technologies can transform supply chain management. With the right tools, you’ll know what’s happening at every stage—without needing to deploy a spy team.

Real-Time Data Analytics: Imagine having up-to-the-minute insights on delays, stock levels and customer demand patterns. No more guessing! Real-time data gives you a kind of superpower to tackle potential issues before they morph into a “why wasn’t I told about this earlier?” situation. It means having the ability to redirect, adjust and avoid bottlenecks, almost like a futuristic game of supply chain Tetris.

Blockchain for Transparency: Ever heard of the “I swear I shipped it” excuse? Well, blockchain is here to clear up those little misunderstandings. This technology allows everyone in the supply chain to track product movement securely, making it harder for anything to get “lost” or “mysteriously delayed.” Plus, blockchain’s transparency makes it easy to confirm product origins, which can be a huge plus when disruptions hit and you’re wondering where, exactly, your cargo is.

AI and Machine Learning: AI has evolved from a sci-fi fantasy to an everyday tool that can give you predictive insights and even a heads-up on supply chain risks before they happen. In short, AI is the nerdy friend who actually tells you in advance when your plans are about to go haywire—so you can course-correct without breaking a sweat.

Developing Contingency Plans: Because Sometimes You Really Do Need a Plan B (and Plan C)

Even the best-laid supply chains run into snags. The trick is having backup plans that are as organized as your morning coffee routine. A good contingency plan keeps your business moving when disruptions strike—and stops you from having to explain “uh, sorry about the delay” to customers for the tenth time this year.

Mapping Critical Vulnerabilities: The first rule of disaster planning is knowing where things might go wrong. Identifying the most vulnerable points in your supply chain lets you focus your contingency efforts on the areas that matter most. Is

there one supplier you can't do without? One raw material that's the lifeblood of your production line? Those are the places you want extra protection.

Alternative Sourcing Strategies: Having a backup supplier isn't just a “nice idea”—it's a life-saver in times of crisis. This means building relationships with secondary suppliers or even setting aside essential materials in stockpiles. While stockpiling sounds like something your thrifty neighbor would do, it's actually a savvy move for industries where continuity is crucial.

Creating a Cross-Functional Response Team: When disruption strikes, you don't want to be scrambling to get everyone on the same page. Creating a team that represents all key departments—from procurement and logistics to customer service—can make a huge difference in response time. Think of it as having a squad that knows exactly what to do and can handle emergencies with the kind of poise that would impress even the toughest customers.

Running Regular Drills: Practicing for disruptions may sound like overkill, but

just like fire drills, it pays to be prepared. Regular drills and simulations help iron out any wrinkles in the plan, so when the real thing happens, it's just another day at the office (more or less). Running these tests lets everyone know their role and makes response protocols second nature.

Balancing Resilience and Cost

Of course, resilience doesn't come free. Diversifying suppliers, investing in technology, and stockpiling essentials all cost money, and that cost can add up. But think of it as a little insurance: these resilience strategies are the business equivalent of a safety net that'll keep you from facing high-stakes disruptions. Resilience might have an upfront price, but the payoff is lower stress, greater flexibility and fewer headaches down the line.

Businesses need to find their own balance. In industries where reliability is critical, like healthcare or food, resilience investments might be prioritized. In others, some cost trade-offs may be necessary. Whatever the case, it's important to find a solution that works for your specific needs.

Building a Resilient Supply Chain for the Future

Supply chain resilience may not be the most glamorous part of running a business, but in a world where “disruption” is basically an everyday word, it's becoming non-negotiable. By diversifying suppliers, implementing tech for better visibility, and planning for the unexpected, businesses can stay ahead of disruptions with a few less gray hairs along the way.

Resilience means being prepared for whatever comes next, whether that's a natural disaster, a trade embargo, or the world's largest shipping container blocking a canal (again!). With a resilient supply chain, you're not just surviving—you're thriving, no matter what challenges the global market throws your way. **MH&L**

Milton Fonseca is the CEO of Fonseca Advisers, specializing in digital transformation for SMBs in manufacturing and distribution. With over 20 years of experience, he has led high-impact projects, leveraging SAP Business One, BEAS, and Boyum IT solutions to drive business efficiency and growth.

KEEP ORGANIZED

with
LABEL HOLDERS

for
Wire Shelving

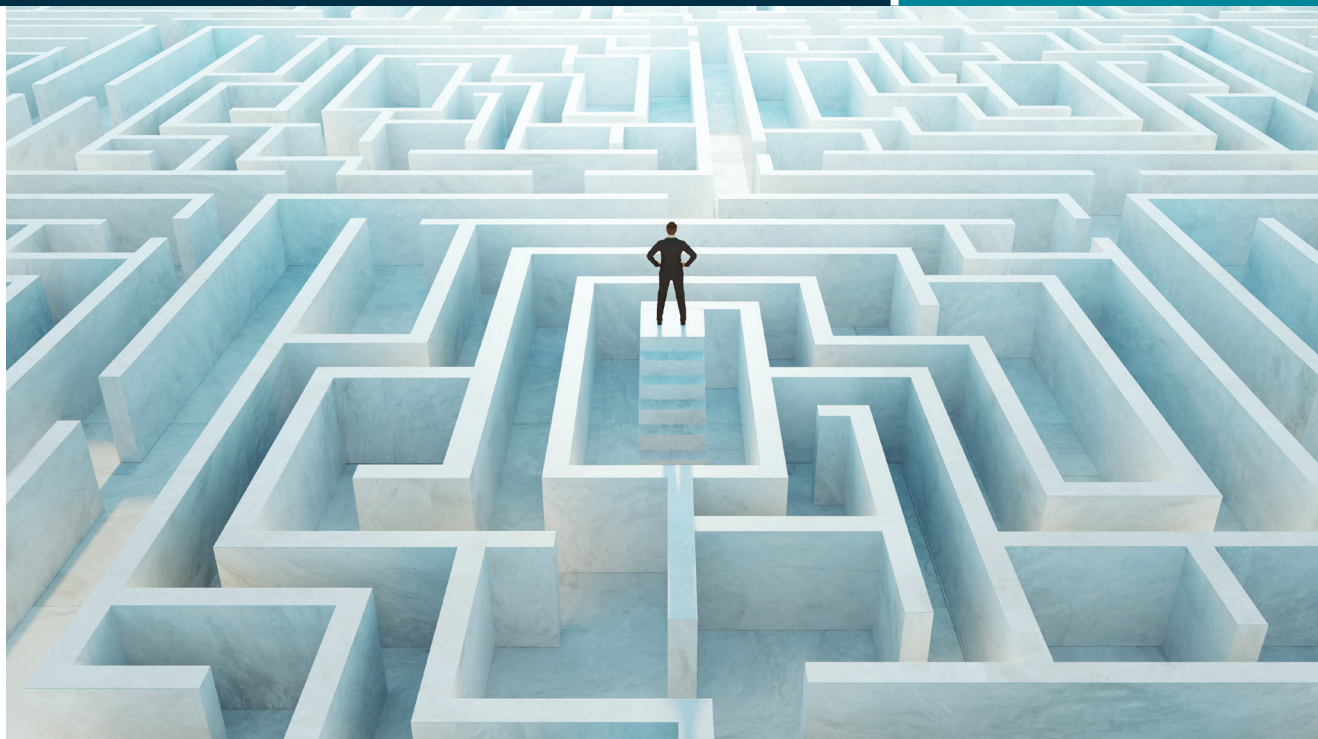


ALH
AIGNER LABEL HOLDER

- ▶ Specifically Designed for Wire Racking, Shelves & Posts
- ▶ Easily Snaps On & Off
- ▶ Protected by Bar Code Scannable, UV Treated Clear Window
- ▶ Printable Inserts Included



www.aignerlabelholder.com



ID 206813670 © Jamestownhart | Dreamstime.com

Navigating the Supply Chain Maze

Advanced logistics optimization strategies can help companies thrive in an increasingly competitive marketplace.

by Aaron Geiger

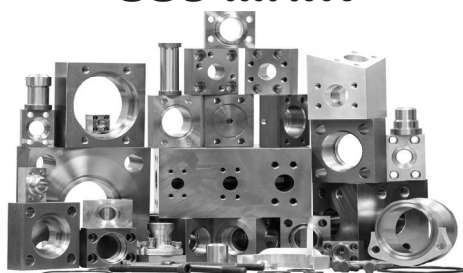
Supply chain optimization has become a critical factor in maintaining a competitive edge. However, many companies still struggle to effectively implement AI-powered solutions for their supply chain. The disconnect often stems from a misalignment between C-level decision-makers and operational teams, leading to suboptimal results and missed opportunities for true optimization.

These are important decisions because a growing number of logistics professionals admit they aren't optimized enough in their operations. Over half of respondents (52%) in a recent survey rated their organization's current last-mile delivery planning effectiveness as below "excellent" or "good." Additionally, the survey found that nearly 40% of respondents need to adjust delivery routes multiple times per day due to unexpected delays, emphasizing the pressing need for innovative solutions in logistics.

