

Cobots Democratize Automation

CONTENTS

Cobots Democratize Automation

Amazon Tests Sequoia System and Agility Robotics' Digit Humanoid for Fulfillment

Collaborative Robotics Raises \$30M Series A, Launches New Cobot Flywheel Program

Industrial Mobile Robot Safety Standard Now Available, A3 Announces at Pittsburgh Conference

Suhner Promises Precise Finishing with EFC-02 Active Compliance System

Jet Automation Partners with Omron to Develop Cobot Palletizing System

Solo Brands Works with Locus Robotics to Optimize Order Fulfillment Efficiency

RiACT and Phoenix Mecano Jointly Offer XtendR to Give Cobots Greater Reach

HWL Solves Handling Challenge, Relieves Employee Strain with MIRAI Powered Robot

Schneider Electric Launches Lexium Cobot for Industrial Plants

NEURA Robotics Closes More Investment for American Expansion

Dobot USA Opens Dallas Office, Announces New Collaborative Robots

EDITOR'S NOTE



There was a time when robots were reserved mostly for larger organizations with deep pockets and internal innovation teams. Focused on working smarter, better and faster, these companies started a trend that over time would transcend corporate budgets, company size and even industry.

Credit collaborative robots or “cobots” with helping to democratize robotics in a way that makes some of the most advanced automation accessible to a much wider swath of organizations.

As you'll read in this month's *Robotics 24/7*, cobots that can safely and effectively work alongside humans have found particular success in high-mix, low-volume applications like machine tending, piece picking and welding.

This issue takes a deep dive into the cobot space, with features focused on how Collaborative Robots recently raised \$30 million to launch its new Cobot Flywheel Program and develop its “practical cobot.” The program is focused on helping biotech, healthcare and logistics companies drive ambitious operational transformation with advanced robotics solutions.

You'll also learn how Omron Automation Americas is partnering with Jet Automation Inc., to jointly develop a new cobot palletizing system, and how Solo Brands is working with Locus Robotics to deploy 16 artificial intelligence-driven mobile robots at a facility in Mexico. The integration of Locus' advanced AMRs is expected to increase Solo's order speed and accuracy; productivity; safety; and overall operational excellence.

This edition of *Robotics 24/7* also features an insider's view of Amazon's testing of Agility Robotics' Sequoia mobile manipulation system. The system is already up and running at the e-tailer's Houston fulfillment center, where Sequoia—integrated with multiple robots—is being used to containerize inventory into totes.

Michael Levans, Group Editorial Director

Comments? E-mail me at mlevans@peerlessmedia.com

EXECUTIVE CONTACTS

Group Publisher/International Sales
Tom Cooney
tcooney@peerlessmedia.com
973-214-6798

President and CEO, Peerless Media
Brian Ceraolo
bceraolo@peerlessmedia.com
508-663-1553

Editorial Director
Tim Culverhouse
tculverhouse@peerlessmedia.com
508-663-1558

SALES

Business Development Manager,
West Coast
Darrel Dal Pozzo
ddalpozzo@peerlessmedia.com
774-505-0089

Midwest/Eastern Regional Manager
Michael Worley
mworley@peerlessmedia.com
508-663-1561

CLIENT SERVICES

Director of Client Services
Mary Ann Scannell
mascannell@peerlessmedia.com
508-663-1560

Director of Marketing
Karen Bligh
kbligh@peerlessmedia.com
508-663-1550

Director Content
Management
George Kokoris
gkokoris@peerlessmedia.com
508-663-1555

Director Online Technology
John Brillon
jbrillon@peerlessmedia.com

Webcast Project Manager
Steve Paul
spaul@peerlessmedia.com
617-281-7125

Production Director
Kelly Jones
kjones@peerlessmedia.com
508-663-1554

Robotics247

PEERLESS MEDIA

PEERLESS
CONTENT CREATION



GoFa™ CRB 15000
Payloads of 5, 10 & 12 kg
Reach from 1.05 to 1.62 m

Are you ready to automate?

With cobots that are easy to program, operate, and scale.

Industrial quality cobots that are made to last. GoFa's class-leading speed, safety, and ease of use will take your business to the next level. GoFa incorporates a range of features that allow it to be used safely, directly alongside human workers and without the need to design and build bulky barriers or fencing. GoFa can continuously share workspace with people, giving it maximum flexibility and efficiency. abb.com/robotics

Go faster. Go further than ever.



Cobots Democratize Automation

Collaborative robots become easier to use, more versatile to handle more and varied jobs for companies of various sizes

BY PHIL BRITT



Once dismissed by industrial automation providers, collaborative robots have found success in high-mix, low-volume applications. From machine tending to piece picking and welding, cobots offer to help small and midsize manufacturers by augmenting scarce staffers.

Cobots, light industrial arms and certain mobile robots have become more precise and safer around people, thanks to improvements in motion control and sensor technology. In addition, user interfaces and software have been refined to make cobots easier to use – and repurpose.

Robots working in combination with humans can produce more than either could by themselves.

This Special Focus Issue examines the growth and evolution of cobots.

The Cooper Cobot Welding Package, developed by ABB Robotics and Lincoln Electric. Image courtesy of ABB.



FANUC CRX is ideal for machine tending applications. Image courtesy of FANUC Robotics.

The Market

The global cobot market of \$1.23 billion at the end of 2022, is expected to grow at a compound annual rate of 32%, to 2030, with much of the increase in more cobots being deployed by small and medium enterprises (SMEs), according to Grand View Research.

“With a risk assessment and proper configuration of safety protocols, collaborative robots can be safely deployed side-by-side with skilled operators,” Universal Robots said in a whitepaper. This feature alone enables large and small manufacturers alike to make incremental investments in automation. The lower cost compared to industrial robots has brought cobots into small and medium-sized companies that couldn’t afford an industrial robot.

Is an Application Collaborative?

When considering an investment, the first decision is whether an application is a fit for a cobot.

First, determine if the application is appropriate for any type of robotics, said Doug Hixon, applications manager for ABB Robotics. Typically, robotics is used to speed processes or handle difficult, repetitive processes, such as heavy loads.

Another consideration is if the company can achieve a quick return on its investment, Hixon said.

Often, it’s just a common sense, thumbs up or thumbs down decision, said Adam Willea, district manager for FANUC Robotics. “If you’re tending a load on a 50-pound press or using cutting tools, you don’t have to go real deep to understand this is a dangerous environment for humans.”

Even if the robot itself is intrinsically safe, the environment in which the robot is working may not be safe, Willea added. “You need to look at everything the cobot will be interfacing with.”

A more formal performance assessment will consider how far the cobot arm will need to reach and the necessary payload requirements. Though reaches and payload capacities have grown and are expected to continue to, there are still limiting factors that would eliminate a cobot from consideration, Hixon said. “Speed is really the biggest difference between the industrial and the collaborative robot. If you can’t get enough throughput with the collaborative, then that puts you into the industrial.”

However, cobots are being used outside of applications that are considered to be collaborative, Willea adds. “A lot of times I’m putting them in guarded cells where no one will ever get near them, but the customer wanted it due to ease of use and flexibility.”

If in doubt, reach out to a systems integrator or similar expert, advised Chris Savoia, regional head of the UR+ ecosystem for Americas at Universal Robots.

Programming, Reprogramming a Cobot

Another reason for the growth is that programming and reprogramming has become simple enough that students entering high school can perform the task, according to those in the industry.

“We’ve redefined how we



The robotic system with the RG6 gripper is a collaborative application that is safe alongside workers. Source: OnRobot

program cobots because our programming language is C++, and we can't expect the average person to do that," Hixon says. "ABB has simplified cobot operation with our new Wizard Easy Programming, which is a symbolic programming language using puzzle pieces, similar to Scratch or Blockly that many children use today."

Other companies "program" with a teaching pendant, taking the cobot through different positions for an application, and recording the paths, which the cobot then repeats. The same concept is used with grippers and other end effectors.

