

ISSUE 13 - MAY 2023

QUARTERLY NEWSLETTER FROM AUTOMATED SOLUTIONS AUSTRALIA

A X I S

AUSTRALIAN
**MANUFACTURING
WEEK**

CUSTOMER
IN FOCUS:
CROSS HYDRAULICS

AUTOMATION
**OF FIBREGLASS
AND GELCOAT**



FROM THE **DIRECTOR'S DESK**



Welcome to the Director's Desk of Axis for Autumn 2023!

Australian Manufacturing Week (AMW) recently concluded in Melbourne, marking the biggest and most successful event yet. This reflects the positive shift we've observed in the manufacturing industry in Australia over the past 24 months.

The enthusiasm and excitement of Australian manufacturers during the event was contagious, making it a great experience for everyone involved. The exhibition halls were also filled with future STEM students, providing an opportunity to introduce them to automation technology. Attending AMW is truly an enriching experience that leaves you feeling fulfilled, and this year's event was no different. As a tribute to our expanding manufacturing community, one lucky AMTIL visitor was gifted with a bottle of South Australia's prestigious Penfold's Grange.

Our aim in each quarterly issue of Axis is to challenge our Editorial team to provide you with compelling and informative articles covering a diverse range of topics within the expanding manufacturing industry, both locally and globally. As someone who values exceptional customer experiences, I am delighted to say that the Editorial team has once again delivered an excellent selection of intriguing and valuable content. This issue takes a close look at our experience at AMW 2023, and the trends we saw in automation. Further to this, we delve into the growing demand for fiberglass automation in various sectors such as swimming pools, caravans, and composite manufacturers. We turn the technology spotlight to the FANUC R-2000iD/100FH as we explore its features, and introduce one of our own talented team, Brendan Howe. Finally, we highlight a case study with one of our esteemed clients, Cross Hydraulics, to showcase how automation has enhanced their operations.

We trust that you will find this issue of Axis to be engaging and informative. We will share it on popular social media platforms such as LinkedIn and Facebook, so keep an eye out for it there. If you haven't already, please follow us on Facebook at @automatedsolutionsaustralia to access a broader range of valuable articles and the latest industry updates. Your feedback is always welcome as we work towards becoming your preferred integrator. On behalf of the ASA team, we thank you for choosing to partner with us.

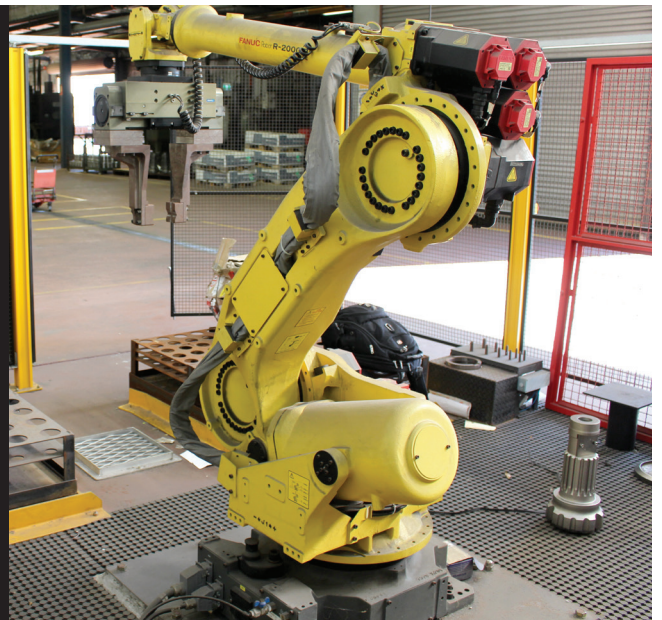
Pat Green, Director

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.





CROSS HYDRAULICS IS A GLOBAL LEADER IN THE DISTRIBUTION AND MANUFACTURING OF CUSTOMER AND APPLICATION SPECIFIC HYDRAULIC SYSTEM SOLUTIONS FOR MOBILE AND INDUSTRIAL APPLICATIONS.

Their extensive inventory includes pumps, motors, valves, power units, transmissions, and controls. Since 1976, their proficiency, the quality of our individual components, and their operational dependability have garnered market recognition.

