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QUARTERLY NEWSLETTER FROM AUTOMATED SOLUTIONS AUSTRALIA

PARTNERS IN Productive Expertise

ROBOTIC APPLICATION OF CERAKOTE

CUSTOMER IN FOCUS: SOP ENGINEERING



AXIS

FROM THE DIRECTOR'S DESK



Welcome to our Summer 2023 Edition of AXIS Newsletter.

We hope you were able to recover and unwind during the holiday season before settling into 2023. As we welcome in the new year, it's been a pleasure to chat with so many of you throughout the Christmas and New Year break. The thrill of new initiatives comes with the new year, and for us, that means developing better methods to enhance your production operations and customer experience. The year 2023 promises to be spectacular. Our collaboration with Aerobotix in the United States is expanding, and we are gearing up for Australian Manufacturing Week in May, which promises to be larger and better than ever before.

We challenge our Editorial team in each quarterly issue of Axis to provide you with engaging and useful articles from an ever-expanding cross section of the manufacturing industry, both locally and abroad. I'm really passionate about providing outstanding customer experiences, and I believe you'll agree that the Editorial team has again provided a diverse selection of intriguing and useful content. This issue focuses on our Partners In Productive Expertise (PIPE) collaboration with Okuma Australia. The editorial team takes a deep dive into Cerakote™ coatings, which are becoming increasingly popular in high-temperature applications, and the advantages of applying them robotically. We also take a look at the FANUC M-20iD/25, a multifunctional machine loading and unloading robot. The team takes the opportunity to introduce you to one of our own, Michael Krushka, and we acknowledge our most important differentiator, our people. Finally, we look at a case study with one of our valued clients, SQP Engineering, to see how automation has added value to their operation.

We hope you like this issue of Axis, which we will post on social media networks such as LinkedIn and Facebook. If you haven't already, follow us on Facebook at @automatedsolutionsaustralia for even more useful articles and the most recent industry news. As we strive to be your integrator of choice, we always appreciate your input!

Whatever your plans for 2023 are, and wherever you are in the globe, we look forward to keeping you up to speed on the newest breakthroughs in automation while meeting your requirements today and into the future. On behalf of the ASA team, we thank you for choosing to partner with us.

Pat Green, Director

ANNUAL ROBOT SERVICING

Has your Robot had it's Annual Service? Call ASA on 1800 ROBOTS to book.

Just like a car needs regular servicing, the same applies to your robots. Your robots work hard for your business, sometimes operating 24 hours a day for long periods, so annual servicing of your robots will ensure your FANUC robots remain in optimal condition. Greasing, battery replacements, checking for excessive wear and measuring back lash ensure motion repeatability, as well as continuing to provide you with a great consistent outcome for your manufacturing processes. Annual servicing helps maintain a high level of Mean Time Between Failures (MTBF), as well as potentially forecasting issues that may be developing.





PARTNERS IN PRODUCTIVE EXPERTISE

Automated Solutions Australia (ASA) is an inaugural member of the Okuma PIPE Alliance. Okuma Australia's own PIPE (Partners In Productive Expertise) alliance program has members from several well-known and highly regarded suppliers of allied and accessory products in Australia. The fundamental principle upon which it is based is trustworthiness.

The invited members of PIPE have proven to Okuma and each other that they conduct a high standard of commercial dealing and stand by their products 100%.

The first project ASA and Okuma Australia collaborated on was a bespoke machine tool tending solution designed by ASA for an Okuma customer's machine tool cell. This was the beginning of a very strong alliance between Okuma Australia and ASA.

For nearly 20 years Okuma's partnership with ASA has continued to deliver excellent outcomes for Australian & New Zealand manufacturers. Whilst Okuma has an impressive 40+ year presence in Australia and New Zealand, they are extremely proud of Japan's ownership of Okuma Australia for the last 20 years.

Okuma Australia recently celebrated this 20-year anniversary with all Okuma staff members.

Pat Green, Director of ASA commented We would like to extend our congratulations to the team at Okuma. When I first met the team at Okuma, they shared that, like ASA their differentiator was their people, their passion, integrity, loyalty and experience. I knew from that moment back in 2006; this would be an enduring partnership. Since our first project together in 2007, it continues to be an honour to create outstanding automated machining cells with 0kuma for our clients in both Australia and New Zealand.'

Coincidentally, late last year ASA also celebrated their 20-year anniversary, A gift was presented to ASA's Director, Pat Green to acknowledge the important contribution the two companies have made to each other's respective growth and success for much of those 20 years.