Understanding the Role of Software Optimization

One of the primary challenges in implementing AI and software solutions is the lack of a holistic view of the supply chain. Many companies focus solely on individual components, such as warehouse management or transportation logistics, without considering how these elements interact within the broader ecosystem. This siloed approach often leads to inefficiencies and missed opportunities for optimization across the entire supply chain.

Don't Compromise! Use MAIN



Choose the company that is:

- **Dependable** – 60+ years of service to the industry.
- **Informed** – Active on the SAE, NFPA, and ISO tech committees.
- **Quick** – Thousands of SAE J518/ISO 6162, ISO 6164, & JIS flanges stocked. Specials in less than a week.

Call MAIN – your source for hydraulic flanges and components. Get the flanges you want NOW!

MAIN Manufacturing Products, Inc.
Grand Blanc, MI 48439
800.521.7918 810.953.1380 A North American Manufacturer
info@MainMfg.com



LONG-LIFE BELTS MOVE HEAVY LOADS

When a competitor's belts failed after only nine months service in a large postal distribution center, Dura-Belt's **Long-Life HT belts** replaced them. **Nine years** later, HT belts are still going strong -- moving your mail on conveyors that run 24 hours/day, 7 days/week.

Even though some postal tubs have soft bottoms and carry over-weight loads, HT belts take the punishment and keep the mail moving. Over **120 million** are in service on powered-roller conveyor systems. For longer-life and heavier loads, try time-tested HT (high tension) O-ring belts -- the only ones colored **"Post Office Blue"**.

Dura-Belt 800-770-2358 614-777-0295
Fax: 614-777-9448 www.durabelt.com



NERVES OF STEEL REQUIRED

Stamping, forming, and fabricating have always been hard work. Supply chain disruptions only make it harder. Since 1949, we've built strong relationships with a network of mill sources and suppliers to provide the carbon and alloy steel products you rely on. We know how important every order is to your business, and we have the resolve to help you get what you need.

Admiral
STEEL
Admiralsteel.com

4152 W. 123rd St. • Alsip, Illinois 60803-1869
P: 800-323-7055 • F: 708-388-3412 • sales@admiralsteel.com
Se Habla Español

Admiral is a registered trademark of Admiral Steel LLC, Alsip, Illinois. Reg. No. 2430959. All rights reserved.

Data quality and integration pose additional challenges. AI and machine learning algorithms rely heavily on accurate, comprehensive data to generate meaningful insights and recommendations. However, many companies struggle with data silos, inconsistent data formats and outdated information, which undermine the effectiveness of even the most sophisticated software solutions.

Smarter Load Optimization

Moving beyond these implementation challenges, let's examine the critical area of load optimization in warehouses and distribution centers. Many companies today are utilizing optimization software that focuses solely on downstream processes at the warehouse level. Even though the

pallets at each stop to reach the varying temperature sections of the truck. These strategies not only increase delivery times but also risk compromising the temperature integrity of perishable goods.

Today's more advanced load optimization software strategically orchestrates the loading of the trailer to address these challenges. These solutions consider product compatibility, determining which items should be safely stacked on top of each other in a pallet and within the truck. They also optimize the placement of goods in different temperature-controlled sections of the truck, minimizing the need to remove non-customer-specific pallets at each stop.

By implementing these advanced optimization techniques, companies reduce the

One of the primary challenges in implementing AI and software solutions is the lack of a holistic view of the supply chain.

approach yields some benefits, it significantly limits flexibility and responsiveness to changing market conditions.

Forward-thinking companies are recognizing the need for more sophisticated software solutions that allow for upstream optimization. This strategy enables companies to make last-minute changes to orders, responding dynamically to shifts in demand or supply chain disruptions. By optimizing loading upstream, companies can better align their operations with real-time market conditions, improving efficiency and customer satisfaction while minimizing food waste.

A key component is the ability to perform dynamic builds, reconfiguring truckloads with proper "stackability" to ensure each axle is weight-optimized while also considering the unique temperature control requirements of different products. These capabilities allow companies to maximize the number of pallets loaded onto trucks without risking fines during road checks or compromising product quality. Many industries, including grocery as an example, face unique challenges in load optimization due to the various temperature control sections required in a truck. Traditional loading strategies based on the order of customer drops often result in inefficiencies, requiring the removal of several

number of pallets that need to be moved at each delivery point. Industry observers believe this not only improves efficiency but also reduces the risk of temperature fluctuations for sensitive products. The result is a more streamlined delivery process that maintains product quality and freshness while reducing operational costs.

Is Your Routing Truly Dynamic?

The final piece of the puzzle in supply chain optimization is dynamic routing. Many companies still rely on static routing methods, which lack the flexibility and agility required in today's fast-paced business environment. The limitations of static routing become particularly apparent in the face of unexpected events, such as traffic disruptions, weather conditions, or last-minute order changes, all of which significantly impact the delivery of goods.

Dynamic routing offers a solution to these challenges by continuously optimizing delivery routes based on real-time data and changing conditions. This is particularly crucial in industries, where factors such as traffic, weather and product freshness impact delivery schedules. Dynamic route optimization leverages advanced algorithms and real-time data to create the most efficient delivery routes, considering factors such as traffic patterns, delivery time windows, vehicle capacities, road conditions, and the specific temperature requirements of different product categories.

However, simply investing in dynamic routing software is not enough for companies. They need to build the right strategy to adopt and implement the technology effectively, which is where the disconnect between C-level executives and operational teams often becomes most apparent. While C-suite leaders may be eager to invest in cutting-edge routing software, operational teams need support in refining

their processes before the software is truly effective.

By combining AI-driven insights with human expertise, companies will be positioned to make more informed decisions about customer service levels. Sometimes, this might mean adjusting delivery frequencies based on a comprehensive analysis of costs and benefits.

For example, a company might decide to reduce deliveries to certain customers from four or five times a week to three, based on factors such as order volume, product mix and delivery costs. The strategic approach to routing optimization leads to greater cost savings and improved overall efficiency without compromising product quality or customer satisfaction.

The logistics industry faces unique challenges in supply chain optimization, particularly in areas such as temperature-controlled logistics and product freshness. However, by leveraging advanced technologies and strategic thinking, companies can overcome these challenges and achieve significant improvements in their operations.

As the logistics industry continues to evolve, companies that successfully implement these advanced optimization strategies will be best positioned to thrive in an increasingly competitive and complex marketplace. **MH&L**

Aaron Geiger is the managing director of manufacturing and CPG/retail for ORTEC, a provider of advanced analytics and optimization solutions.

**FALLEN FREIGHT?
WE HAVE THE ANSWER!**

**ANCRA'S NEW FREIGHT SAVER
"THE CRITTER"**

P/N: 51378-10

Also Works in Trailers

PATENT-PENDING

Your ultimate solution for efficiently recovering shifted freight. Minimize damage, reduce injury risk, and stabilize freight for quick repositioning.

- Chain attaches "The Critter" to forklift for added security
- Easily lift freight that has shifted off of the deck or rack
- Skids can be lifted off the deck bar or rack to adjust beams
- Remove shifted freight quickly with minimized damage



How-To-Use
Video

**ANCRA
CARGO**

LEADER IN LOAD SECUREMENT INNOVATION

1-800-233-5138 | www.ancracargo.com



LEADERS PROFILE

GLOBAL INDUSTRIAL

Industrial Ergonomics: Workspace Optimization For Warehousing & Distribution Centers

Boost productivity and reduce injuries with simple ergonomic upgrades—whether in industrial settings, offices, or jobsites. Here's how to make ergonomics work for your workspaces.

With some simple ergonomic improvements in your facility, you can reduce the risk of injuries, enhance productivity, and ultimately lead to a much more efficient operation. So, what is ergonomics, and how can facilities leverage it effectively for both owners and operators?

What is Ergonomics?

Ergonomics is the science of optimally designing and arranging workspaces to fit the tasks performed and the people performing them. Ensuring a worker's physical and psychological safety are key to any ergonomic evaluation. You want to create a workspace where employees can perform their tasks with minimal physical effort or strain. This approach reduces the risk of musculoskeletal disorders (MSDs) and enhances overall operational efficiency. In many places, ergonomic efficiency is not just a best practice: it's the law. For instance, the New York State Senate recently established the Warehouse Worker Injury Reduction Program as an amendment to its labor law. This act mandates that employers develop and enforce formal injury reduction programs, assessing workplace risks and minimizing musculoskeletal injury hazards. Compliance with OSHA ergonomic standards is also essential for ensuring worker safety and avoiding penalties. So, how do you create ergonomic workspaces to protect facility owners and operators?