The cobot market has moved into using software-driven tools over the last decade. So not only is the programming of the robot itself easier, so is the programming of the tools that the robot uses in its tasks, said Kristian Hulgard, general manager for Americas at OnRobot that

recently released the automated programming platform D:PLOY. "A solution like D:PLOY saves you a substantial amount of time when redeploying or changing things in your application. That makes automation possible in certain applications where it wasn't feasible before."

Universal Robots offers the UR Academy, a 90-minute programming course available through the company's website.

The easier programming has been essential to the growth of the cobot market due to the skilled labor shortage, Hulgard added. "The only way that we can meet the demand is by lowering the barriers and minimizing the deployment time of each application."

Cobot Arms Get Larger to Handle New Tasks

Cobot manufacturers have lengthened the reach of cobot arms to handle more tasks. ABB

offers a cobot arm with over a five-foot reach, compared to only an 19-inch reach in 2015. Universal's cobots have a reach up to two meters, not quite double the reach of a few years ago. Other cobot suppliers have also expanded their reach to enable cobots to handle additional tasks.

Today's cobots have better designed arms, better control methods and improved responses to interacting with people (meaning improved safety), according to Hixon.

Picking the Correct End Effector

Some items, such as light bulbs, food items, etc., need to be handled much more delicately than others. OnRobotics and other providers offer grippers that enable users to change the force at which the gripper operates so one can handle items with different force tolerances.

However, there are applications that call for a different end effector. Metal items might be picked up with a magnetized end effector, while a pneumatic end effector is more appropriate for other applications.

Cobot manufacturers, end effector suppliers and third-party integrators have documentation, videos, etc. to help users provide the right end effector for a particular job. Universal Robots offers UR+, which Savoia called an 'app store for robots.' It offers different, end effectors, software, and peripherals tested for seamless integration with UR cobots. "We have experts ready to answer queries regarding the proper end effectors for differ-

COBOTS REPORT

ent applications and other information,” said Savoia, explaining how some grippers, for example, can use different amounts of force for different environments, but are not appropriate for some tasks. This is where the expert advice is valuable.

“If someone wants guidance, just reach out,” Hulgard agreed. “We make assessments and even do proof of concepts free of charge.”

Increasing Payloads

Just as cobot arms have gotten longer to meet demand, so has their load tolerance. Some cobots are capable of lifting just under 50 lbs, compared to only 20 lbs a few years ago, according to Savoia. Cobots are expected to handle heavier loads in the future. Universal’s growth in payload size is similar to others in the industry. The UR 5 (5 kilograms) debuted in 2008, the UR 10 (10 kilos) in 2012 and the UR 20 (20 kilos) in 2022.

As payloads grow, end effector manufacturers are expanding their portfolios to meet these payload demands, Hulgard added.

Ongoing Need for Safety Assessments

Though cobots and cobot applications are designed with safety in mind, there is an ongoing need for safety assessments. The initial risk assessment should



A 30-minute crash course in programming the RG6 gripper was all Geoffrey Rose, secondary operations lead and quality supervisor at Tomenson Machine Works, needed to get started. The company now plans to run up to 100 different part numbers with the gripper. Source: OnRobot

review the application and where any humans will move their bodies or limbs during the normal sequence, as well as what a human might do if something goes wrong, Willea said. The assessment should also look to protect against negligence and “malicious intent,” such as an operator attempting to override a safety protocol to complete a task more quickly.

But even with the most meticulous risk assessment, there may be unexpected scenarios. Additionally, cobots are taking on more and different tasks, each with its own safety risks.

Savoia recommended considering safety at the initial stages, even before purchase, so reconfiguration can be avoided: “OSHA’s a great starting point to start exploring cobot safety. There are risk assessment firms

that can help judge the safety of an application in a particular environment.”

The A3 also has risk assessment guidelines.

Savoia recommended conducting ongoing safety assessments, particularly when using a cobot for a new application or in different ways than previously.

Conclusion

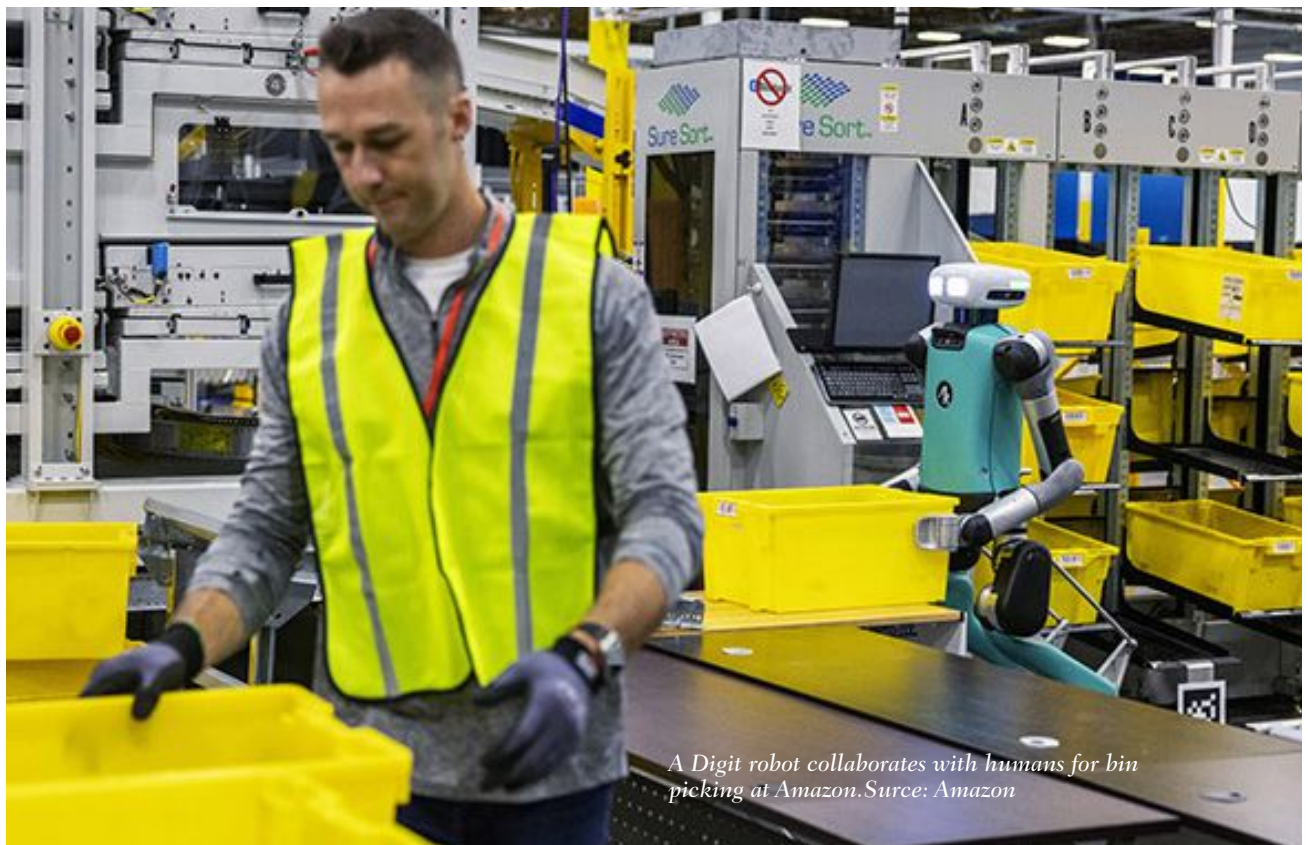
The growth in the collaborative robot market will continue as more companies find more potential uses and manufacturers grow their portfolios to meet the demand. •

Phil Britt is the CEO of S&P Enterprises, Inc., and a veteran technology writer who lives in the greater Chicago area.

Amazon Tests Sequoia System and Agility Robotics' Digit Humanoid for Fulfillment

E-commerce leader plans to use new robots to support workplace safety and help it more quickly deliver customer orders.

