

INTEGRATED CNC ROBOT

ANCA

CNC Grinding Machines

ANCA is a global leader in CNC (Computer Numerical Controlled) tool and cutter grinding machines and now markets its CNC servo systems as a standalone product range to industries such as laser cutting and food and beverage. Through this project with the AMGC, ANCA will bring a new highly flexible industrial robotic system to market. Besides a world-renowned manufacturer entering a fast-growing market, ANCA is also creating a new industrial robotics industry in Australia.



How has the Growth Centre helped?

AMGC has helped in fostering industry and university collaboration through this project and by contributing \$325,000 in co-funding.

What's changed?

ANCA has developed its own technology for automating their customers' CNC grinding processes, which also has vast potential outside of this specific sector.

It has established a locally-grown industrial robotics capability with the potential for attracting more high-skilled careers.

Success story overview

Bayswater North, Victoria-based ANCA CNC Machines was established in 1974 and produces CNC tool and cutter grinding machines and related technologies. It exports 99 per cent of its products, has grown 17 per cent annually for the last two decades, and has a place in the Australian Export Awards Hall of Fame.

It is keenly aware of global industrial trends toward higher levels of automation and Industry 4.0-ready products.

The company's figures show that over 50 per cent of customers who buy CNC machines also bought automated loaders up from 10 per cent in 2014.

ANCA's drive for a homegrown automated loading system has its origins with the 2014 launch of its award-winning¹ FX Linear grinder range. Upon investigation, the company saw a gap in the market for a flexible SCARA (selective compliance assembly robot arm) system with an IP

1 <http://www.manmonthly.com.au/news/anca-takes-out-top-australian-manufacturing-award/>

rating of IP67². Due to restrictions in floor space in many regions, ANCA has adopted the philosophy of maximizing the potential of their machines with minimal footprint. What this has warranted is the inclusion of the robotic loading systems inside the very harsh grinding environment.

“With a pneumatic solution, it is a singular solution. We cannot reprogram it, we cannot change its functionality easily. It is a one trick pony,” explains New Products Development Manager Tom Nathan.

“One of the things we pride ourselves on with our automation offerings is that they are always versatile and flexible. We develop the majority of our technology internally within ANCA rather than sourcing third-party suppliers. The benefit this brings to our customers is that any technology we develop is fully integrated into the design of the machine. This facilitates us being able to respond to any bespoke customer demands quickly as we own the entire product chain.”

The company had never produced a standalone robotic SCARA product before and had to start “from scratch”. It had moved to technology readiness level (TRL) 6-7 before this project, which will elevate it to TRL 8.

The collaborative effort involves suppliers Total Precision, SMC and Harmonic Drive; Swinburne University; and subsidiary ANCA Motion, which is behind the software and drive technology.

Issues being tackled through the current project are significant but surmountable.



“The technical challenges we’re going through are difficult, intellectually stimulating and require a lot of brain-power, but we’re very confident that once all those hurdles are overcome, we’re going to have a very, very capable product,” says Nathan.

The finished product, including servo control system, CNC system, robot and software, is scheduled for release in mid-2018 as an ANCA Motion product range.

As a solution for CNC machining and other sectors such as printed circuit board manufacture and fast-moving consumer goods, there is significant export potential.

The International Federation of Robotics *World Robotics Industrial Robots* report recorded 15 per cent growth in unit sales over 2015 and predicts double-digit percentage growth through to 2019³. Capturing 1 per cent of the market would translate to \$38 million in export revenues for ANCA.

Further than revenue and job creation, the completed project will also mark the creation of a local industrial robotics industry. To highlight the significance of this, one well-regarded expert recently said this might be too difficult for Australia to consider⁴.

This high-growth sector is being aggressively pursued in other nations⁵, but professional opportunities in Australia are limited. This presents an opportunity to address this.

ANCA believes it is exciting to be able to tap into a stream of talented graduate engineers in areas such as industrial automation, IoT, and robotics, and to nurture opportunities for both them and for Australian manufacturing.

Of the AMGC’s assistance with the project, Nathan says this has been through facilitating links with industry, doing the same with universities, and in providing an important catalyst through investment.

“The AMGC co-funding was enough to really kickstart us in the right direction, to make this a possible project,” he offers.

“And in this regard, they’ve really been putting a lot of emphasis behind the drive for a robotics industry, which we’ve heard loud and clear, and it really works well with some of our aspirations and goals within the company.”

2 Protection from dust and water to a depth between 15 centimetres and 1 metre. See <http://www.resourcesupplyllc.com/PDFs/WhatDoesIP67Mean.pdf>

3 https://ifr.org/img/uploads/Executive_Summary_WR_Industrial_Robots_20161.pdf

4 <http://www.manmonthly.com.au/features/the-vision-thing-why-do-we-need-robots-that-can-see/>

5 <https://www.cnn.com/2017/09/06/chinas-blueprint-to-crush-the-us-robotics-industry.html>

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