Common Ergonomic Issues for Warehouse Workers

Warehouse employees often face various ergonomic challenges throughout their workday, including:

- **Physical strain from repetitive movements:** Repeating the same motions, such as lifting, reaching, or scanning, can lead to strain injuries over time. This is a common issue in shipping departments, on loading dock, and in manufacturing facilities.
- **Poor posture:** Awkward bending, twisting, or prolonged standing can cause long-term musculoskeletal problems. For instance, a worker in a



manufacturing cell or material handling role may spend a good deal of the day hunching or straining to do their job.

- **Fatigue:** Physically demanding work, especially without adequate breaks or supportive equipment, can lead to exhaustion, increasing the risk of mistakes and injuries. Workers in packaging and shipping departments, loading docks, and inventory management roles can experience excess wear-and-tear on their body and mind – especially managing peak season.

Workplace Injury Prevention

Minimizing repetitive motions and awkward postures helps prevent musculoskeletal disorders such as back pain, carpal tunnel syndrome, and muscle strains. Prioritizing ergonomics supports workplace injury prevention strategies by reducing employee accidents and injuries, creating a safer, more productive workplace.

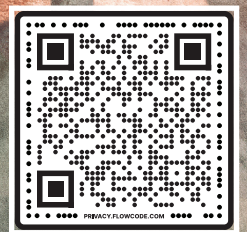
Shop at Global Industrial. The Source For Industrial Equipment And Supplies.



**GLOBAL[®]
INDUSTRIAL**
We can supply that.[®]

CONTACT
(888) 978-7759
globalindustrial.com

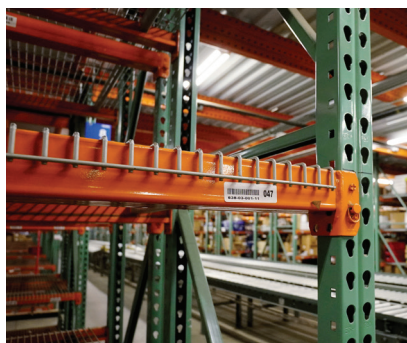
THE SOURCE FOR INDUSTRIAL EQUIPMENT AND SUPPLIES



Scan QR Code



Material Handling



Pallet Racking



Storage & Shelving



Warehouse Safety



Providing your team with the right equipment and supplies is key to warehouse safety, efficiency, and productivity. From pallet racks and jacks, to fans and floor care, Global Industrial is your source for warehouse workspace essentials.

1.888.978.7759 | globalindustrial.com/warehouse

New Approach to Supply Chain Execution

by Bryant Smith

Modern transportation management systems (TMS) have revolutionized the way businesses manage their transportation and logistics operations, ensuring on-time deliveries while staying under budget.

By leveraging sophisticated algorithms for route optimization, TMS can assess various factors such as traffic conditions, distances, and delivery windows to recommend the most efficient and sustainable transportation routes. This not only

reduces fuel consumption and operational costs but also speeds up deliveries, contributing to the overall reduction of expenses and impact on the environment.

Cost Efficiency at the Core

Cost efficiency is a cornerstone of modern TMS, with features designed to reduce transportation costs through optimized routing, load consolidation and strategic carrier selection. By balancing loads across resources and working with network partners, companies can significantly lower their operational expenses.

By supporting “what if” scenarios and allowing for the analysis of different scenarios generated through advanced analytics, a TMS can improve forecasting for procurement planning, shipment consolidation and advanced capacity planning.

Adaptability and Continuous Improvement

The modern TMS provide more than simply efficient route planning, however. It's also about adaptability and continuous improvement. With the dynamic nature of the logistics industry, businesses need a system that can quickly adapt to disruptions and changes in demand. This adaptability is crucial for maintaining on-time deliveries, as it allows businesses to quickly reroute shipments or adjust schedules in response to unforeseen circumstances.

Enhanced Visibility for Informed Decision-making

Visibility is another key aspect of a modern TMS. Enhanced transparency and actionable insights allow for better tracking and management of transportation activities, leading to improved customer experiences and more informed business decisions.

Real-time insights into the supply chain enable proactive management of potential issues, ensuring that goods and services are delivered efficiently and on time. This feature is crucial for maintaining visibility in the supply chain and allowing businesses to respond swiftly to any disruptions.

Streamlined Carrier Management

Carrier selection and management is another area where modern TMS solutions are useful. With capabilities like carrier and rate selection, businesses can choose optimal carriers and their associated rates, ensuring cost-optimized assignments of multiple carriers for a

pool of loads. This not only adheres to designated commitments but also helps in maintaining a balance between cost and service quality.

Additionally, the integration of freight audit and payment automation within TMS platforms reduces the risk of overcharges and streamlines payment processes, contributing to budget efficiency.

No Integration, Just One System

A TMS and a warehouse management system (WMS) that are part of one unified system further streamline transportation tasks with warehouse operations, leading to faster delivery times and more customer promises being met. By using a single data source, shared by both TMS and WMS (such as inventory levels, fulfillment progress and shipment ETAs), businesses can align transportation plans with warehouse activities, minimizing lead times and enhancing on-time delivery rates.

With features that promote cost efficiency, adaptability, visibility and improved decision-making, businesses can navigate the complexities of the transportation and warehouse landscapes together with confidence.


By unifying warehouse, yard and transportation management in one solution, companies can create a unified supply chain execution system, unlocking more optimization opportunities. This enables companies to gain a holistic view of their entire, end-to-end distribution network, offering a unified experience for organizations operating within (increasingly) dynamic and demanding scenarios.

Sustainability through Efficiency

Furthermore, a unified approach to transportation management gives businesses a tangible pathway to reduce their carbon footprint, fuel costs and emissions while simultaneously enhancing efficiency and decreasing costs. By providing transportation optimization, sustainable carrier metrics, carbon accounting and reporting, companies can track and manage their environmental performance in real-time.

This approach ensures that environmental, social and governance (ESG) strategies are aligned with business goals, leading to a more sustainable and efficient operations. **MH&L**


Bryant Smith is director of product management at Manhattan Associates, a provider of supply chain and omnichannel commerce solutions.



FAMILY OWNED • AMERICAN MADE
TRUSTED PARTNER


Pallet Rack Systems

Push Back • Selective • Drive-In • Seismic Base Isolation
Flow • Pick Modules • Cantilever



Proud members of:
MHEDA, RMI & MHI

American Steel • Superior Fit & Finish
Project Management • Online Sales Tools
Rack Configurators



RAMGUARD
COLUMN PROTECTION

STEEL REINFORCED RUBBER GUARD

RIDG-U-RAK®
Famous for integrity since 1942
Ridgurak.com PROUDLY Made in the USA

FROM THE COVER KICKER

Exoskeleton Offers All-Day Lifting Support

Reducing strain for workers in logistics and manufacturing, the **IX BACK VOLTON** exoskeleton pairs high-performance battery power with precise motor technology, adapting to users' movements while remaining lightweight and easy to handle.

Ideal for lifting, bending, and carrying tasks like order picking and loading/unloading, it provides up to 40 lb (18 kg) of lifting relief per movement with intuitive, natural support. Weighing just 10 lb (4.5 kg), its single-drive power system allows for all-day wearability. With a battery life of up to 8 h, the exoskeleton provides full-shift support. Its Bosch Professional battery offers easy replacement and cross-brand compatibility through the AMPShare system. The global market launch is scheduled for October 2025.



SUITX by Ottobock

More online: newequipment.com/55276994

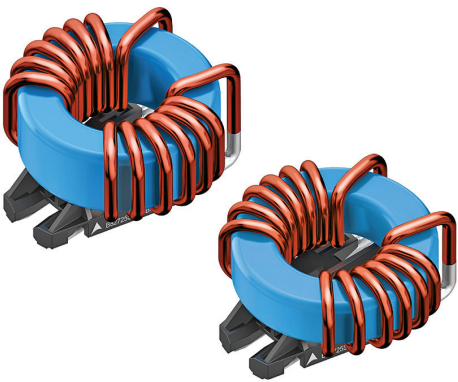


Eco-Friendly Oil-Free Rotary Air Compressor

The **ECO-Rotary** oil-free rotary screw air compressor is tailored to address the diverse needs of industries requiring clean, efficient compressed air. Available in 20 to 150 hp, its oil-free, dry air is ideal for industries where contaminant-free operations are required. With cooler operating temperatures, it reduces system wear, prolongs lifespan, and maximizes efficiency. Its eco-friendly design ensures fewer maintenance costs and environmental impact while adding a valuable addition for a variety of industries.

FS Curtis

More online: newequipment.com/55274255



Chokes for High Current Reflow Assembly

SurfIND is a series of surface-mount common-mode chokes designed for rated currents from 24 to 36 A at 158°F (70°C). These components support reflow soldering and feature a compact 2 x 1.5 in (40 x 38 mm) footprint with a low profile. Seven variants offer inductance values from 120 to 820 µH, and stray inductance of up to 1% also suppresses differential-mode noise. The design eliminates adhesive use and includes UL 94 V-0 materials.