BY ROBOTICS 24/7 STAFF



A Digit robot collaborates with humans for bin picking at Amazon. Source: Amazon

Amazon.com Inc. uses many robots in addition to those it acquired with Kiva Systems a decade ago. The Seattle-based e-commerce company noted that it has more than 750,000 robots working with its employees to relieve them of repetitive tasks. Amazon recently announced that it is

launching a new robot to help fulfill customer orders for the upcoming holiday shopping season. It is also testing Agility Robotics' mobile manipulation system.

The new system, Sequoia, is already operating at an Amazon fulfillment center in Houston. Based on a series of research and development efforts at Amazon,

Sequoia integrates multiple robots to containerize inventory into totes. It combines mobile robots, gantry systems, robotic arms, and a new ergonomic employee workstation.

"From our latest robotic arms like Sparrow and Cardinal, to our first autonomous mobile robot, Proteus, we're excited to see the impact our technology is having

in Amazon's operations," wrote Scott Dresser, vice president of Amazon Robotics, in a blog post. "By reimagining how we store and manage inventory at our sites, Sequoia will help us delight customers with greater speed and increased accuracy for delivery estimates, while also improving employee safety at our facilities."

Sequoia designed to accelerate fulfillment

The new system's mobile robots transport containerized inventory directly to gantry equipment that can either restock totes or send them to an employee to pick out inventory that customers have ordered.

Dresser claimed that Sequoia enables the company to identify and store inventory up to 75% faster than it typically can today. As a result, Amazon said it can list items for sale more quickly, benefiting both sellers and customers.

Sequoia can also reduce the time it takes to process an order through a fulfillment center by up to 25%, the company noted. This would improve shipping predictability and increase the number of goods Amazon can offer for same-day or next-day shipping, it said.

These totes go to a new workstation designed to allow employees to do all their work in the "power zone," between mid-thigh and mid-chest height. "With this system, employees will no longer have to regularly reach above their heads or squat down to pick customer orders, supporting



Agility Robotics' Digit mobile manipulation system moves totes. Source: Amazon

our efforts to reduce the risk of injuries," said Amazon.

Once orders are picked, the remaining inventory needs to be consolidated so that site storage can be efficiently managed. Amazon has designed its new Sparrow robot arm to tackle the repetitive task of consolidating inventory in totes so that full totes can be returned to storage.

Sparrow's integrated robots "will dramatically simplify and optimize how we store goods and help employees pick those goods in a safe way," the company asserted. It thanked its team and partners in noting that, in 2022, recordable incident rates and lost-time incident rates were 15% and 18% lower, respectively, at Amazon Robotics sites than non-robotics sites.

Amazon collaborates with Agility Robotics

Amazon Robotics added that it has begun testing mobile manipulators at its R&D site south of Seattle. The company plans to begin testing Agility Robotics' Digit bipedal robot for use in its operations.

The Amazon Industrial Innovation Fund has invested in companies including Corvallis, Ore.-based Agility. The partners said Digit can move, grasp, and handle items in spaces and corners of warehouses in novel ways.

"Our initial use for this technology will be to help employees with tote recycling, a highly repetitive process of picking up and moving empty totes once inventory has been completely picked out of them," Amazon stated.



Agility Robotics' Digit mobile manipulation system moves totes. Source: Amazon

“Amazon is a company that is committed to making the work experience of their employees safer, easier, and less repetitive,” said Damion Shelton, co-founder and CEO of Agility Robotics. “When we announced our most recent version of Digit earlier this year, this is exactly the type of repetitive material handling deployment we had in mind—one that enables humans to be more human.”

“Digit’s size and shape are well-suited for buildings that are designed for humans, and we believe that there is a big opportunity to scale a mobile manipulator solution,” asserted Emily Vetterick, director of engineering at Amazon Robotics. “Collaborative robotics solutions like Digit support workplace safety and help Amazon deliver to customers faster, while creating new opportunities and career paths for our employees.”

Amazon touts robots plus workers

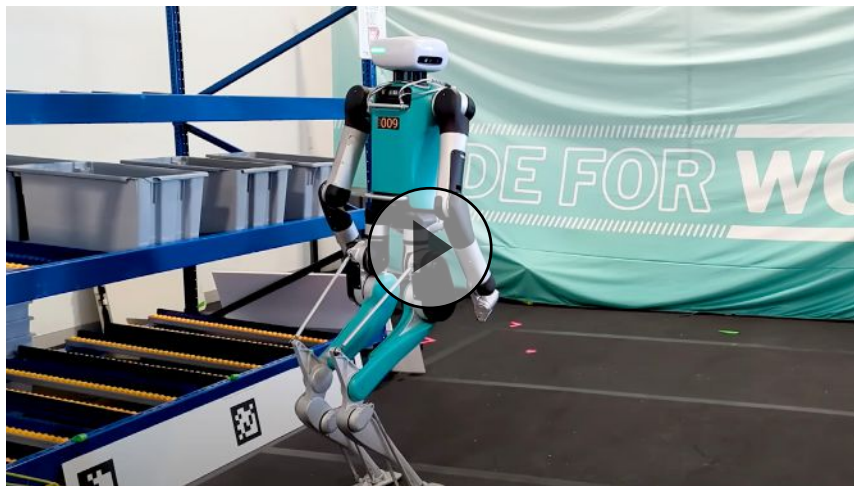
Contrary to popular belief, Amazon said it believes that robots will create jobs rather than replace them, “Ensuring robotics are collaborative and support employees is central to how we design or deploy systems like Sequoia and Digit,” said Dresser. “Over the last 10 years, we’ve rolled out hundreds

of thousands of robotics systems while also creating hundreds of thousands of new jobs within our operations. This includes 700 categories of new job types, in skilled roles, which didn’t exist within the company beforehand.”

“By equipping our employees with new technology and training them to develop new skills, we’re creating career paths and new and exciting ways for people to contribute

here at Amazon,” he wrote.

By developing robotics hardware and embedded artificial intelligence, Amazon claimed that it can make work safer, easier, and less repetitive. As a result, it said, employees will gain “the time and opportunity to take a step back, look at how orders are moving through our sites, and find new ways to delight and serve our customers.” •



Digit demonstrates its agility.

**Compact
Powerful
Flexible**

See how



“This palletizing system is about a third of the price as the more traditional solutions. It’s so much more cost-effective, and ROI is so much better than any other options that were out there.”

Dean Gibson, Magic Valley Produce



www.onrobot.com

Collaborative Robotics Raises \$30M Series A, Launches New Cobot Flywheel Program

Collaborative Robotics is seeking to redefine human-robot interaction for industries including healthcare and logistics.

BY ROBOTICS 24/7 STAFF

Collaborative Robotics today announced that it has raised \$30 million in Series A funding. The San Francisco startup said it will use the funds to begin scaling early field deployments and manufacturing its novel cobots.

“Our vision for a future where robots seamlessly integrate into our surroundings to enhance operational efficiency and human potential is now closer than ever,” stated Brad Porter, founder and CEO of Collaborative Robotics, in a release. “This funding will accelerate our mission to bring the world’s first truly practical cobots to market.”

Porter, a former vice president at Amazon Robotics, founded Collaborative Robotics in 2022 to “redefine the future of human-robot interaction.”

Cobot Flywheel Program to transform industries

In addition to its development of a practical cobot, Collaborative Robotics’ team has launched the Cobot Flywheel Program. The company said its intention is “to help the world’s most innovative companies in biotech, healthcare and logistics drive ambitious operational transformation with advanced robotics solutions.”



*Collaborative Robotics team, with Brad Porter in the center.
Source: Collaborative Robotics*

As part of its collaboration with Collaborative Robotics, Mayo Clinic has adopted the Cobot Flywheel Program to accelerate robotics initiatives. Mayo Clinic, which was among the company’s investors, said it will use any revenue it receives to support its not-for-profit mission in patient care, education, and research.

