

HOW AUTOMATION DOUBLED ACA'S CAPACITY

BASED IN INGLEBURN, NEW SOUTH WALES, ACE CONSTRUCTION AUSTRALIA (ACA) SPECIALISES IN ARCHITECTURAL, STRUCTURAL AND GENERAL FABRICATION AND INSTALLATION. SINCE THE COMPANY'S INCEPTION 15 YEARS AGO, ACA HAS EARNED A SOLID REPUTATION FOR HIGH-QUALITY WORKMANSHIP, AND EXPANDED RAPIDLY AS A RESULT. TO AUGMENT THIS EXPANSION, ACA RECENTLY BECAME THE FIRST COMPANY IN NEW SOUTH WALES TO INVEST IN A HGG COPING ROBOT 3D PROFILE PLASMA CUTTING MACHINE. THIS INVESTMENT HAS DOUBLED ACA'S CAPACITY, BROADENED THEIR MARKET SHARE, AND HELPED TO FUTURE PROOF THE BUSINESS.

According to Mohamed Elomar (General Manager, ACA), when he first established the company, the only automated machinery in the workshop was a saw, punch and shearing machine. "We decided that, to keep pace with the industry, we needed to invest in automation. So, we purchased a CNC machine. While this helped to augment our operations, we really wanted to move to a machine that could do it all—plasma cutting holes, on all profiles including SHS and RHS, complex coping and add-on-part layout marking without requiring re-work by the boilermaker."

"That's why we decided to invest in a HGG coping robot. The HGG replaces the drilling machine, band saw, angle machine, flat bar machine, plate machine, layout marking, and stamping. So I can push more work through the one machine," said Elomar.

The in-built capabilities of the machine have offered a range of benefits to ACA. For instance, the HGG's laser measuring system is essential when it comes to plasma cutting through the radius between the web and the flange on universal beams. Its plasma torch is readily able to regulate the amperage and voltage to process the radius on the universal beams when following the exact profile measured with the laser, without rework or loss of quality. And, when profiles are bowed, twisted, or cambered, or flanges are not parallel, the HGG is still able to achieve full

penetration butt welds and parallel mitre cuts as the cutting torch never uses touch probe to measure the profiles. "The machine follows the exact profile of the beam, no matter how much it is twisted. It performs a scan, indicates how far the beam is out, and then adjusts itself accordingly. When it comes to the SHS or RHS, there is another laser sensor attached to the end of the robot arm, which has a two step measuring process all the way around the SHS or RHS to ensure maximum accuracy and allow bevel cutting for these profiles."

Consumables expenditure is also relative. "Traditional machines leave a cross mark. This means you might end up with four marks per plate, which is eight ignitions. In comparison, the HGG places a full contour line where the plate will sit in one single ignition," said Elomar.

THE RESULTS

ACA has doubled the capacity of their workshop. "Prior to the installation of the HGG, we produced 50 tonnes per week. Now we can produce 100 tonnes per week—all without increasing either our workforce or our footprint."

This increased capacity means that ACA can meet clients' project timeframes much more easily, and is even able to sell their excess capacity to some of the local steel service centres. Often, the work ACA carries out for these steel service centres is quite complicated. Luckily, HGG offers exceptional after-sales service. "HGG has engineers in

their workshop in the Netherlands who can help with complicated profiles. We send the details off to the Netherlands, and they respond within 24 hours with a software update that enables us to cut even the most complicated profiles quickly and easily," said Elomar.

Importantly, the HGG can be programmed directly from over a dozen 3D model providers, like Tekla. "The HGG is able to read STEP and AutoCAD files. We have a lot of clients that draw plans in AutoCAD or Autodesk Inventor, which means they can only produce STEP files—not NC files. As a result, the HGG has opened up a whole new market for us. Clients prefer to work with us in STEP files, rather than reprogram their plans for fabricators with traditional coping machines that cannot read the files."

"When tendering, I know I have a higher chance of winning projects now—everyone else is relying on traditional fabrication methods or traditional coping robots that just cannot supply the same quality, at the same speed, for the same price. Investing in the HGG means that I win more work and increase my profits," said Elomar.

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