TDK Corporation

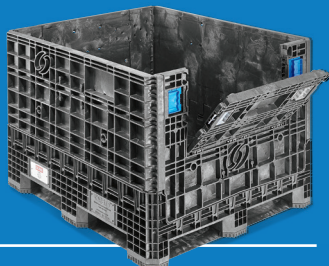
More online: newequipment.com/55288169



**ORDER BY 6 PM FOR
SAME DAY SHIPPING**

U LINE

FROM BIG TO BULK
ALL SIZES IN STOCK AND READY TO SHIP



BULK CONTAINERS



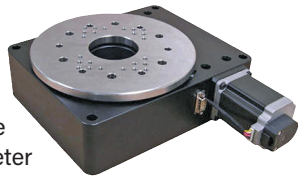
SHIPS TODAY

REUSABLE BULK CONTAINERS

COMPLETE CATALOG 1-800-295-5510 uline.com

High-Capacity Rotary Stage

The **AY110-200 Rotary Stage Series** provides precise rotational control with 3.6 arcseconds (1/1,000 of a degree) resolution through a 180:1 worm gear with 10 micro steps-per-step micro-stepping drivers. The series includes models with an 8 in (200 mm) diameter table and a load capacity of 220 lb (100 kg). The stage uses a pattern of threaded mounting holes in the table and the base for integrating into various applications. The series offers four different motor configurations.



Optimal Engineering Systems, Inc.

More online: newequipment.com/55284837

Midsize Diesel Pneumatic Forklift

The **D45S-9 Midsize-Capacity Diesel Pneumatic Tire Forklift** features a 3.4-L D34 diesel engine that allows operators to choose from either standard or eco mode. The engine and transmission are designed for fewer scheduled maintenance tasks to save time and money. It offers a load capacity of up to 10,000 lb (4,500 kg), travel speeds of 15 to 16 mph (24 to 25 km/h), and lift speeds of 105 to 117 ft/min (32 to 35 m/min).



Bobcat Company

More online: newequipment.com/55276808

Low Maintenance Solutions

- ▶ Dust Collectors
- ▶ Air Pollution Control
- ▶ Process Tanks



Tri-Mer Whirl/Wet

Most efficient collector for dusts 3+microns

- Low water use, low utility cost
- 95-99.8% efficient



Tri-Mer scrubbers

PM2.5, NOx, HCl, Cl2, SO2, HF

- Stand-alone scrubbers, turn-key systems and system upgrades

High-strength Tanks

- Exceptionally stress and crack-resistant, excellent dielectric properties, repairable on-site.



(989) 723-7838

Salesdpt@tri-mer.com

Manufacturing in Owosso, MI USA



High-Performance DC Motors

The **1218 SXR** and **1228 SXR DC motors** are miniature drive systems designed for demanding applications requiring high performance and flexibility. With voltage options from 3 to 18V and customizable configurations, these motors deliver enhanced efficiency and reliability. They feature a hexagonal coil for improved performance and temperature stability, making them ideal for industries like prosthetics, surgical tools, and automation.

FAULHABER MICROMO, LLC

More online: newequipment.com/55287135



Entry-Level Ultrasonic Welder

Set to launch this summer, the next-generation **Branson Polaris Ultrasonic Welding platform** offers an entry-level system for automotive, textile, consumer electronics, food packaging, and other applications. The intuitive and ergonomic design streamlines operation and serviceability with the actuator, power supply, and process controls in a single unit, taking up less space to be integrated into production lines. The HMI touchscreen features an operation summary display, letting users view recipe parameters, calibrations, weld history, alarm logs, as well as system information & diagnostics.

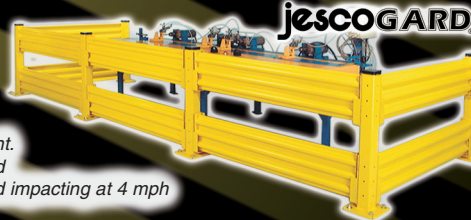
Emerson Electric Co.

More online: newequipment.com/55278925



Wire mesh guarding systems provide an excellent method of defining work areas, aisle ways, or departments. With the proper layout you are able to restrict unnecessary traffic and direct the flow of materials in a plant or warehouse. Quickly installed with standard hand tools. Layout changes may be accomplished with little or no waste. 8" sweep space. Panels are painted dark gray to allow full visibility. Posts are powder coated yellow.

These versatile guards act as both a visual and physical barrier to help protect people and property such as aisles, docks, conveyors, and other equipment. Standard rails are designed and tested to stop a 10,000 lbs load impacting at 4 mph from breaking through.



jESCOHUSKYDUMPER

All-welded self dumping hoppers handle bulk materials or scrap easily. If you don't find a unit to meet your needs from our large selection of over 60 standard models, we will design and build a unit to meet your specific requirements! Standard safety equipment. Forklift base. Casters optional.

Call 800.609.8290

jESCO
— Since 1932 —

www.JescoOnline.com





Solid End Mill Removes More, Faster

The **CoroMill Plura barrel** is a family of optimized solid-end mills designed for profiling applications. Suited for the aerospace industry and other high-demand sectors, its one-radius barrel form featuring up to six optimized flutes, reduces cycle times by increasing the step-over, enhancing machining efficiency by increasing the surface removal rate and ensuring surface quality. The barrel design reduces cusp height between passes, leading to better surface finishes and lower surface roughness. The tool is available for titanium alloys and heat-resistant superalloys, enhanced by Sandvik's Zertivo 2.0 PVD coating.

Sandvik Coromant

More online:
newequipment.com/55275311

Telescopic Rail Enables Lubrication-Free Motion

The **Drylin NT-60-4 telescopic rail** is a sliding rail system made of interlocking aluminum profiles that extends up to 79 in (2 m) without the need for lubrication. It uses a PTFE-free plastic sliding element for low-maintenance, hygienic operation. Offered in multiple anodized finishes and sizes, the system supports loads up to 200 N and is tested for durability with up to 25,000 opening and closing cycles.

igus

More online: newequipment.com/55287131



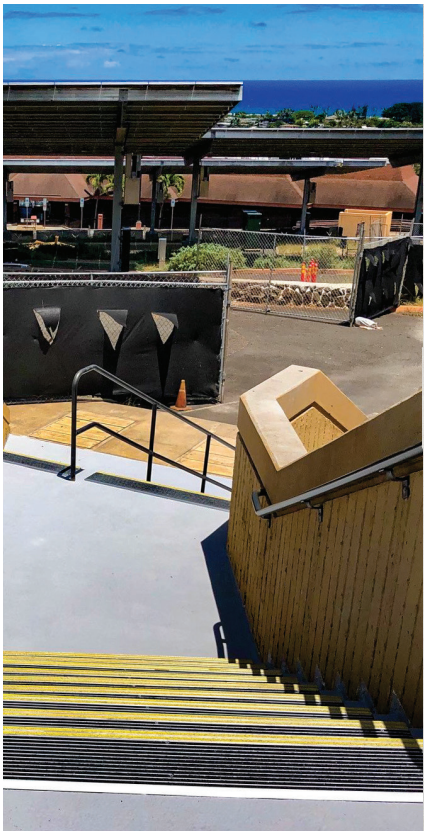
Self Repairable SRL

A new advancement in self-retracting lifeline (SRL) technology, the **FT-R+ Class 2 leading-edge SRL** features FallTech's new SpeedLine system that can be repaired directly on site. The SpeedLine system simplifies SRL repairs, ensuring that damaged lifelines can be replaced in minutes. At the core of this system is LineLoc, a locking mechanism that disengages a damaged cable and secures a replacement in seconds. Features include support for workers up to 420 lb (190 kg) and multiple anchorage options, including above, at, or up to 5 ft (1.5 m) below a worker's D-ring.



FallTech

More online:
newequipment.com/55280754



WO
100 YEARS
Specify Wooster
"Make Every Step a Safe One"



STAIRMASTER®
■ Restore Any Stair
■ Anti-Slip Properties
■ Highly Durable
■ ADA, OSHA, and ASTM Compliant
1.800.321.4936
www.woosterproducts.com
sales@wooster-products.com



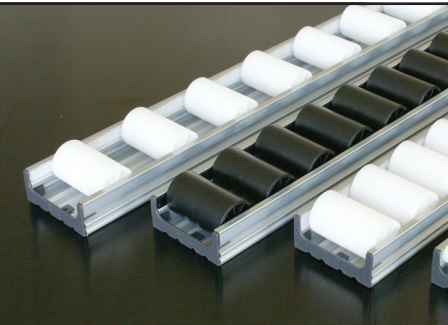
Small, Thin-Film, Band-Pass Filters



BP1206 and BP2816 Series of compact, thin-film band-pass filters use multilayer, integrated thin-film technology for repeatable RF performance with low insertion loss, steep attenuation, sharp roll-off, low-noise, and high temperature stability. They exhibit 8 W of continuous power handling and 50Ω characteristic impedance and support frequency bands of 240 to 6,100 MHz. Able to be used for high-frequency wireless systems with crowded PCBs, both series allow RF parameters to be easily adjusted and feature sturdy, low-profile cases.