Sequoia Capital leads round

New anchor investor Sequoia Capital led Collaborative Robotics’ Series A round, bringing its total funding to more than \$40 million. Khosla Ventures and Mayo Clinic, as well as Calibrate Ventures, Neo Ventures, and 1984 Ventures also participated, expanding their existing investments.

“The need for automated

solutions is at an all-time high as consumer demand for e-commerce surges and turnover rates in warehouse and storage industries continue to rise,” said Alfred Lin, a partner at Sequoia Capital who is joining Collaborative Robotics’ board.

“Collaborative Robotics is ushering in a new frontier of human-robot interaction rooted in collaboration, which is evident in their early commercial traction,” he added. “We’re thrilled to partner with the team and Brad, whose comprehensive understanding of the robotics landscape and extensive experience deploying robotics at scale is unparalleled.”

Jeff Wilke, former CEO of Amazon Consumer, Fuel Capital, and MVP Ventures, also added to the funding pool. •

FANUC

WHERE THERE'S INDUSTRIAL COBOTS THERE'S FANUC



Flexible and
Scaleable for any
application



Handle
products up
to 30kg



Easy to Use



Industrial
Reliability



Standard
120V Power



Over 25+
Device
Suppliers



Food Grade
Options
Available

Let FANUC CRX Cobots Improve Your Bottom Line

In Stock & Ready to Ship | Easy & Fast Integration | Lifetime Product Support

888-FANUC-US fanucamerica.com ©2023 FANUC America Corporation. All Rights Reserved

Industrial Mobile Robot Safety Standard Now Available, A3 Announced at Pittsburgh Conference

R15.08-2 builds on existing documents and covers safe integration of mobile robots into industrial sites.

BY ROBOTICS 24/7 STAFF



ANSI has accredited the new industrial mobile robot safety standard, Part 3 of an ongoing series. Source: Association for Advancing Automation

As industrial settings increasingly use mobile robots, safety standards become more important. The Association for Advancing Automation recently revealed the second installment of its safety standard, which provides guidance on safe integration practices for industrial mobile robots, or IMRs.

“With the rapid development of mobile robot capabilities, it’s more important than ever for the

safety of human workers to have common safety requirements and expectations for IMR systems and system integrations,” said Carole Franklin, director of robotic standards development at the Association for Advancing Automation (A3), in a press release.

“The R15.08 Part 2 is much-needed guidance toward ensuring safe integration practices for IMRs and will be a solid foundation for future work in this area,” she added.

Industrial mobile robot standard available

R15.08-2 is titled “The American National Standard for Industrial Mobile Robots (IMRs)—Safety Requirements—Part 2: Requirements for IMR system(s) and IMR application(s).” It provides safety requirements for deploying mobile robots into industrial environments.

The new standard specifies requirements for integrating, configuring, and customizing an IMR or a fleet of IMRs into a site. The American National Standard Institute (ANSI) accredited the standard.

Robotics developers, suppliers, integrators, and users can purchase the standard at AUTOMATE.ORG/buystandards or at the International Robot Safety Conference, which A3 held from October 9- 11 in Pittsburgh.

A3 said it first established common safety requirements to guide IMR manufacturers with R15.08 Part 1 (ANSI/RIA R15.08-1-2020) published in late 2020. R15.08-2 now follows with requirements for systems integrators.

R15.08 Part 2 builds on prior document

“Until now, mobile robot integrators had only general safety requirements for industrial machinery,” noted A3. “R15.08-2 provides a common set of requirements for IMRs, while being flexible enough to permit companies to develop their own unique solutions.”

The association said the new document:

- Describes different types of industrial mobile robots and aspects of IMR systems
- Covers the adaptations necessary for the application and the facility in which the IMR or IMRs will be used
- Describes safety requirements for when IMRs interact with workstations, charging stations, and other equipment
- Explains safety considerations regarding the deployed operating environment

“A paradigm shift has occurred in recent years with the continued advancement of mobile robots in the workplace, and this shift demanded safety requirements beyond what is offered in other robot

safety standards,” said Franklin.

“With Part 2 of the R15.08 standard, system integrators now have specific requirements that will help them ensure they’re deploying the safest mobile robot systems available in their customers’ facilities,” she added.

At the International Robot Safety Conference, Jeff Pratt, chair of the R15.08 committee and senior corporate EHS engineer at Crown Equipment, introduced the R15.08 family of standards for IMR safety in a general session.

Chris Soranno, safety standards and competence manager at SICK and the R15.08 committee vice chair, took a deeper dive into “Mobile Robot Safety: The New R15.08-Part 2”.

What's next for IMR safety?

With the publication of the R15.08-2 complete, A3 said its R15.08 committee will next develop R15.08 Part 3, which will provide safety requirements for users of industrial mobile robot systems and applications.

The R15.08 Committee will also consider developing technical reports to address emerging topics such as mobile robot technology advances. Such topics will likely include multi-sensor fusion, additional stability testing, stability validation, and additional dynamic stability testing.

About A3

A3 said it promotes automation technologies and ideas to transform how business is done. The association’s members include nearly 1,200 manufacturers, component suppliers, systems integrators, end users, academic institutions, research groups, and consulting firms worldwide.

A3 hosts a number of industry-leading events, including the International Robot Safety Conference and:

- The A3 Business Forum, from Jan. 15 to 17, 2024, in Orlando, Fla.
- Automate 2024, from May 6 to 9 in Chicago
- The Autonomous Mobile Robot & Logistics Conference, from Oct. 8 to 10, 2024, in Memphis, Tenn. •

Suhner Promises Precise Finishing with EFC-02 Active Compliance System

Grinding and finishing applications are made easier with advanced sensing and control, said Suhner.

BY EUGENE DEMAITRE

Among the “dull, dirty, and dangerous” tasks suitable for automation, grinding and finishing are now within reach of robotics, thanks to improvements in sensing and motion control. SUHNER Schweiz AG said its EFC-02 can measure forces and accelerations at high frequency, allowing for control with an advanced algorithm.

Unveiled at Automate 2023, the fully electric Active Compliance System can ensure surface quality throughout a robotic grinding process, said Suhner.

The Herisau, Switzerland-based company is a leading supplier of critical metal components and provides systems from the design phase to after-sales support. Suhner USA Inc.’s offices are in Rome, Ga.

“The EFC-02 has been in development for two years, and we saw a lot of traction at Automate,” said Juan Martinez, a mechanical engineer at Suhner Industrial Products. “Fabtech was another opportunity to meet with customers.”

EFC-02 measures force, quality

The EFC-02 can automatically detect the amount of force being

Suhner said its EFC-02 electric compliance system can revolutionize robotic grinding for shops of all sizes. Source: Suhner



applied and its position at all times, Martinez told *Robotics 24/7*.

“One of the advances we see is that, as a compliance device, it’s fully active,” he said. “The end user can know how much force is being applied for sanding, material removal, or polishing, as well as the consumables used. This data gives us an edge over the competition.”

Another feature of the system is that it can inform an operator whether the compensation device is in the 0 to 20 stroke range with a colored LED strip.

“This is especially useful in automotive, where an operator walking by can see green if the tool is good or white if it needs attention,” Martinez said. “The

EFC-02 can increase quality because its information page lets you observe the running time, so you can know the intervals for changing the abrasive pads. It’s available on a Web interface.”

“You can look at the values to get the quality result you want,” he added.

Suhner offers some customization

The EFC-02 is currently a stand-alone device, usable with Suhner end effectors. Its all-electric design allows only two connections, eliminating the need to work with air hoses or anything more than a 13-mm wrench.

“But if a customer wanted to use it with its own tooling, such as a manual or electric-driven



The EFC-02 and its Web interface are intended to enable precise force control. Source: Suhner

orbital sander, we'd work with them," said Martinez.

"We've made 3D-printed adapters to use with hand or pneumatic tools, for example in aerospace," he recalled. "They were very wary of using electric tools because of the environment."

"We're working to make a 360-degree solution and not just say, 'You have to work with our tools,'" Martinez said. "We're also robot-agnostic, and we have an adapter for different robot flanges."