'Congratulations on the 20th anniversaries for two exceptional businesses,' commented Dean McCarroll, Managing Director, Okuma Australia & New Zealand, 'We are proud to be associated with ASA. Our strong, collaborative working relationship provides outstanding automated machining cells to benefit the manufacturing industry in Australia & New Zealand.'

www.automatedsolutions.com.au

www.okumaaustralia.com.au

ROBOTIC APPLICATION OF CERAKOTE

As part of Automated Solutions Australia's (ASA) commitment to delivering tomorrows solutions today, ASA has been completing a lot of lab trials using a robotic solution for the application of Cerakote.

For those who aren't familiar with this product, Cerakote is a thin ceramic coating that is applied as a resin and forms a 3D ceramic matrix as it cures. This makes it possible to protect surfaces that are not made of metal. The formulation of this technology makes it possible for the coating to withstand extremely high temperatures (sometimes as high as 1100 degrees Celsius) without altering its appearance. Once cured, the coating is a becomes very hard and extremely scratch and abrasive resistant.

A Cerakote coating also provides excellent protection against corrosion, thermal stress, and thermal barriers for applications that are sensitive to temperature changes. This type of coating continues to exhibit outstanding performance over an extended period of time. Because of this, Cerakote is ideal for use in defence and military applications as well as on exhausts, pistons and other components that will be exposed to high temperatures. Cerakote has been carefully engineered to provide maximum substrate protection and improved coating performance when compared to traditional powder coating and solvent or water-based painting applications.

Once cured, products coated with Cerakote typically have a smooth, sleek finish. Although the application of Cerakote is traditionally a simple process, this does not mean it is easy. Dry spray is a common application mistake leaving a scratchy texture, similar to that of sandpaper which is often a result of insufficient solvent transfer during the spraying process. It is necessary to "Wet Out" the coating before beginning the application process in order to prevent any dry spray from occurring. On the other hand, because Cerakote is such a thin liquid, it is very difficult to apply to a surface without runs. Application requires greater control of the thickness when compared to other coatings, usually 8 – 25 microns.

Recently, Automated Solutions Australia (ASA) have been fielding more enquiries about the automation of the Cerakote



application process. Automation allows digital flow rate control and consistency of applicator tip speed, as well as being able to program a constant gun-to-target distance. Using FANUC paint robot systems, ASA can far exceed the transfer efficiency and material utilization when compared to traditional spray guns and spray systems. Cerakote can be delivered to the robot in a more efficient manner thanks to in-arm process control. Because the FANUC robot is equipped with integrated fluid handling capabilities, the substance may be blended to the appropriate proportions and delivered to the applicator in an effective manner. This means the coating process can be more tightly controlled and given the hefty price of Cerakote per litre, a real competitive advantage with minimal waste.

Using a FANUC paint system to apply Cerakote means increased operational time. Robots rarely need breaks and when managed right, never have to stop to mix additional paint. The system is programmed to mix the exact amount of solvent to Cerakote ratio required for optimal performance. These systems provide results that are consistent and reproducible across parts with stability. FANUC painting systems lower the risk of occupational health and safety hazards to the work force and provide increased protection for workers in potentially dangerous areas. These systems are designed to be intrinsically safe, which means they may operate in potentially hazardous areas. This combined with a drop in emissions volumes of volatile organic compounds (VOC) are some of the benefits companies can experience with a FANUC painting system.

The reliable nature of robotic applications, means there is a decrease in the frequency of rework and repair which may have been caused by errors in manually applying the coating. FANUC paint robots have the ability to make on the fly adjustments to a variety of application parameters, resulting in improvements to film and aesthetic appearance.

All of these benefits make automation of Cerakote a great investment. If you're looking to automate your Cerakote application, call us today on 1800 ROBOTS (1800 762 687)

The whole range of FANUC paint robots are available on the ASA website:

www.automatedsolutions.com.au



SQP WAS NAMED AND ESTABLISHED ON THREE CORE PRINCIPLES: SERVICE, QUALITY & PRODUCTS.

Founded in 2006 this local West Australian family business started out as a small-scale jobbing shop, renting just a few square metres of space within another workshop. Since then, SQP has grown exponentially, servicing industries including mining, oil and gas, military, agriculture, and general engineering. They have expanded into their own manufacturing facility and are now specialists in CNC machining, automated manufacturing, additive manufacturing, and metrology.

As an early adopter of industry 4.0 technology, SQP were the first company in Western Australia to purchase a Mark Forged FX20 which enables large scale and rapid manufacture of 3D printed composite parts.

SQP machine almost every material, from plastic and synthetics, to steel, aluminium and bronze. With ISO9001 accreditation and cutting edge metrology technology, this machine shop is able to guarantee the quality of all of its manufacturing.