KYOCERA AVX

More online:
newequipment.com/55283237



IF YOU HAVE GRAVITY FLOW PROBLEMS...

...CREFORM CONVEYORS PERFECT THE ART OF WORKFLOW.

Whether it's with a Creform structure or a structure of your own, Creform gravity roller conveyors provide smooth, quiet and reliable operations. With over 16 varieties and types of roller conveyors, Creform has the answer to your problems. They provide low-rolling resistance, stability and extra support for handling totes and even unpackaged goods. They feature a wide selection of roller sizes, spacing and styles that are modular by design for flexibility and recyclability. *That's perfecting the art of workflow.*

CREFORM® MATERIAL HANDLING SYSTEMS
www.creform.com • 800-839-8823





Multiport Charger Cuts Fleet Downtime

MOOVbase Multi-port Charging System enables simultaneous charging of up to three small logistics vehicles or batteries, simplifying infrastructure by operating through a single AC and data connection. Designed for flexibility, it supports varying voltage levels and adapts to fast or slow charge cycles. The system works with contact or floating connectors and integrates with fleet or energy management systems, reducing space and installation costs while maintaining regulatory compliance.

Delta Electronics, Inc.

More online: newequipment.com/55273919



Vertical-In-Line Fire Pumps Offer Max Flow, Pressure

Armstrong Fluid Technology has expanded its line of **Constant Speed Vertical-In-Line Fire Pumps** with a maximum 500 USGPM flow for both 60 and 50 Hz markets, along with a new high-pressure rating of up to 160 psi. The Vertical-In-Line Fire Pumps eliminate the need for offset piping and motor realignment. They also use less floor space than comparable Horizontal Split Case designs.

Armstrong Fluid Technology

More online: newequipment.com/55283044

ESTABLISHED IN 1919

Tested, Tough, TRADITION

Long before the market was flooded with cheap workholding products there was only one name industrial professionals trusted - Palmgren®.

Call or visit our website when you're ready to step up to machines and tools that stand the test of time.

We are workholding ▶



LIVE CUSTOMER SUPPORT

800.827.3398

sales@chhanson.com

PALMGREN®

EMBRACE THE WORK®



FROM THE COVER KICKER



Humanoid agent AI avatar

Highly Flexible Humanoid Robot

The **G1 Humanoid agent, AI avatar robot** has more flexibility than humans and comparable humanoid robots on the market, providing unlimited movement potential. Standing 4 ft (130 cm) tall, weighing 80 lb (35 kg), and walking at 6.5 ft/s (2 m/s), the G1 has a large joint movement space, with 23 to 43 joints. The maximum joint torque can reach 120 Nm.

The robot can perform dynamic movements, such as standing up, folding in half, kicking its legs in the air, turning its torso 180 degrees, maintaining balance if pushed, etc. Based on deep reinforcement learning and simulation training, it uses AI to continuously upgrade and evolve.

Through force-position hybrid control, it can simulate the finesse of a human hand and accurately control various objects. Whether smashing walnuts, carrying heavy objects, or picking up fragile objects, the G1 demonstrates extreme accuracy and stability. It can even open soda bottles and weld.

Unitree Robotics

More online: newequipment.com/55271035

Wireless Upgrade Expands Network Capacity

Wireless 1410S Gateways and **781S Smart Antenna** enhance WirelessHART networking infrastructure by expanding device capacity and improving wireless range. Firmware updates allow support for up to 1,000 devices with Dual WirelessHART technology, helping streamline large site deployments. The 781S Smart Antenna offers flexible cable customization and high-gain remote antenna compatibility, minimizing network hops and reducing repeaters while simplifying the upgrade process for legacy systems.

Emerson Electric Co.

More online: newequipment.com/55286140

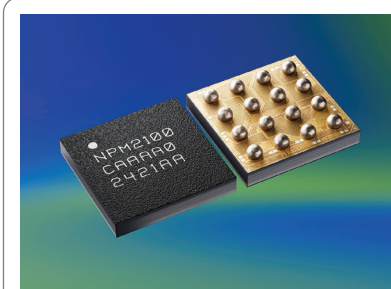


Power Management IC for Primary Batteries

The **nPM2100 Power Management IC** prolongs the use of primary battery applications, featuring a boost regulator with an output range of 1.8 to 3.3V, powered from an input range of 0.7 to 3.4V, delivering up to 150 mA maximum current. It supports different configurations, including one or two AA/AAA/LRxx batteries, 3V LiMnO2 cells, and single or dual-cell silver oxide and zinc-air coin-cell batteries. Low-current ship mode enables products to be transported with the battery inserted, supporting a 35 nA sleep current with multiple wakeup options.

Nordic Semiconductor, Inc.

More online: newequipment.com/55284896





Single-Film Flow Wrapper for Medical Packaging

The **ARTIC SS Chevron** horizontal flow wrap machine for medical and pharmaceutical packaging applications uses a single roll of film, folded to form a secure seal that maintains sterility while reducing plastic usage. The design eliminates premade bags and dual films, simplifying validation processes and reducing inventory. Suited for low-height medical devices such as bandages, gel pads, and wound care products, its quick-changeover uses a simple wheel adjustment to support fast format or appearance changes. Integrated Tyvek webbing allows for sterilization methods while maintaining necessary barrier properties. The offset edge design supports quick, aseptic access during package opening.

Harpak-ULMA

More online: newequipment.com/55285281



IS Ultrasonic Sensor for Explosive Environments

Offering accurate, reliable distance measurement and object detection, the **RPS-429AA-40P-IS2 Intrinsically Safe Ultrasonic Sensor** comes in a 30 mm IP66/67 barrel enclosure. It uses a 4-20mA, 2-wire current loop and runs on 14 to 30V DC with reverse polarity protection. Features include built-in temperature compensation, a 4 to 40 in (10 to 100 cm) range, and a 100ms response time. It's ATEX, IECEx, & C-UL-US certified for Zone 0-2 & 20-22 hazardous locations, plus Class I, II, and III.

Migatron Corporation

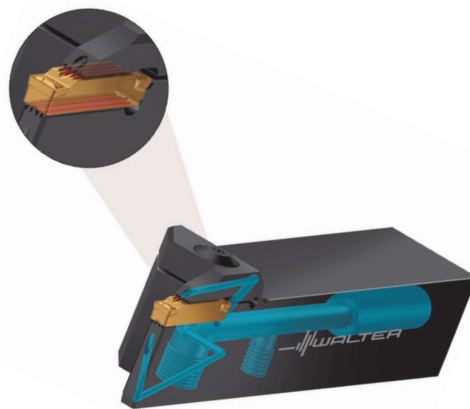
More online: newequipment.com/55236236

Next-Gen SCADA Automation & Digitalization Platform

GENESIS is a next-generation SCADA automation and digitalization platform that helps organizations enhance industrial automation operations now and in the future. It features unlimited licensing and scalability to handle any system size; advanced visualization, comprehensive alarm management, and enhanced system control; data-centric architecture featuring an embedded industrial-strength historian and strong security; universal connectivity and native integration with an expanded set of Mitsubishi Electric devices; rapid deployment, future-proof support, and full extensibility; and asset modeling with unified namespace and adherence to industry standards.

Mitsubishi Electric Iconics Digital Solutions, Inc. (MEIDS)

More online: newequipment.com/55280715



Grooving Tool for Radial Grooving, Copy Turning

The **Groov-tec GD G5011** grooving tool body accepts double-edged GD26 cutting inserts with a double serration clamping profile for secure locking in the insert seat, increasing stability and reliability. The positive fit absorbs lateral forces during longitudinal and copy-turning. The tool can also be used for applications, including radial grooving, recess turning (groove turning), offset grooving, chamfering, parting off with an inclined edge cutting insert, and parting off with a straight cutting insert.

Inserts are available for grooving widths of 2.5, 3, 4, 5, and 6 mm. Indexable insert clamping can be operated from both sides. For optimum tool stability, there are two grooving depths of 12 and 21 mm. The corresponding tool holder shank sizes are 0.625, 0.75, and 1 in as well as 16 x 16, 20 x 20, and 25 x 25 mm. The new serration profile and coolant delivery to the tool/workpiece interface enable increased cutting parameters, and the tool can be used with or without cooling.

Walter USA, LLC

More online: newequipment.com/55274616

INNOVATING SAFETY



COXREELS®

EZ-COIL®
PATENTED REWIND SYSTEM

SAFEST REELS IN THE INDUSTRY.

- ✓ Eliminate dangerous whipping hazards.
- ✓ Increase worksite safety & efficiency.
- ✓ Requires no external power source.
- ✓ Wide array of reel models & options.

DURABLE. RELIABLE.
HOSE, CORD, & CABLE
PRO GRADE REELS

LEARN MORE: www.coxreels.com TOLL FREE | 800.269.7335

MADE IN THE USA SINCE 1923

FOLLOW US:    

NEED LITERATURE DIGEST

The finest in industry specific print/digital catalogs, brochures and product descriptions.