Through ASA's partnership with Okuma Australia, Cross Hydraulics came to ASA looking for a machine tending solution to tend to an Okuma LT3000 EX 3T3MY. ASA designed the complete automation cell after consulting with Cross Hydraulics to determine the existing pain points and desired outcomes for this investment, including a Modula Vertical Storage System and Hi-Tech Metrology Shop Floor Co-ordinate Measuring Machine (CMM).

Cross Hydraulics adheres to environmentally

responsible production practices and were looking for ways to reduce raw material, minimise emissions and waste as well as increasing productivity and reduce customer lead time. They were looking for a solution that not only offered an ability to add a second machine to the cell in the future, but also capability for 24-hour lights out operation. Michael Finck, Senior Engineer 'From the get go, I was blown away by ASA and the knowledge and experience with machine tending systems and their overall professionalism.'

Pat Green, Director of ASA chose a FANUC R2000iD/100FH, Hollow Wrist robot with a reach of 2605mm and a payload of 100kg for this bespoke solution. 'The hollow wrist robot allows for a neat and compact machine tending solution, which mitigates the need to manage externally routed cables to the dual handed gripper.' The cell included robot, dual handed gripper, guarding, PLC and safety control system as well as a vertical storage system to store billets and finished goods for long periods of unmanned production.

A two-handed gripper with integrated quick change adapters was specifically designed for the system to complement the FANUC R2000iD/100FH robot. ASA supplied 14 grippers and a gripper change station that allows seamless transition between billets and finished goods of different sizes.

What was the solution?

As the robot entered the machine at the end of a cycle, one gripper was already holding a raw billet to insert into spindle 1 while the other gripper was empty and prepared to receive the finished part from spindle 2, after commencing the next cycle, the robot would offload the completed parts into the Modula Storage System which featured 17 individual trays to handle the Cross Hydraulics parts or place it to the CMM for inspection and Quality assurance.

ASA's HMI software enables the selection of different types of tending sequences such

Continued next page

“From the get go, I was blown away by ASA and the knowledge and experience with machine tending systems and their overall professionalism.”

as loading billets and unloading finished parts from the integrated machine bar feeder. ASA's HMI software makes setting up new parts a breeze and walks the operator through the process while at all times, logic checking the input values to avoid potential collisions. Michael Finck observed 'The HMI is so easy to use and flexible to accommodate all our different machining operations and

part configurations, including the different loading and unloading sequences.'

The result? Cross Hydraulics and ASA were able to reduce cycle time, increase overall productivity as well as enhance safety and flexibility. Michael Finck mentioned that 'This automation project, being a combination of the purchase of the Okuma machine serviced by a FANUC robot, has increased our productivity by three times on some parts, and up to around 6.5 times on others.'

If you're looking for hydraulic system solutions, contact Cross Hydraulics, or visit www.crosshydraulics.com.au

If you're looking for an automation solution for your machine, contact ASA today or visit www.automatedsolutions.com.au



ROBOT IN FOCUS: FANUC R-2000iD/100FH

FANUC R-2000iD/100FH Specific Features

The **FANUC R-2000iD/100FH**, unlike the rest of the R-2000 range, has a hollow arm, meaning you can route the end of arm tooling (EOAT) cables through it. This takes away any chance of cable interference with the workpiece or other objects in the cell. Additionally, it protects the cables and makes offline simulation simple. Easy access to the internally routed cables is provided for through wide access panels. This simplifies maintenance tasks and lengthening the life of the cables. Compared with its R-2000iC counterpart, the installation area of the **FANUC R-2000iD/100FH** has been reduced by 23%, saving you valuable floor space. The FANUC R-2000iD/100FH has a reach of 2605mm and repeatability of $\pm 0.05\text{mm}$ making it a versatile and accurate option for an array of applications. Its compact shape and sturdy design makes integration into your robotic cell simple.

FANUC R-2000iD/100FH General Features

The FANUC R-2000 series is FANUC's most popular range in the world thanks to its high speeds and payloads of 100kg to 270kg. They are perfect for any number of applications with heavy payloads such as material handling and spot welding. The various options within the FANUC R-2000 range ensure there's a robot that will meet your needs. Additionally, the heavy payload of the FANUC R-2000's are capable of means

that they can handle almost any gripper or EOAT at speed and FANUC offers a range of upgrade kits that allows easy customisation for your particular application.

The wrist of the **FANUC R-2000iD/100FH** has an IP67 rating as standard. Having a dust and waterproof wrist allows these industrial robots to work in some of the harshest of environments.