Over the years, SQP have invested in three automation cells with Automated Solutions Australia (ASA). ASA and SQP collaborated on the design of each of these cells in order to identify the existing pain points as well as working closely together to work out a bespoke design that would best suit SQP. Dave Miller, owner of SQP reflects that the dream was always 'lights out' production, where the cells are able to continue production through the night unsupervised, increasing productivity and allowing the company to meet tight deadlines. Mr Miller, commented that 'Working with ASA was a collaboration, where we had the ability to adapt cells and change requirements to suit our business needs.'

It was important to SQP that at the forefront of this investment, that there was consideration for growing their people and introducing them into Industry 4.0. SQP strongly believes that their team members



are the most valuable assets and have used this opportunity to upskill their apprentices in the use of robotics. To support this, ASA sought to reduce the possibility of operator error by integrating everything into a fully customised operator interface panel aimed at simplifying the addition of new products, thereby having an ever increasing range of products that the robot can load into the machine tool. It was SQP's requirement that the robot has the ability to load any raw stock and unload machined product form the machine, limited only by the weight and diameter of the raw stock. "Automation has become an integral part of SQP's operation and assists the team in meeting cost and delivery requirements for their customers."

The relationship between SQP and ASA started in 2014 when the first Fanuc robot was installed by ASA to tend to an Okuma LB4000 EX. This was followed by a second cell in 2020 when another Fanuc robot was installed on an Okuma Multus multitasking machine.

The latest cell installed at SQP presented ASA with unique requirements in that the robot is installed on a moveable skid and has the flexibility to be moved between workstations. Pat Green, Director of Automated Solutions Australia reflected that 'the versatility of having a robot on a moveable skid was a somewhat unique request for ASA. While our systems frequently tend more than one machine, they tend toward employing large, long reach robots with relatively heavy payloads. And while there are several machine tool loaders out there, SQP simply loved the ease of use of our system and the fact that we have tailored it along the way to add features as they request, thereby making it SQP's system. We took the time to understand SQPs needs and created a truly bespoke solution allowing the robot to be moved between machines.'

When developing an application solution, the Fanuc M20iD/25 was chosen for both its size, reach and payload to tend to an Okuma LB 3000. Automation has become an integral part of SQP's operation and assists the team in meeting cost and delivery requirements for their customers. These Fanuc robot cells are at the cutting edge of the industry in terms of their dependability and predictability. With a combination offering of CNC



machining, automated manufacturing, additive manufacturing, and metrology, SQPs products continue to emerge into an impressive range of industries with continuous expansion into new areas.

To contact SQP please visit their website: www.sqpengineering.com.au

To contact ASA please visit our website: www.automatedsolutions.com.au

ROBOT IN FOCUS: FANUC M-20iD/25

FANUC M-20iD/25 is Precise with Quick Control

The FANUC M-20iD/25 is perfect for loading and unloading machines as well as parts handling and placement in busy production situations due to its high performance, yet compact size. It has a small arm and wrist for optimal accessibility and as a result of its new, enhanced design and drive train, delivers much greater axis speeds and motion performance than previous generations. With a larger active stroke of 1831 mm, it provides a broad operating envelope, with greater repeatability of +/- 0.02 mm due to increased stiffness. Internal cable routeing prevents entanglement and increases dependability. Through the combination of performance and dependability, the FANUC M-20iD/25 optimises throughput, hence increasing profitability. Installation is simple, and operating expenses are low.

FANUC M-20iD/25 Applications and Specifications

- Assembly
- ✓ Palletising
- ✓ Part Transfer
- 🕗 Dispensing
- 🕗 Material Removal

FANUC M-20iD/25 Features

The cabling on the FANUC M-20iD/25 for the end of arm tooling may be routed via the robot's enormous 57 mm-diameter hollow wrist and hollow arm, reducing the propensity for snagging and cable wear. The FANUC M-20iD/25 has extra-smooth surfaces minimising dust and grime accumulation. Due to the IP67 protection on its arm and wrist axis, it is well-suited for harsh applications like grinding and deburring.

The FANUC M-20iD/25 model is included into ROBOGUIDE, FANUC's premier offline programming tool. ROBOGUIDE is a sophisticated tool that allows offline creation of cells, systems, and path development by integrators, planners, and users.

How can Automated Solutions Australia (ASA) Help?