INTRINSICALLY SAFE ULTRASONIC SENSORS

**For Oil, Gas, Mining
and other Hazardous
Locations/Explosive
Atmospheres**

Measure from 1 in. to 18 ft.



ANZEEx  

Full line of Standard
Ultrasonic Sensors
and Transducers

www.migatron.com
info@migatron.com
815-338-5800

Migatron is
ISO 9001
CERTIFIED



GREAT QUESTION

A Manufacturing Podcast

News and information for the people who make,
store and move things and those who manage and
maintain the facilities where that work gets done.

The latest episodes:

Worried About a Slowdown? Let Automation Do the Heavy Lifting
The Practical Guide to AI on the Factory Floor

Why an IP67 Rating is Critical for Industrial Networking Devices

How to Successfully Integrate Time-Sensitive Networking in Your Facility

Subscribe Now And Never Miss An Episode

www.newequipmentdigest.com/great-question

BENKO PRODUCTS

ENGINEERED TO BE MORE

Benko Products, Inc. has been manufacturing a complete line of industrial ovens for over 30 years. Ovens offered include: batch, drum & tote warming, cabinet, walk-in, truck-in, powder coating, conveyor, preheat, curing, drying and more. Electric, steam, natural gas. Room temp to 500 degrees F.

Sahara
Hot Box

Benko Products

(440) 934-2180

email: info@benkoproducts.com

www.benkoproducts.com



OVENS AND FURNACES BY BENKO PRODUCTS, INC.

Benko Products designs and manufactures a robust line of Ovens and Furnaces for a variety of applications. Standard and custom models available. Burn Off, Batch, Curing, Drying, Conveyor and Drum Ovens. Furnaces up to 2300F.

Furnaces

**Burn-off
Ovens**

**Industrial
Ovens**



BENKO PRODUCTS
ENGINEERED TO BE MORE

Benko Products

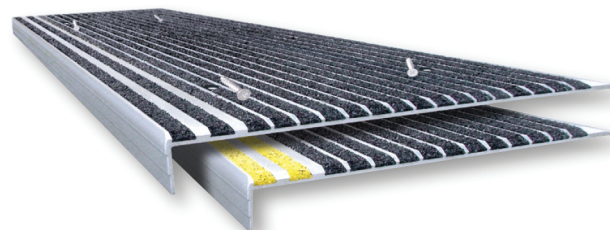
(440) 934-2180

email: info@benkoproducts.com

www.benkoproducts.com

STAIRMASTER® Anti-Slip Stair Treads

For worn, slippery stairs & walkways



Wooster Products Inc.
"Make Every Step a Safe One"



1-800-321-4936

www.woosterproducts.com

MAIN MFG - your source for hydraulic flanges and components




MAIN's Quick Reference Guide contains many standard generic drawings that helps define your special flange/adaptor needs.

Your conversations are quicker and clearer with MAIN Manufacturing's Quick Reference Guide and that "special" may be stocked at MAIN.

Many specials are part of MAIN's 7000+ inventory. If not, MAIN has the expertise, raw material, and quick turn-around time to help you get the right hydraulic flange/adaptor quickly.

Go to: Mainmanufacturing.com/quick

ROTATING ELECTRICAL CONNECTORS



Mercotac rotating electrical connectors offer superior benefits to traditional slip rings: compact size, brushless, negligible electrical noise, signal and/or power combined in one unit, low cost, Made in USA for over 40 years. See the difference!

MERCOTAC
sales@mercotac.com
 760-431-7723
www.mercotac.com

FORCE & TORQUE



- Mechanical & digital force gauges
- Manual & motorized test stands
- Torque screwdrivers & wrenches
- Torque calibrators & testers
- Data acquisition

800-373-9989
www.imada.com

IMADA®, Inc. ISO9001 Registered & ISO/IEC 17025 Accredited

Adhesive for food equipment applications


Epoxy Compound EP42HT-2FG



- Passes FDA CFR 175.300
- Resists high temperatures
- Withstands oils, fats & acids

MASTERBOND®
 Watch our video
 +1.201.343.8983 • main@masterbond.com • www.masterbond.com

Double Row Terminal Blocks



DG99-A
 75A | 600V

HD-30A
 40A | 600V

HD-20A
 20A | 250V

HD-10A
 10A | 250V


BlockMaster Blocks
 World Class Terminal Blocks
Sales@BlockMaster.com
 P: 800-595-8881
BlockMaster.com

✦ Fast Delivery

✦ Customizable

QR code and social media icons (Facebook, Instagram, Twitter, YouTube)

Auto Durometer



Highly visible OLED displays and simple one button operation enable quick, consistent hardness testing.

- Highly visible OLED displays
- For Shore Scales A, B, C, D, DO, E, O, OO, and Asker C
- Peak, timer hold, and real time modes
- Auto average a series of readings.
- ISO 17025 calibration certificate traceable to NIST
- Digital & analog durometers available

800-373-9989 imada.com

Industrial Solutions at Your Fingertips—In Print and Online!

Stay Ahead With the Latest in Industrial Innovation: New Equipment, Solutions, and Insights for Streamlining Operations, Enhancing Safety, and Boosting Efficiency.





Scan for a FREE subscription to New Equipment Digest Magazine



Scan to sign up for New Equipment Digest newsletters



Register for free on newequipment.com for a deluxe online experience

AUTOMATIC WIRE CRIMP TESTER



- Destructive/Non-Destructive
- Program Force, Speed and Hold Time
- Save up to 26 Custom Setups
- Quick Change Attachments Available

800-373-9989
www.imada.com

IMADA®, Inc. ISO9001 Registered & ISO/IEC 17025 Accredited

ADVERTISE WITH US!




PRODUCT GUIDE

Your complete source of products, equipment, and services shown in this issue.
Need information from this issue in a hurry? Inquire online at www.nedinfo.com

3D PRINTING

Modeling & Software

3D Scanners	4
CAD/CAM	4

ADHESIVES & FASTENING

Adhesives/Sealants/Lubricants

Adhesives	31
Epoxies	31
Lubricants	5

Assembly/Fastening

Clamps	28, 32
Hardware	3, 27
Rails	27, 34
Vises	28
Washers	3

AUTOMATION

Automation Systems

Automation Cells	11
Automation Controls	4, 7, 8
Material Handling	4, 6, 7, 11
Packaging	4, 6, 7, 11
Software	7, 11, 29

Robots

Articulated	7, 10
Assembly	10
Automated Guided Vehicles (AGVs)	10, 11
Collaborative	4, 6, 7, 10, 11
End Effectors	4
Grippers	4
Humanoid	6, 28
Legged	28
Machine Loading	7, 10
Material Handling	6, 7, 10, 11, 28
Mobile	6, 10, 11
Packaging	6, 7, 10, 11
Palletizers	4, 6, 7, 10
Safety Devices	7
Vision Systems	6, 7

Sensors

Alarms	12
Sensors	7, 8, 29, 30
Ultrasonic	7, 29, 30
Transducers	8

CONTROLS & INSTRUMENTATION

Calibration Equipment	7
Cameras & Vision Systems	6, 7
Drones & Aerial Inspection	10
Gauges	4, 31
Indicators	12
Inspection Equipment	4, 6, 7, 33
Thermal Imaging	33
Laboratory Equipment	11, 31
Inspection & Monitoring	31
Optical Components	11
Measurement Equipment	11, 31
Force	31
Hardness	31
Optical & Acoustic	11
Meters	31
Quality Control	6
Test Equipment	7, 12

ELECTRICAL & ELECTRONICS

Electrical

Battery Chargers	28
Cable Management	29
Energy Management	28
Fasteners & Contacts	31
Laser Equipment	11
Meters	31
Motors	12, 26
Optical Equipment	11
Reels	29
Wiring	31

Electronics

Circuit Components	8, 13, 27, 28
Connectors	31

FACILITY/OPERATIONS

Facility Maintenance

Dock Equipment	3, 11
----------------	-------

Flooring	23
Vehicles	8
HVAC	
Dust Collection	26
Enclosure Cooling	9
Fans	23
Filters	33
Furnaces	30

HYDRAULICS & PNEUMATICS

Filters & Separators	33
Fittings	20, 30
Fluids	5
Nozzles	16, 17
Pumps	12, 28

MACHINE TOOLS & METALWORKING

Machine Tools & Equipment

Cutting Tools	26, 29
Drills	26
Metal Removal	26, 29
Toolholders & Workholders	28

Metalworking

Extruding Equipment	IBC
Forming Equipment	IBC
Welding Equipment	26

MATERIAL HANDLING & PACKAGING

Barcode & Labeling

Scanners & Readers	11, 12
--------------------	--------

CONVEYORS

Belt	3, 20
Conveyor Components	3, 20
Gravity Flow	27
Other Conveyors	11
Roller	27