Suhner works with the major industrial automation brands, he noted. "All it requires is a 48-volt power supply and Modbus TCP."

Ease of use a feature

Suhner said its plug-and-play Active Compliance System and interface are designed to get users up and running quickly.

"It takes just a few minutes to understand what's required in terms of power," said Martinez. "We're working with some application engineers now, and it took them just a couple of passes with the Web interface to get the desired results."

"You put in the working range you want, the payload at the end, and the amount of force," he explained. "You enter the values, hit 'Submit,' and you're ready to

go. The integrator or end user can provide specific values."

Martinez also touted the EFC-02's accuracy. "With two thousands of a millimeter in the same plane, the user can get instantaneous feedback when the force changes," he said. "That accuracy provides repeatability. We have maintenance intervals scheduled for 2,000 working hours."

The size of the unit was also determined by ease of use.

"We did some testing overseas and here in the States and got feedback from customers," said Martinez. "They didn't want something that was too clunky or hard to detach from the robot, but it couldn't be too small to apply sufficient force. We are looking at different size options in the future."

Applications abound for fine finishing

What industries is Suhner targeting with the EFC-02?

"Anywhere where material removal is needed," Martinez replied. "Companies are interested in taking care of employees in hazardous environments, where there is dust and wear and tear."

"For one big weld removal, the user applies a weld and then cleans it up," he said. "The operators got different welding results, depending on the different amounts of weld applied. EFC-02 provides a window that can knock that down."

"In aerospace, we've had requests for material removal on leading edges and for honeycombed materials," said Martinez. "We've also worked

with companies that were doing fiberglass sanding, and we're looking into what we can do with woodworking."

A potential customer had an unusual request at Automate, he added. It wanted the robot to go from one place to another for a pick-and-place operation and provide a readout of force and compliance within a certain window as soon as it made contact, Martinez said.

"In another example, when working with robots, you have to program the robot to attack a surface from on top, the side, or underneath, depending on access," he added. "It can apply 200 newtons of force or retract with the same amount of negative force."

"The EFC-02 takes into consideration different orientations—all you have to do is tell it the amount of force to apply and the axes," according to Martinez. "We're planning on having a calibration jig for the EFC-02 to display in different positions to show how it can take orientation and force into account."

While the EFC-02 is available as a capital purchase, Suhner has considered "pay as you go" or swappable units for maintenance.

"There has been some talk about how to handle smaller companies with models such as robotics-as-a-service [RaaS], but being the only fully electric unit, we stand out at a very competitive price," Martinez said. •

Eugene Demaitre is the former editorial director of Robotics 24/7.



UNIVERSAL ROBOTS

Facing the ongoing shortage of highly skilled labor, smart manufacturers are turning to collaborative robots. Cobots by Universal Robots can handle most dull, dirty, and dangerous tasks. Freeing your skilled workers for more creative and critical work.



Increased productivity starts today.



Invest in productivity that pays for itself. Download UR's Justification Calculator.

www.universal-robots.com

Jet Automation Partners with Omron to Develop Cobot Palletizing System

Jet has joined Omron Automation's Certified Systems Integrator program.

BY ROBOTICS 24/7 STAFF



Omron has been developing cobot palletizing systems with its partners. Source: Omron Europe

Omron Automation Americas recently announced Jet Automation Inc. as a new partner in its Certified Systems Integrator program. The companies have been jointly developing a palletizer system.

Jet Automation has more than 20 years of experience in providing services for industrial automation and controls for various industries. The Mississauga, Ontario, Canada-based company said its engineers specialize in delivering innovative technologies to optimize operational efficiency, increase productivity, and drive sustainable growth.



Omron and Jet celebrate their partnership.
Source: Omron Automation

Services from Jet Automation include industrial automation, electrical and mechanical design, robot implementation, control system development and industrial safety systems.

Jet co-develops cobot palletizing

Omron said that its partnership with Jet Automation will empower businesses to “unlock their full potential, streamline processes and gain a competitive edge in today’s rapidly evolving market.”

Jet Automation has been working with Omron on developing a collaborative robot palletizing system, simplifying and enhancing automation controls

using Omron’s Sysmac platform, and implementing and upgrading industrial safety systems.

The companies said they have recently expanded their capabilities by serving Omron robots in the field.

“Through this partnership, Jet Automation and Omron are revolutionizing the automation industry by delivering simplified processes and enhanced safety

measures,” said the companies in a release.

Omron certifies systems integrators

Manufacturers working toward Industry 4.0 are looking for technologies that support efficient, flexible production and deliver a competitive advantage, noted Omron. Automated options have grown, but manufacturers need help finding the right solutions for their problems, it said.

Omron claimed that its Certified Systems Integrator program “matches best-in-class solution providers with the technology, training, and resources required to deliver innovative and com-

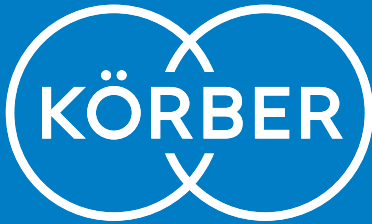
petitive solutions.” The company said its partner relationships offer open and secure systems that can address today’s customer challenges and help them weather future demands.

“System integrators play a critical role in designing and delivering fully integrated automation,” said Omron. “They also possess industry and application expertise in implementing the latest technologies from Omron and in providing turnkey system solutions.”

“Our certified system integrator program gives end users peace of mind when procuring automation solutions,” stated Peter Brouwer, vice president of sales at Omron Automation Americas. “These companies have proven expertise when it comes to implementing our latest technologies, and they have full access to local training and resources needed to successfully deliver fully integrated automation solutions.”

Hoffman Estates, Ill.-based Omron Automation creates, sells, and services systems including sensing, control, safety, vision, motion, robotics, and more.

Established in 1933, parent company Omron Corp.’s 30,000 employees help businesses solve problems with creativity in more than 110 countries. The Global X exchange-traded funds (ETFs) recently named Omron as one of “four Japanese companies leading robotics and automation. •