The **FANUC R-2000iD/100FH** has been designed to have as few mechanical components as possible to minimise areas of failure, so you have less production downtime. This also results in minimising your spare parts requirements.

As standard, the FANUC R-2000iD/100FH have integrated air (x2) and electrical services (x8) with inputs at the base and outputs on the upper arm, as well as PROFIBUS terminals for simple connection to various EOAT. This minimises cabling requirements, reducing interference with the workpiece or other objects in the robotic cell.

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



PAYLOAD 100KG

REACH 2605MM

AXIS 6 AXIS

reach their automation goals, and build their sovereign capability. This lets Australian 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).

The latest development in the R-2000 series, the FANUC R-2000iD/100FH offers a brand-new hollow arm design for high payload applications. This design offers many benefits in numerous workspaces particularly in extending the life of tooling cable and minimising downtime. Get in contact with one of our expert staff today to find out if the FANUC R-2000iD/100FH is right for your application.



AUSTRALIAN MANUFACTURING WEEK (AMW) 2023

The Australian Manufacturing Technology Institute Limited (AMTIL) has once again brought the manufacturing industry together for an unforgettable event, hosting this year's Australian Manufacturing Week (AMW) at the Convention Centre in Melbourne from May 9 to 12, 2023. And what a week it was!

Automated Solutions Australia (ASA) was among the hundreds of exhibitors who joined thousands of visitors to celebrate all facets of Australian manufacturing. This year's AMW was a major success for the organisers, and we believe it was the most well-attended event in the show's history. This reflects the positive shift we've observed in the manufacturing industry in Australia over the past 24 months.

The enthusiasm and excitement of Australian manufacturers during the event was contagious, making it a great experience for everyone involved. The exhibition halls were buzzing with energy as future STEM students had the opportunity to witness automation technology in action. It was truly an enriching experience that left attendees feeling fulfilled.

As a tribute to the expanding manufacturing community, one lucky AMTIL visitor was gifted with a bottle of South Australia's prestigious Penfold's Grange. But that was just the beginning of the excitement!

One of the most talked-about parts of our exhibit at AMW was the FANUC robots. The FANUC P-250iB/15 Paint Robot was showcased as a versatile robot that could be used for a wide variety of applications, including paint, fibreglassing, and other hazardous dispensing applications. Equally impressive was the R2000iC/270F FANUC Robot, the strongman in the R2000 series with a payload of 270kg. ASA demonstrated this robot's versatility in handling large and awkward pieces, showcasing its ability to be used for machine tending, part transfer, spot welding, palletising, and many

more applications. A big thanks goes to AW Fraser, as this robot ships out shortly for its assignment in Auckland, New Zealand.

But the excitement wasn't limited to the exhibition floor. AMW also had many networking events outside of the show hours, providing an opportunity for innovators to meet and build relationships. ASA's staff and management thrived on this opportunity and were able to connect with other like-minded individuals driving the technological revolution.

ASA's Melbourne team members who weren't part of the stand were also able to come through and see all that was on offer, and several of our Adelaide team made their way across to support the event.

All in all, this year's AMW was an unforgettable celebration of Australian manufacturing. With record attendance, exciting exhibits, and plenty of networking opportunities, it's no surprise that everyone left feeling inspired and energised. We can't wait to see what the future holds for Australian manufacturing and look forward to continuing to be a part of it!

MEET THE **ASA TEAM** - BRENDAN HOWE



What has been your favourite robot to work with?

Having mainly worked on large scale Automotive Paint projects I'm most familiar with the Fanuc P700, similar to a P250 but rail mounted. These robots are ideal for painting applications, and can be fully computer simulated using FANUC's PaintPro software, allowing you to make changes safely offline before loading to the real world.

Most interesting project?

All the projects we work on have their own interesting aspects, but I believe my most interesting project was when I worked at the Tech Centre in Michigan. This involved working in Lab trials, developing the Robotic Paint Processes for some of their latest vehicles before implementing in their factories.

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

The language barrier has generally been a pretty big challenge on a few of our projects. Not knowing a word of Spanish and having my first Project in Mexico, followed by Argentina, there was definitely a lot of head shaking and thumbs up/down involved.

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

Getting the chance to travel to so many different places is definitely a highlight of the job. I've visited 4 different countries since joining ASA with Brazil next on the list which I am looking forward to.

What has been your biggest achievement to date?