Lift Trucks

Automated Guided Vehicles (AGVs)	10, 11
Chargers	28
Forklifts	10, 11, 21, 26
Jacks	22, 23
Pallet Trucks	10, 22, 23
Personnel Carriers	8
Scissor Lifts	IBC, 3
Tires	4

Lifting/Positioning Equipment

Chains & Fittings	21
Cranes	3, 14, 15
Dumpers	IBC, 26
Hoists	14, 15
Inverters & Upenders	3
Lift Tables	IBC, 3
Turntables	IBC

Packaging

Containers	25
Shipping	25
Weighing	11, 25
Wrapping	28
Sorters	
Robotic	11

Storage

Bins & Baskets	25
Cabinets & Drawers	22, 23
Containers	25
Picking Equipment	6
Rack Protection	8, 21, 24
Racks	21, 22, 23, 24
Shelving	22, 23, 24
Storage Labeling & Organization	19

MATERIALS & CHEMICALS

Fluids

Oils	5
------	---

Metals/Alloys

Metals, Ferrous	20
Stainless Steel	20

Plastics & Polymers

Plastics	32
----------	----

MOTION CONTROL

Belts	3, 20
Linear Motion & Positioning	6, 27
Motors	8, 12, 26
AC Motors	8
DC Motors	26
Positioning Stages/Slides/Guides	26, 27, 34

PROCESS EQUIPMENT

Air Compressors	25, BC
Air Knives	13
Air Nozzles & Guns	13
Alarms	12
Antistatic Devices	13
Cooling Equipment	9
Dust & Fume Collection	26
Heating Equipment	30
Hose & Tubing	29
Nozzles	16, 17
Pipe Tools	32
Process Equipment	9, 13, 16, 17, 26
Pumps	12, 28
Spraying Equipment	16, 17

SAFETY

Electrical

Wiring Devices	31
----------------	----

Environmental Management

Air Filtration	26
Emission Monitoring	26
Hazardous Material Storage	26
Pollution Control	26

Ergonomics

Exoskeletons	25
Workstations	22, 23

Fall Protection

Guard Rail Systems	8, 22, 23, 26
Lifelines	27
Other Fall Protection Equipment	21
Safety Barriers	8, 22, 23, 26
Tread & Walkway Products	27, 30

Fire Protection

Detectors & Alarms	12
Hose & Accessories	28, 29

Machine & Tool

Alarms	12
Machine Guards	26
Presence Sensing	7
Warning Devices	12
Wire Guards	26

Security

Alarms	12
--------	----

Signs & Warning Devices

Labels	19
--------	----

SOFTWARE & COMPUTERS

Computer Peripherals & Accessories

Antennas	28
Connectors	4
Gateways	28

Mobile Devices

Wearables	11
-----------	----

Software

Application Development & Deployment	29
Artificial Intelligence	6, 8, 10
CAD & CAM	4, 7
Data Storage & Management	29
Equipment Management	8
Industrial & Engineering	29
Industrial Controls	29
Internet of Things (IoT)	29
Inventory Management	10, 11
Maintenance	8
Supply Chain Management (SCM)	18, 19, 20, 21, 22
Warehouse Execution System (WES)	11

TOOLS

Hand Tools

Crimpers	31
Wrenches	32

GENERAL PRODUCTS



PEEK Material for Hydrogen Applications

Arlon 3160XT is a glass-reinforced, cross-linked PEEK material designed to address material challenges in hydrogen applications. It is engineered to improve performance and reliability in fuel cells, electrolyzers, and valve components in hydrogen systems. Building upon Greene Tweed's Arlon 3000XT platform, Arlon 3160XT withstands extreme conditions associated with hydrogen production and distribution, providing solutions that enhance production efficiency while reducing operational costs. It offers creep resistance and electrical insulation properties for long-term durability and operational lifespan in hydrogen applications.

Greene Tweed

More online: newequipment.com/55274269



Jaw for High-Pressure HVACR Applications

The PressACR 1 3/8" OD jaw, compatible with the RIDGID and Milwaukee Tool 32kN tools as well as NIBCO's PC-280 tool, reduces installation time on high-pressure HVACR applications rated up to 700 psi. It features a patented interior groove design and gray HNBR seal. The PressACR system is a copper tube joining method that delivers consistent joint quality for air conditioning and refrigeration applications.

NIBCO, Inc.

More online: newequipment.com/55284112

AD INDEX

Admiral Steel	20*
Advance Lifts, Incorporated	IFC
Aigner Label Holder Corp	19*
Air Technical Industries	3
Ancra Cargo	21*
Arnold Machinery	10a-10b**
Benko Products Inc	30
Boker's Inc.	3
C.H. Hanson Company	28
COXREELS	29
Creform Corporation	27
Dura-Belt	3, 20*
EMH Incorporated	14-15
EXAIR LLC	9, 13
Floyd Bell Inc	12
Global Industrial	22-23*
IMADA	31
Jesco Industries Inc	26
Kaeser Compressors	BC
Lubriplate Lubricants Company	5
MAIN Manufacturing Products	20*, 30
Master Bond Inc.	31
Mercotac Inc.	31
Migatron Corp	30
Ridg-U-Rak	24*
Spraying Systems	16-17
Transducers USA	31
Tri-Mer Corporation	26
Uline	25
Versa Machinery	IBC
Wooster Products Inc	27, 30

Every effort is made to ensure the accuracy of this index. However, the publisher cannot be held responsible for errors or omissions.

*Indicates ad is in the MHL Section

**This ad is appearing demographically.

2 Summit Park Drive, Suite 300
Independence, OH 44131
T: (234) 466-0200
www.newequipment.com

John DiPaola
Vice President & Group Publisher
jdipaola@endeavorb2b.com

Edward Bartlett
Production Manager

CIRCULATION CUSTOMER SERVICE
newequipmentdigest@omeda.com
(877) 382-9187

ADVERTISING SALES
U.S. & Canada

Joe DiNardo
(440) 487-8001
jdinardo@endeavorb2b.com

INTERNATIONAL

(Italy)
Diego Casiraghi
Casiraghi Global Media SRL
diego@casiraghi-adv.com

(Taiwan)
Charles Yang
Lotus Business Information Co.
medianet@ms13.hinet.net

(Japan)
Shigenori Negatomo
Pacific Business
shigenori.negatomo@pacific-business.com

(China)
Adonis Mack
ACT International
adonism@actintl.com.hk

For a Media Kit, visit:
www.newequipment.com

Publisher's Notice: We assume no responsibility for the validity of claims in descriptions of new and improved products furnished to New Equipment Digest.

FROM THE COVER KICKER



On-the-Go Thermal Imaging

A pocket-sized, portable thermal camera with the resolution for detailed images comparable to professional cameras, the **iSee Mobile Thermal Camera** integrates with smartphones for full temperature range analysis.

It detects heat output, highlighting abnormal temperatures easily, and provides accurate thermal imaging from a safe distance or on the go. It features a resolution of 256 x 192 pixels, a temperature range of 14 to 1,022°F (-10 to 550°C), an accuracy of ±2% or 3.6°F, and a 25 Hz frame rate.

Designed for electricians, HVAC technicians, contractors, and other professionals for use in applications, including electrical and mechanical inspections, inspection service, HVAC inspection, product R&D, quality control, and more.

Fluke Corporation

More online: newequipment.com/55270698



Minimize Emissions in Critical Applications

The **Type CG330 and CG340** compressed gas filter regulators provide accurate pressure control with near-zero atmospheric leakage, helping meet strict emissions standards. The CG330 includes enhanced filtration and an automatic drain, while the CG340 offers a compact, lightweight design. Available in 1/4 and 1/2 in NPT port sizes with pressure ranges up to 120 psi, both models are suited for compressed air, inert gas, and sweet natural gas in oil, gas, and chemical processing applications.

ControlAir, Inc.

More online: newequipment.com/55285690



AI: The Problem Solver

I used to be pretty resistant to AI tools. Like many people, I worried about what they might replace, how they might shift the way we work, and whether they'd live up to the hype. But somewhere along the line—maybe while trying to untangle yet another content production schedule or make sense of a sketchy email—I found myself turning to generative AI more and more. And now? I'd almost call it a daily partner.

Not for writing articles or doing the creative thinking itself, but for solving all the little puzzles that crop up throughout the day. AI has helped me lay out timelines for long-term editorial programs, weigh topic options when planning future issues, and even structure outlines for complex stories. It answered questions that would've taken me too long to Google and helped me untangle what exactly a company does when its website is filled with jargon and consultant-speak.

The point is: I don't see generative AI as a content producer. I see it as a problem-solving tool—a time-saving assistant that helps me get unstuck when I'm mired in details or overthinking something simple. If it can help me figure out a scam email or draft a project roadmap in five minutes, imagine what it could do for someone managing real-time systems, maintenance plans, or production workflows.