**One partner,
end-to-end
solutions**

Conquer supply chain complexity



Supply Chain Software



Voice, Vision and Mobility



Software Consulting and
Implementation



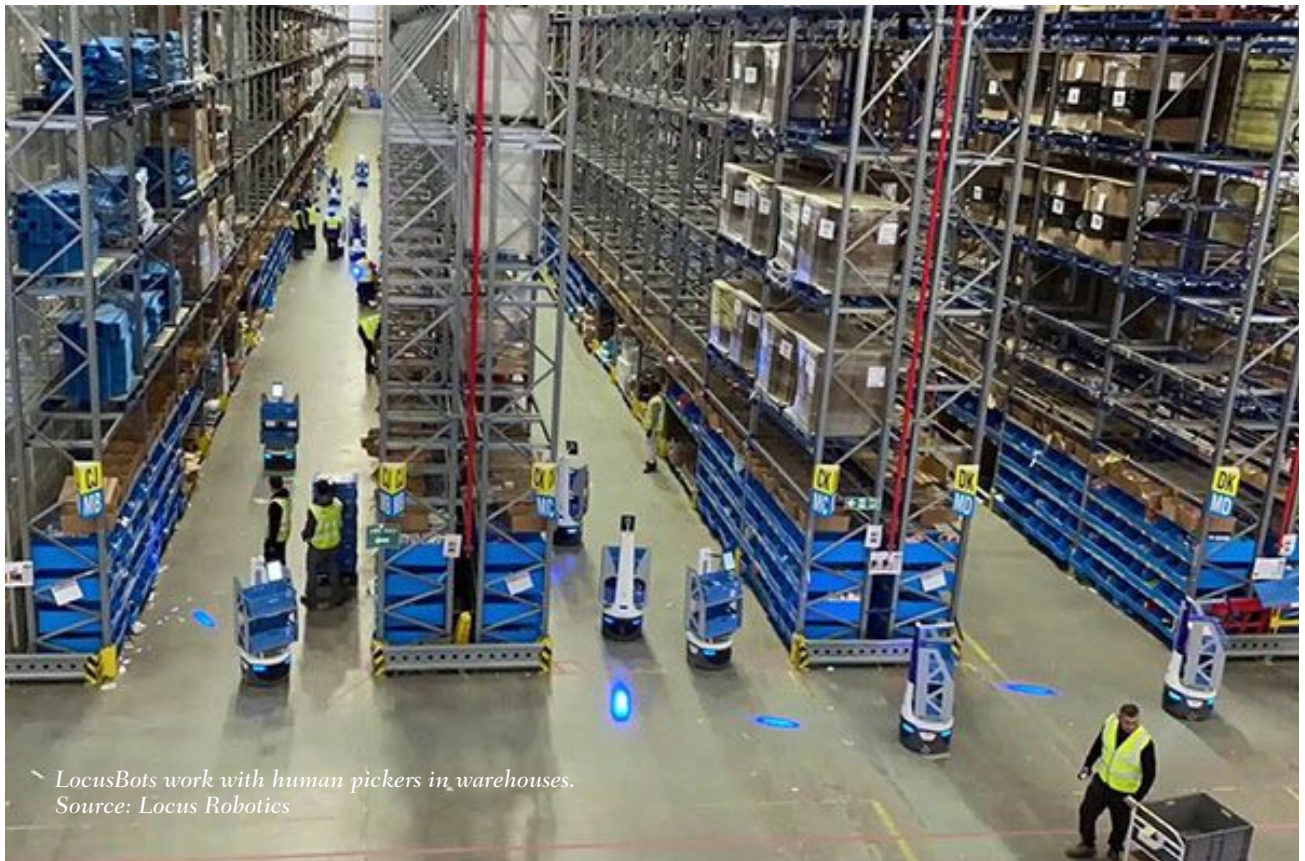
Robotics Solutions



Solo Brands Works with Locus Robotics to Optimize Order Fulfillment Efficiency

Global lifestyle brand deploys 16 AI-driven mobile robots at its facility in Mexicali, Mexico.

BY ROBOTICS 24/7 STAFF



*LocusBots work with human pickers in warehouses.
Source: Locus Robotics*

In today's fast-paced and competitive e-commerce landscape, efficient order fulfillment is a key driver of customer satisfaction. Solo Brands Inc. and Locus Robotics Corp. recently announced a strategic partnership. Solo

will optimize and streamline its order-fulfillment operations with 16 artificial intelligence-powered autonomous mobile robots, or AMRs, at its warehouse in Mexicali, Mexico.

"We are excited to partner with Locus Robotics to revo-

lutionize our order-fulfillment operations," said Brett Kulesza, operations vice president of Solo Brands, in a release.

"The integration of these advanced AMRs will not only increase the speed and accuracy of our order processing, but also



Solo Brands Mexico uses LocusBots.
Source: Locus Robotics

empower our dedicated workforce to focus on higher-value tasks, further elevating our overall efficiency.”

LocusBots come to Mexico

Locus Robotics noted that the deployment represents its first AMR deployment in the Mexico region. The company said its “state-of-the-art” LocusBots work alongside human workers to collaborate and augmenting their capabilities.

The AMRs can eliminate unproductive walking time, as well as the physical strain of lifting totes and pushing heavy carts, it added.

“LocusBots work collaboratively alongside Solo Brands’ workers, enhancing

productivity, improving safety and helping drive operational excellence,” said Rick Faulk, CEO of Locus Robotics. “We are delighted to join forces with Solo Brands to speed order picking, lower labor costs and deliver an amazing experience for their customers.”

Wilmington, Mass.-based Locus Robotics said it is a leading provider of warehouse automation, specializing in collaborative AMRs to streamline order-fulfillment operations. Its LocusONE platform includes features such as fleet management, analytics and robotics-as-a-service (RaaS) offerings.

The company recently said that its robots have been involved in more than 2 billion picks, less than a year after it reached the milestone of 1 billion picks.

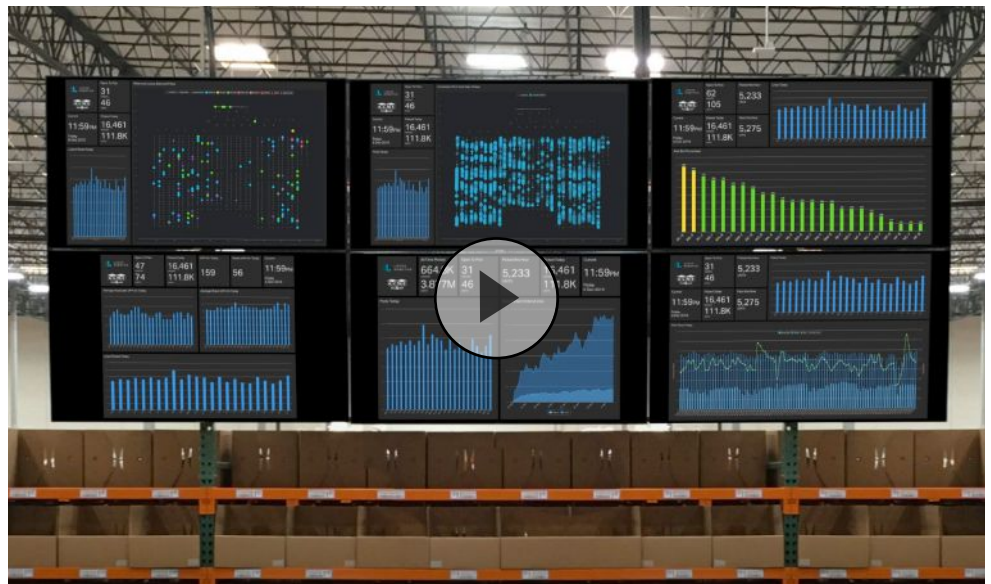
Solo Brands commits to innovation

Grapevine, Texas-based Solo Brands said it is “a global lifestyle brand known for its dedication to offering exceptional products that cater to a wide range of consumer needs.”

The company said its decision to team up with Locus Robotics “underscores its commitment to optimizing operational efficiency, reducing order processing times and ensuring timely delivery to customers worldwide.”

Not only does the deployment of 16 Locus AMRs position Solo to optimize its order-fulfillment operations today, but it also enables it to easily scale to meet future demand, said the partners.

“The partnership reflects Solo Brands’ dedication to innovation and continuous improvement,” they stated. •



RiACT and Phoenix Mecano Jointly Offer XtendR to Give Cobots Greater Reach

Partners combine RiFLEX software with X2 lifting technology to extend the capabilities of collaborative robot arms.

BY ROBOTICS 24/7 STAFF



*Phoenix Mecano's X2 technology and RiACT's software are intended to make cobots more accessible.
Source: Phoenix Mecano*

RiACT and Phoenix Mecano AB recently announced that they have partnered to create XtendR, a system to give collaborative robots greater flexibility and efficiency.

XtendR integrates a high-grade industrial lifting column from Phoenix Mecano's X2

Technology brand with any cobot and any gripper, allowing the cobot to extend its reach and access different working heights. RiACT said its RiFLEX software enables users to easily program and control the lifting column and the robot.

"XtendR is a game-changer

for cobot applications," stated Bjarne Grossmann, CEO of RiACT. "It gives the user the freedom to choose the best cobot and gripper for their needs, regardless of the brand. It also increases the working range of the cobot, making it possible to perform tasks that would other-



user and allows him to actually combine cobots of different brands in the same system, if needed.”

RiACT RiFLEX software, integration to be on display

“XtendR is powered by our RiFLEX software, which simplifies the programming and setup of the cobot system,” added RiACT’s Grossmann. “RiFLEX has configurable solutions for common applications such as palletizing, machine tending, and pick and place.”

Copenhagen-based RiACT claimed that it has developed “no-code” robotics to make complex technology more accessible to end users. The company said it designed its interface so that users of any level can be safe and more productive. •

wise require multiple cobots or manual intervention.”

