Forging ahead

Staff at a manufacturing facility are enjoying a safer working environment thanks to robotics. By **Alison Middleton**

A robotic system has enabled a manufacturing company to improve safety and product quality.

Donhad, based in Perth, Western Australia, manufactures specialised bolts and fasteners in plain carbon alloy and stainless-steel for use in the mining industry.

During the bolt-forging process, flashing is produced that then has to be removed as part of the manufacturing process.

Flashing is traditionally removed manually, but the Donhad team decided to investigate the feasibility of using new technologies in the hope of finding a more efficient way.

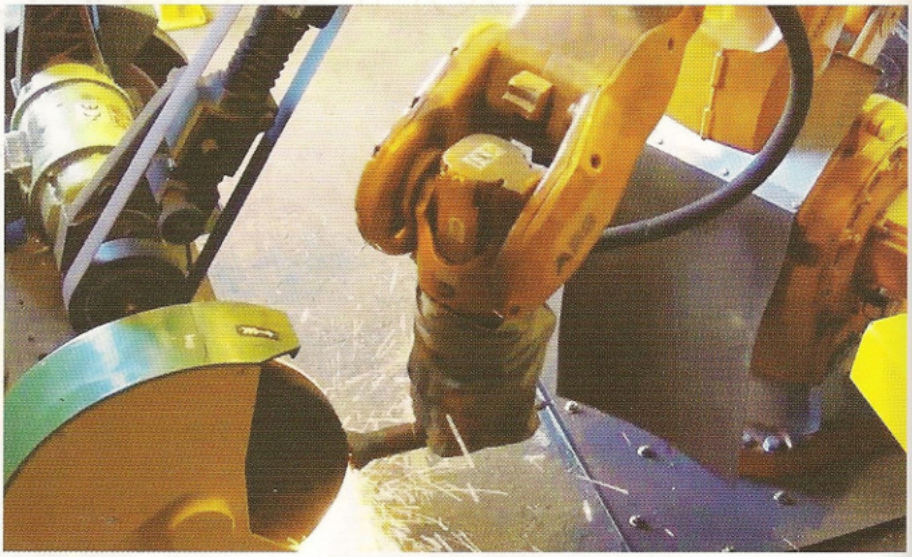
Donhad approached Perth-based firm Robotic Solutions WA to source a suitable solution.

Robotic Solutions WA and Donhad agreed upon a turn-key robotic system that included the robot cell, safety fencing, programming, conveyors, installation and after-sales support.

The automation experts chose an ABB industrial robot, model IRB 6660, specifically designed for machining, plus an ABB force-control package.

The package enables the operator to program the level of force that the robot will exert on each bolt as it is being ground.

Donhad forge plant superintendent Robert Meehan said: "Workers compensation claims, injuries, near-misses and hazards were issues we were contending with during manual grinding.



The robot performs grinding tasks and has helped reduce risks in the workplace.

"The Robotic Solutions WA team, led by David Woodhouse, came up with a viable robotic solution for Donhad that didn't create staff redundancies.

"Instead, it improved their working environment and allowed employees to develop new skills."

ABB industrial robot model IRB 6660.

Meehan said the benefits of the robotic system were two-fold.

"Risk of injury is greatly reduced, as the robot now performs the grinding tasks and the quality of the final product is improved due to the repeatability that the robot gives us," he said.

"Initially, some of our staff were rather apprehensive when we first mentioned a robotic system.

"However, since the installation of the system our people have become more involved with the new technology and their learning opportunities have increased."

Since the robotic system was installed, there have been no reports of injury, near-misses nor hazard alerts from Donhad's grinding operation at the firm's headquarters in Perth.

Donhad employees now enjoy a much safer working environment with no heavy lifting, less physical exertion and relief from having to do repetitive tasks in close proximity to a potential hazard.

Robotic Solutions WA director David Woodhouse said: "During the grinding process, the force-control package allows us to automatically compensate for variations in flashing size or surplus metal on the bolt.

"For example, if the robot detects extra flashing over a certain limit, it will slow down and remove material at a slower rate." AMM

alison.middleton@aspermont.com