Of course, I'm not throwing proprietary information into a publicly available large language model. But if you're spinning your wheels on something and just need a structured way to move forward, AI is absolutely worth a try. I've even started joking that I might lose my problem-solving muscles because I reach for it so often. But I've come to see that as its own kind of smart thinking—getting to the solution faster is still solving the problem.

What's interesting, too, is that using AI effectively is its own skill. You don't just ask a question and get magic. You have to learn how to talk to it, almost like explaining something to a kid. Be specific. Provide context. Tell it exactly what kind of answer you need and how you want it shaped. That process of learning to “prompt” well is becoming an art in itself. I wouldn't be surprised if we start seeing job descriptions asking for “prompt engineering” skills in the near future. But by then, maybe AI will be able to handle prompting on its own.

It's also changed the way I think about my own process. I used to feel like I had to power through every stuck moment on my own like struggling was part of the job. But now, if I can offload just one snag to AI and keep my momentum going, I count that as a win.

The bottom line: AI isn't here to replace your brain. But it can give you more time and clarity to use your brain for the work that matters most. And that's a trade-off I'll happily make every single day.

— **Laura Davis**, Editor-in-Chief

How to Get the Most Bang for Your Buck When Choosing Profile Rails

by Curtis McCreight

Machine designers who need a high-precision linear guide usually have limited options except for higher-cost profile rail, but within this component's realm, choosing the right kind can keep those costs to a minimum. Too often, however, in the press of project deadlines, designers may not have the time to fully match rail functionalities to their application needs and end up paying a premium for impractical features.

How are Profile Rail Costs Determined?

The primary cost factors in profile rail selection are essentially determined by the motion profile, but there are other areas where the design has more leeway to manage trade-offs. For example, the selection of ball track assemblies can make a huge difference in cost. Other factors, including material selection, maintenance, standards compliance, and training, offer additional opportunities for cost reduction, although with varying degrees of influence on upfront versus long-term expenses. How the machine designer positions load-carrying and contacting elements in relation to each other significantly impacts cost.

Double-Faced Ball Tracks

A double-faced ball-track arrangement is the least expensive. It arranges ball tracks with contact angles at 45 degrees, causing an X pattern. The X-type configuration optimizes the distribution of load across all the rolling elements, enabling convergence of force vectors close to the center of rotation. Greater tolerance for imperfection may also allow simpler mounting, manual alignment of single rails, and use of standard components—further reducing costs.

As such, the X-type arrangement is ideal for automation applications requiring less accuracy on assembly height and width tolerances, between ± 40 and ± 100 micrometers, such as packaging equipment, food processing equipment, and medical sample handling.

Double-Backed Profile Rails

All else being equal, double-backed profile rails have a higher resistance to moment loads. This is because the O-type arrangement of vectors resisting the moment load is further from the center of rotation, giving them extremely high rigidity and accuracy.

The O-type arrangement, however, cannot tolerate misalignment or surface imperfection. Inadequate surface preparation will make the guide run rough and subject it to more frequent replacement. Even tiny flatness errors can

cut reduced bearing life in half, and more severe alignment issues can result in immediate failure. These potential flaws result in a higher cost of installation, which can be several times the cost of a double-faced bearing track architecture. Typical mounting surface requirements require 15 to 20 times more precision than the double-faced counterparts.

Getting the necessary precision may require specialized equipment, staffing, customization, or other elaborate procedures, adding to both time and financial investment. Potential applications are those that require greater accuracy on assembly height and width tolerances, between ± 5 and ± 50 micrometers, such as in industrial automation, machine tool equipment, precision measuring equipment, and industrial robots.

Profile Rail With Rollers

When applications require maximum rigidity, designers may opt for rollers over balls. Rollers provide enhanced stability and load capacity with minimal rolling friction, thanks to their larger contact surface. However, profile rail with rollers also comes at a higher cost and intolerance for installation variances, making them most cost-effective only for the most demanding applications in terms of accuracy and moment load capacity.

Managing Other Design Trade-Offs

While the selection of rail track architectures has the greatest impact on costs, other choices affecting project budgets that are within the designer's control include material selection, maintenance, standards compliance, and training.

Material Selection

Material selection can be critical in cost management, influencing both the initial and operational costs of profile rail. Aluminum offers the lowest cost but is best for lower accuracy ranges. Hardened steel strikes a better balance among cost, durability, and performance for a broader range of uses. Environments requiring high corrosion resistance or unique properties should consider stainless steel or advanced coatings, which come with a higher cost.

Maintenance

Maintenance-related decisions that can impact cost include load capacity versus size, where high-load capability rails can handle heavier loads but may be larger and require more expensive and frequent maintenance. Likewise, higher accuracy demands, especially in profile rail

with balls and rollers needing high speed and precision, will also involve higher maintenance costs.

Maintenance-related functions that impact cost from the designer's perspective include the addition of features like wipers, scrapers, oil reservoirs, lube blocks, coatings, sealing, and preloading.

Strategic Standards Compliance Based on Location

Depending on location, leveraging standards strategically can help reduce costs. Someone revising or rebuilding a machine in a region subject to standards that require a higher tolerance, for example, may be able to reduce cost significantly by building in a location governed by more forgiving standards, especially if the standards call for higher tolerances than the application needs.

Training

Plant managers and supervisors can also play a role in cost containment by optimizing human resources. The success of every factor discussed thus far depends on the experience and talent of the individual who is implementing it. For example, inadequate surface preparation can reduce the value of anything running on it to zero. It's up to the personnel officials to determine whether to obtain those services in-house, train teams that do not have them, or bring in outside specialists.

Conclusion

In navigating the complex decision-making process for profile rail selection, starting with a cost-effective, double-faced architecture can provide a practical baseline. From there, designers can incrementally explore more advanced options based on the specific needs of their application. By considering the broader spectrum of design trade-offs, including material choices, maintenance functionality, regulatory standards, and training, designers can optimize their selections to balance upfront costs with total operational expenses.

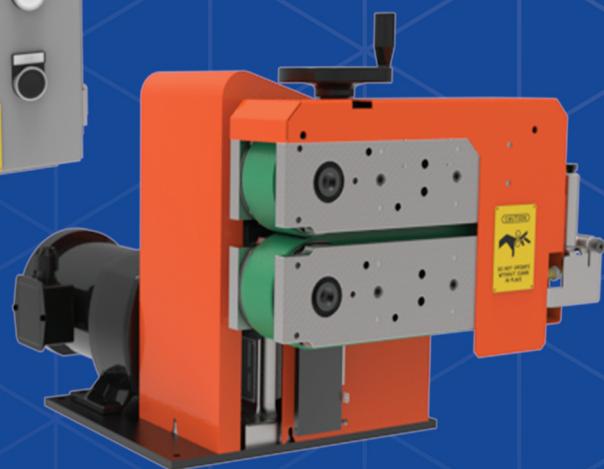
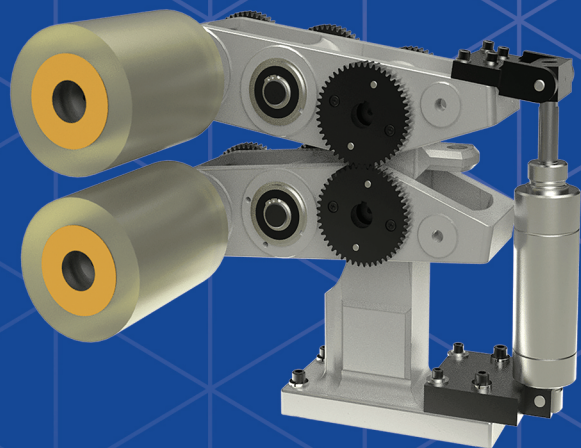
To further assist design engineers in making the right choices, device vendors such as Thomson Industries provide design resources, including a team of application engineers who assist in identifying the optimal solution, online product selector tools, technical collateral, white papers, webinars, and video instruction. [NED](#)

Curtis McCreight supports both the round and profile rail product lines at Thomson. He earned his AS in Engineering from Brightpoint Community College.



Versa Pullers

Push, Pull or Move products
up to 4" with a Versa puller
sized for your application



See more at
www.versamachinery.com

Versa Machinery
4850 Green Ct • Elkhart, IN
574-266-0780
Email: Sales@versamachinery.com





Engineered with Precision. Driven by Results.

German-engineered with premium materials and fewer wearing parts, KAESER products are built to minimize maintenance, extend service intervals, and lower energy costs — keeping you at the top of your game.

Just like the high-performance race car we proudly sponsor, our compressed air systems are designed to perform in the toughest conditions. When the pressure's on, they consistently deliver clean, dry air with maximum efficiency and rock-solid reliability.

With KAESER, you're not just in the race — you're leading it.



KAESER Compressors proudly celebrates 30 years of partnership with JEB Four Racing, a nationally ranked drag racing team. Known for their distinctive Top Sportsman class Super Henry J, JEB Four Racing competes in the NHRA Northeast Division, racing across the eastern United States.



KAESER
COMPRESSORS®

us.kaeser.com ● 866-516-6888