Phoenix Mechano X2 elevates XtendR

“The XtendR is equipped with lifting columns of our brand X2 Technology, which we consider to be the toughest columns in the market,” said Patrik Nilsson, CEO of Phoenix Mecano AB. “They can be customized to fit exactly the needs of a specific application.”

Stein am Rhein, Switzerland-based Phoenix Mecano said it is a leading provider of components and systems for industrial automation. The company said its offerings include high-quality lifting columns that can withstand harsh environments.

”RiACT is the perfect

partner for us,” Nilsson added. “The RiFLEX software reduces engineering time dramatically and turns programming and setting up of the XtendR into a more or less effortless task. It gives immense flexibility to the



HWL Solves Handling Challenge, Relieves Employee Strain with MIRAI Powered Robot

Thermal treatment company HWL found that Micropsi's AI-powered technology can adapt to varied parts and save money.

BY ROBOTICS 24/7 STAFF

Like many other small and midsize enterprises, HWL Löttechnik GmbH has faced growing labor shortages, demands for energy efficiency and the intricacies of high-mix, low-volume production. The thermal treatment company has deployed a robot using the MIRAI intelligent vision technology in its Berlin factory to take over the repetitive task of handling reflective metal objects.

HWL has customers in power plant engineering, automotive, electronics, aerospace and tool industries, as well as plant and fixture construction. The family-run company said it has invested in state-of-the-art technologies to optimize operational processes and position itself as an attractive employer.

The metal parts HWL needed to handle varied in size, position, and appearance and the lighting conditions in its facilities could also change. It turned to Micropsi Industries' MIRAI controller,

which is designed to use artificial intelligence to make programming robots faster and easier.

Micropsi, which is also based in Berlin, provides software for industrial and collaborative

robots' expertise and satisfaction. Kai Lembke, CEO of HWL, recognized that thermal treatment was physically demanding and repetitive work and that labor shortages had led to increased workloads for existing staffers.

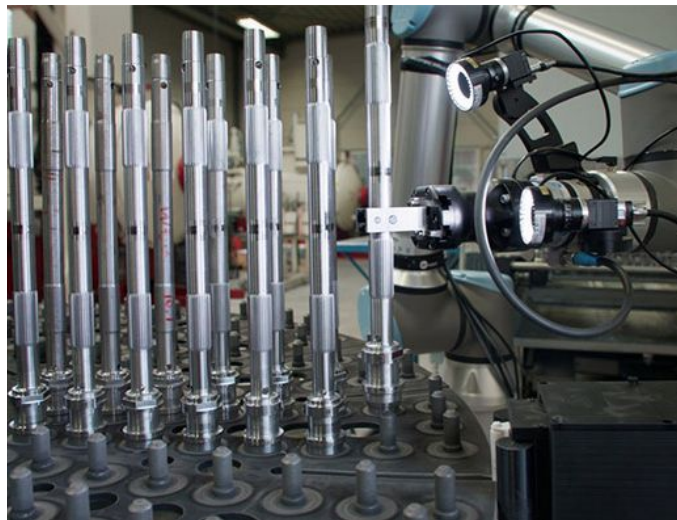
In response, he set out to identify the task that could benefit the most from automation. With his dedicated team, Lembke identified a prime candidate: the loading of metal parts onto racks from washing baskets.

Before heat treatment, the serial parts undergo a meticulous cleaning process in a cabin-washing facility, said HWL. Each customer typically delivers around

900 to 1,000 parts in large loading carriers, which employees manually transfer into washing baskets.

The parts in the baskets are then carefully placed onto multi-tiered racks using a peg system before being transported to the oven for heat treatment.

The immense diversity in size

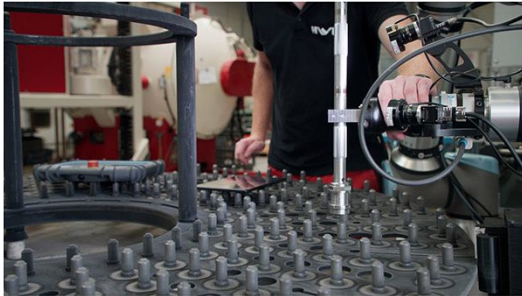


A MIRAI-guided collaborative robot automates handling of metal parts for washing at HWL. Source: Micropsi Industries

robots. The company claimed that MIRAI allows robot arms to be controlled in real time in direct response to sensor data.

Handling process requires flexible systems

HWL said its commitment to the highest quality standards and continuous innovation goes hand in hand with prioritizing employ-



MIRAI is intended to make it easier to control robots for challenging tasks. Source: Micropsi Industries

and weight of the metal parts, combined with their fragile nature prior to heat treatment, made the handling process extremely complex, noted Lembke. He said the following factors made automation with conventional systems impossible:

- Variance in the size and weight of the components
- Variance in the positioning of the components within the washing basket
- Variance in the position of the racks
- Variance in the appearance of the component due to reflection and changing lighting conditions

MIRAI frees up employees and ensures competitiveness

In October 2022, a collaborative robot equipped with MIRAI took over the task of loading the parts. After the washing process is completed, the AI-powered system takes control of the cobot.

Guided by MIRAI, it individually lifts the delicate parts from the washing baskets and places them on the pegs in the racks. The vision system automatically

adapts to the sizes and weights of these highly individualized parts, explained Micropsi.

Unlike traditional vision systems, even changing lighting conditions and resulting reflections on the surface of the workpieces do not affect the functionality

and precision of the system, it asserted.

“By automating processes with MIRAI, we can save costs and position ourselves as an innovative and modern company while enhancing the attractiveness of our workplace,” Lembke said.

Since implementing MIRAI, HWL reported that its employees have taken on the responsibility of managing and retraining the system, which is especially important when faced with changing requirements or environmental modifications.

“The fact that these adjust-

ments can be made by our employees without the need for experienced programmers from the manufacturer is a significant advantage,” said Lembke. “We have even been able to optimize cycle times by 20%. That’s exactly the flexibility we need.”

“By automating processes, we can save costs, position ourselves as a progressive and modern com-



Micropsi Industries' MIRAI AI-driven robots helped HWL automate handling of varied and reflective metal parts.

pany and enhance the attractiveness of our workplace,” he said.

As a result of these positive experiences, HWL envisions adding more AI-based applications soon, said Lembke. •



Schneider Electric Launches Lexium Cobot for Industrial Plants

Collaborative robot can perform ‘uniquely gentle and diligent movements,’ said Schneider Electric.

BY ROBOTICS 24/7 STAFF

Schneider Electric recently launched the Lexium Cobot, which is designed to work alongside humans and to move with dynamic torque and speed monitoring.

“The launch of the Lexium Cobot represents a significant leap in the evolution of robotics,” said Hugo Lafontaine, vice president of Industrial Automation Canada at Schneider Electric, in a release. “Unlike traditional industrial robots that necessitate process integration from the outset, Lexium Cobots are purposefully engineered to collaborate seamlessly with workers.”

“They deliver swift ROI [return on investment and] effortless integration, without the need for extensive process overhauls,” he added. “[They also] contribute to the enhancement of plant agility, productivity, and safety.”

Schneider Electric said it is a leader in the digital transformation of energy management and automation. The company said it integrates cloud technologies, controls, software, and services, enabling management of homes, buildings, data centers, infrastructure, and industries.



Schneider Electric Lexium Cobot with Robobar and EcoStruxure machine expert twin. Source: Schneider Electric

Lexium Cobot built for productivity, safety

Schneider Electric explained that it developed the collaborative robot to improve plant productivity and safety. The Lexium Cobot can help minimize downtime caused by labor shortages, which currently costs factories as much as 20% in productive capacity, it asserted.

The Mississauga-based company said its cobot can handle various applications that would not be possible with conventional

industrial robots.

All models have collision-detection and safety functions to ensure machine and human well-being, said Schneider Electric. The Lexium Cobot has rounded edges and a low total weight to further reduce the risk of injury to operations personnel, it said.