Automated Solutions Australia (ASA) is your ideal FANUC industrial and FANUC collaborative robot integrator. Our industrial engineering team at ASA are FANUC robot specialists, from concept to system designs, installations, programming, and support. At Automated Solutions Australia (ASA), we love helping Australian businesses of all sizes reach their automation goals, and build their sovereign capability. This lets Australian PAYLOAD 25KG REACH 1831MM AXIS 6 AXIS



manufacturers compete on the world stage. Automated Solutions Australia (ASA) is an industry-leading expert for all your FANUC industrial robot and FANUC collaborative robot needs. Phone Automated Solutions Australia (ASA) today on 1800-ROBOTS (1800-762-687).

If you're looking for a multifunctional robot, get in touch with us today to see if the FANUC M-20iD/25 is the right robot for your application.

MEET THE ASA TEAM - MICHAEL KRUSHKA

What has been your favourite robot to work with?

That is a difficult question to answer I would have to say the FANUC M710iC. I have had multiple experiences working with model in the SwordBrush application. You may ask what a sword brush is? Picture a 1-metre long EOAT "end of arm tooling" that is shaped like a chainsaw. Sounds like a scene out of a horror movie, but this one is fitted with two micro bristle brushes that just spin. Given the application tooling, this application completes cleaning of the vehicle prior to being painted. Naturally, it is a new technology that is still being rolled out across the world. It has been a joy to be involved in the development of this system with this exceptionally versatile application.

I would also like to make an honourable mention to the Fanuc P700. I have worked with this robot on almost every paint application project I have done, and it is exceptionally well engineered. A close second indeed.

Most interesting project?

I would have to say that the most interesting project for me was working on the Clearcoat installation. This project had such a short deadline, but it was incredible working with such a well-developed team of engineers from ASA and FANUC America. I was able to see this project from start to finish and was provided with terrific customer feedback relative to the project deliverables. It made for a great challenge and opportunity to use my controls skills.

What's been your biggest challenge you've had to overcome on a project?

I accept new challenges every day at ASA. It keeps the job changing. However, one of the biggest challenges I experienced on a project was quite recently at in Mexico wherein I had to learn a new language (Spanish). I had to be able to communicate with the customer and contractors alike, as well as program the equipment. This assignment was my first greenfield project, meaning I saw this project to completion over its one-year timeframe. In this situation, it was great to effectively see a pile of dirt turn into an automotive assembly plant, delivering quality vehicles all of the world. For me, to be involved in the project from beginning to end is such a rewarding experience .

What do you enjoy most about working at ASA? (Best part of your job?)

The Ability to learn new things, I believe ASA



is an employer that provides opportunity to its employees and allows us to grow as engineers. I enjoy working with such an amazing team, and we are constantly challenging each other every day in teaching and learning smarter ways to make things better. The opportunity to be able to see the world is incredible also, due to the nature of our work we travel a lot. Recently I was able to visit Niagara Falls after my project in Canada and this is certainly a highlight for me.

What has been your biggest achievement to date?

I would say how much I have grown as a person. I have learnt a lot about myself doing this job. I've overcome and thrived on every inherent challenge presented to me. When I started with ASA as a graduate straight out of my electrical and electronic engineering degree, its safe to say I was "green". Now, I'm multifaceted in process, controls, and software engineering. I'm proud of the fact that I've been able to do that, and that I am given the opportunity to continue working on my capabilities. To finalise all this development in myself has cascaded down to further development to my work, which allows me to kick goals in life and in my career.

What does a typical day look like for you and what are you currently working on?

A typical day for me would be up between 3 and 4am. I often go to the gym before work. Once complete, I grab some oats or Wheaties (the breakfast cereal of champions), then head into site. Currently I'm on a greenfield project, and our start time is 6am. While we're in the launch phase, I am working a 10 to 12 hour shift depending on our schedule. During the day I will consult with the customer and work on the controls automation side of the Topcoat + Prime+ Swordbrush zones. At this site we have 78 robots to commission across functional testing, interlocking and safety. So its safe to say that the day is never without things to do. Finally, once its knock off time, I head back to the hotel, and get ready for tomorrow.

Three words to describe your role?

Dynamic, Resourceful , Incredible.

DELIVERING TOMORROW'S SOLUTIONS, TODAY

ASA is a privately owned, wholly Australian company specialising in the design, engineering and integration of flexible automation solutions for the Australian manufacturing sector.



Whether your application is pick and place, palletising, packaging, part transfer or assembly, the development of a robotic solution offers significant benefits in almost any industry that is operating at high levels of throughput.

- Achieve uninterrupted speed, saving valuable production time.
- Achieve maximum repeatability, reliability and accuracy
- Lower costs versus manual labour
- Eliminate health and safety risks related to repetitive, tiring or dangerous operations

Contact ASA for more information or visit our website automated solutions.com.au

1800 ROBOTS (1800 762 687)





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