Recently I've worked on the Process programming of a new P700 Paint System

for one of the new electric car companies. This involved developing the process work from the ground up which I had never done before. The system was fairly complex with multiple robots communicating between each other. It also had a degrade option, where certain robots could be bypassed in case of need for repair. Setting up the degrade logic was a challenge as the car still needed to be painted in the same order in every degrade. There were a lot of different factors that needed to be taken into account for this to work effectively. In the end though I was able to come up with a programming structure that was able to be operated in any degrade with no issues. This was a great learning experience and I look forward to seeing it implemented on site.

Three words to describe your role?

Diverse, fast-paced, Interesting.

AUTOMATION OF FIBREGLASS AND GELCOAT USING FANUC PAINT ROBOTS

With environmental regulations, rising material costs and innovation pressures, more swimming pool, boat, caravan and other manufacturers are turning to Automated Solutions Australia (ASA) to automate their production processes.

Our customers tell us that it is impossible to disregard the improvements in product quality, dependability, material savings and waste, improved cycle times, increase to employee safety and decrease of emissions.

Today we look deeper into the FANUC line of paint robots and why they are ideal for automating any fibreglass and gelcoat composite production facility.

At ASA we use FANUC Paint robots equipped with FANUC's own AccuChop, an all-inclusive package designed specifically to ensure the successful and efficient coating of applications involving chopped fibreglass as well as gel coat. This closed loop process control system includes the display of production data and cycle times. Moreover, it is a system that can respond to even the slightest change in flow, timing, viscosity and temperature by triggering alarms and alerts. AccuChop can dynamically adapt and respond to certain changes through the automatic and continual control of calibration.

Gelcoat quality influences the final appearance directly. If the application is too dense, the surface may crack, whereas if it is too thin, the gelcoat will not cure properly. Relying on a tried-and-true FANUC robot provides a reproducible result that can eliminate these quality concerns.

With precise trigger timing and continuously repeatable motion, a robotic application pattern reduces variance in the quantity of resin or fibreglass utilised by a substantial amount. This decreases overspray and guarantees a uniformly dense coating. Incorporating a fibreglass or gelcoat robot reduces waste at the point of origin by placing materials only where they are required.



A FANUC fibreglass or gelcoat robot can perform arduous ergonomic duties with speed and precision. Variable fan patterns allow for enhanced coverage and higher deposition rates due to their adaptability. With a FANUC high-speed robot, you can anticipate shortened cycle times and greater equipment availability throughout each shift.

Composite manufacturers tell us they are under pressure to reduce emissions of volatile organic compounds (VOC). Using FANUC robots allows for the controllable spraying of resin to reduce VOC emissions. Because the compounds in the resin typically have a high VOC content, fibreglass spraying creates a more hazardous environment for people than fibreglass cutting. Automating this process using FANUC robots is an efficient method for applying composites because the majority of the resin ends up on the component, as opposed to in the air or on the floor.

Because fibreglass and gelcoat robots are designed to operate in Class 1 Division 1 hazardous environments, potentially dangerous duties can be completed much more safely. This reduces the exposure of manufacturing facility employees to potentially hazardous environments. In addition, robots are used to apply styrene, polyurethane, and polyurea's, which do not have a hazardous approval classification but require the same flexibility and capability.

Whether you are a large or small composite materials manufacturer, our automation specialists would be delighted to discuss the use of FANUC paint robots and the potential benefits of automating your fibreglass or gelcoat production process with you.

**For more information please visit:
Fibreglass and Gelcoat Robots
(automatedsolutions.com.au)**

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
automatedsolutions.com.au

1800 ROBOTS (1800 762 687)





1800 ROBOTS (1800 762 687)
for 24 hours a day robot support

CONTACT

AUTOMATED SOLUTIONS AUSTRALIA PTY. LTD

ADMIN@AUTOMATEDSOLUTIONS.COM.AU

MAILING ADDRESS

GPO BOX 1090
ADELAIDE SA 5001

ADELAIDE

UNIT 2, 80 HOGARTH ROAD
ELIZABETH SOUTH SA 5112

MELBOURNE

UNIT 2, 13-21 THOMAS STREET
YARRAVILLE VIC 3013

UNITED STATES

6522 DIPLOMAT DRIVE,
STERLING HEIGHTS, MI, 48314 USA

AUTOMATEDSOLUTIONS.COM.AU

1800 ROBOTS (1800 762 687)

T: +61 (08) 7289 4444