Depending on the application and risk assessment, these features can eliminate the need for additional safety equipment and thus take up 30% to 40% less space than traditional indus-



The company added that industrial plants can integrate the Lexium Cobot without spending large amounts of time and capital.

trial robots, Schneider Electric claimed.

Lexium Cobots can work in standalone configurations, so they can help relieve human co-workers of heavy, repetitive, or complex tasks, said Schneider Electric. It also said they offer “significant weight-bearing potential and programming options.”

- **Strong payloads** – The Lexium Cobot’s five versions differ in size and working radius, with payloads ranging from 3 to 18 kg (6.6 to 39.6 lb.). They can handle monotonous tasks so operators can focus on more value-added work.

- **Programming flexibility** – Schneider Electric said it offers easy programming and commissioning with hands-on teaching. Graphical programming can help operators change applications and adapt quickly to production process changes, it noted.

Schneider Electric advances machine efficiency

“The Lexium Cobot’s high efficiency – through simple programming, quick setup, ease of use, and training – helps industrial companies recover investment costs faster when they modernize their facilities

to become smart factories,” said Schneider Electric.

It touted the Lexium Cobot’s lower cost of ownership, small footprint and need for only minimal changes to existing production layouts. The new systems can also integrate with EcoStruxure, Schneider Electric’s Internet of Things (IoT)-enabled, “plug-and-play, open,” and interoperable architecture.

The cobot and EcoStruxure can reduce design, development and commissioning time, making machine delivery and startup quick and easy, said the company.

Schneider Electric said its Lexium Cobot is an efficient robot with the technology required to perform complex tasks. •



Schneider Electric said its Lexium Cobot is an efficient robot with the technology required to perform complex tasks.

NEURA Robotics Closes More Investment for American Expansion

After obtaining funding from European investors the robotics and AI startup got support from InterAlpen Partners.

BY ROBOTICS 24/7 STAFF



David Reger, CEO of NEURA Robotics (center), with co-founders (from left) Dr. Milad Malekzadeh, Mavarick Ho, Dr. Sugeeth Gopinathan, and Suneeth Gopinathan. Source: NEURA Robotics

Robots are becoming more perceptive and collaborative, thanks to artificial intelligence. NEURA Robotics GmbH yesterday announced that it had closed a \$16 million investment round with private equity firm InterAlpen Partners. The Metzingen, Germany-based company said it plans to use the funding to continue its growth and expansion into the U.S. market.

“NEURA Robotics represents one of the most compelling companies we’ve seen in our careers,” said Stephen George, founder of InterAlpen, in a release.

“Their mission of empowering humanity with robotics is highly aligned with InterAlpen’s sustainable impact mission,” he added. “We believe that the amazing products and partnerships that the team has created will power NEURA to become a global

industry leader in the rising field of collaborative robotics.”

InterAlpen supports U.S. expansion

NEURA Robotics explained its strategy for expansion. The U.S. is the biggest market for robotics in the world, generating an estimated \$7.7 billion in revenue in 2023, according to Statista. The global robotics market could grow to a market volume of \$45



billion by 2028, predicted the market research firm.

“Having an American investor on board creates the perfect conditions for our U.S. market launch in 2024,” said David Reger, founder and CEO of NEURA. “We’re proud to partner with InterAlpen, particularly because Stephen George is truly an entrepreneur-investor.”

“He was an early investor in Tesla, SpaceX, Twitter, and Epic Systems and can sense the next big thing,” Reger noted. “InterAlpen believes that forward-looking AI and first-class hardware made in Germany will not only change robotics, but [also] change the world.”

InterAlpen Partners, which has offices in Omaha, Neb., and Denver, described itself as a “boutique” private equity firm. It said its mission is “to partner with successful entrepreneurs and family investment offices to invest in and build category-winning companies when they are in the expansion stage, electrifying and scaling innovation for excellent investment returns and sustainable impact.”

InterAlpen said that it manages about \$450 million in capital and that it is currently investing out of its third fund. NEURA’s latest funding came less than three months after it closed a \$55 million funding round with leading European investors and received recognition from the New York Stock Exchange.

NEURA developing ‘cognitive’ robots

NEURA Robotics took only three years to become an industry leader in cognitive robotics, asserted Reger. The company claimed that its MAiRA system

is “the world’s first market-ready cognitive cobot.”

The autonomous cobot is designed to perceive its environment and any humans it encounters. NEURA said such advances provide it and its partners with applications for multiple sectors, including manufacturing, hospitality, and elder care. It is starting with warehouses.

The company said its platform enables robots to see, hear, and have a sense of touch. “Combined with reflexive sensory processing, these capabilities are essential for autonomous and predictive action,” it said.

NEURA added that its founding team is applying its experience in robotics and AI to develop flexible and efficient cobots that can work with humans in various industries and in a wide range of environments. The company said it is “on track to bring the first multi-purpose humanoid robot to market, developed as a solution for the increasing shortage of skilled workers.”

Dr. Bernd Heinrich was named chief growth officer in a LinkedIn post. •



Dobot USA Opens Dallas Office, Announces New Collaborative Robots

Dobot's CRA series of cobots is now available in North America.

BY ROBOTICS 24/7 STAFF



The new CRA Series cobots from Dobot USA. Source: Dobot

Dobot Robotics recently opened its U.S. office in Dallas, following its global expansion strategy. The Shenzhen, China-based company also launched its CRA series of collaborative robots and the associated VX500 Smart Camera in the U.S. market.

Dobot said the new products expand its range of high-performance, easy-to-use cobots for companies in industries such as electronics, automotive, and metal processing.

“The Dallas office functions as the headquarters for Dobot’s North American

operations, encompassing a showroom, training center, logistics hub, and service centers,” said Alla Huang, general manager of Dobot USA, in a release. “Leveraging our U.S. subsidiary, we are committed to enhancing support for our local partners and customers, delivering top-notch products and services, and continually strengthening our presence in North America.”

Dobot also recently announced a partnership with VenHub Autonomous Solutions Inc. for smart retail stores.

Dobot designs CRA series for industrial uses

The new CRA series includes seven models with maximum payloads from 3 to 20 kg (6.6 to 44 lb.) and a working radius of 620 to 1,700 mm (24 to 66 in.). Dobot said the cobots are suitable for high-precision industrial applications such as pick and place, sorting, screwing, inspection, gluing, welding, transporting, polishing and palletizing.

Compared with the previous model, the CRA cobots offer a more powerful gearbox that shortens a work cycle by an average of 25%, according to the company. The control boxes of the devices are also about 25% smaller.

The boxes can come with optional IP54 protection for challenging environments, reducing the need for extensive maintenance in the long term, said Dobot.

Cobots come with safety, communications features

In addition, electromagnetic brakes can stop the gripper arms from descending within 18 milliseconds, protecting workers in the immediate vicinity even during power outages.

Dobot noted that its 3, 5, and 10 kg models are compatible with its self-developed SafeSkin technology. It can detect obstacles within a radius of 15 cm (5.9 in.) and avoid collisions, it asserted.

The CRA series supports



Dobot USA executives celebrate the opening of its Dallas office. Source: Dobot

Modbus, Ethernet/IP, and Profinet communication and connects with PLC (programmable logic controllers) and other automation systems. With 24 available I/O ports and PNP/NPN switching, expansions can be carried out more easily, Dobot said.

The cobots' operating software, also new, supports graphical programming, scripting and drag-to-teach for trajectory replay. It is designed to be user-friendly and compatible with diverse end devices, from PCs to tablets, said Dobot.

VX500 Smart Camera to open new applications

The new VX500 Smart Camera uses Dobot's proprietary 2.5D spatial compensation technology. This enables equipped robots to more accurately detect tilted or angled objects,

explained the company.

This technology opens up a variety of vision-based automation scenarios for cobots of the new CRA series as well as the existing CR series, it noted.

Dobot added that users can set up the new camera quickly and easily with its latest software. •



The new VX500 camera is designed to work with the CRA series. Source: Dobot