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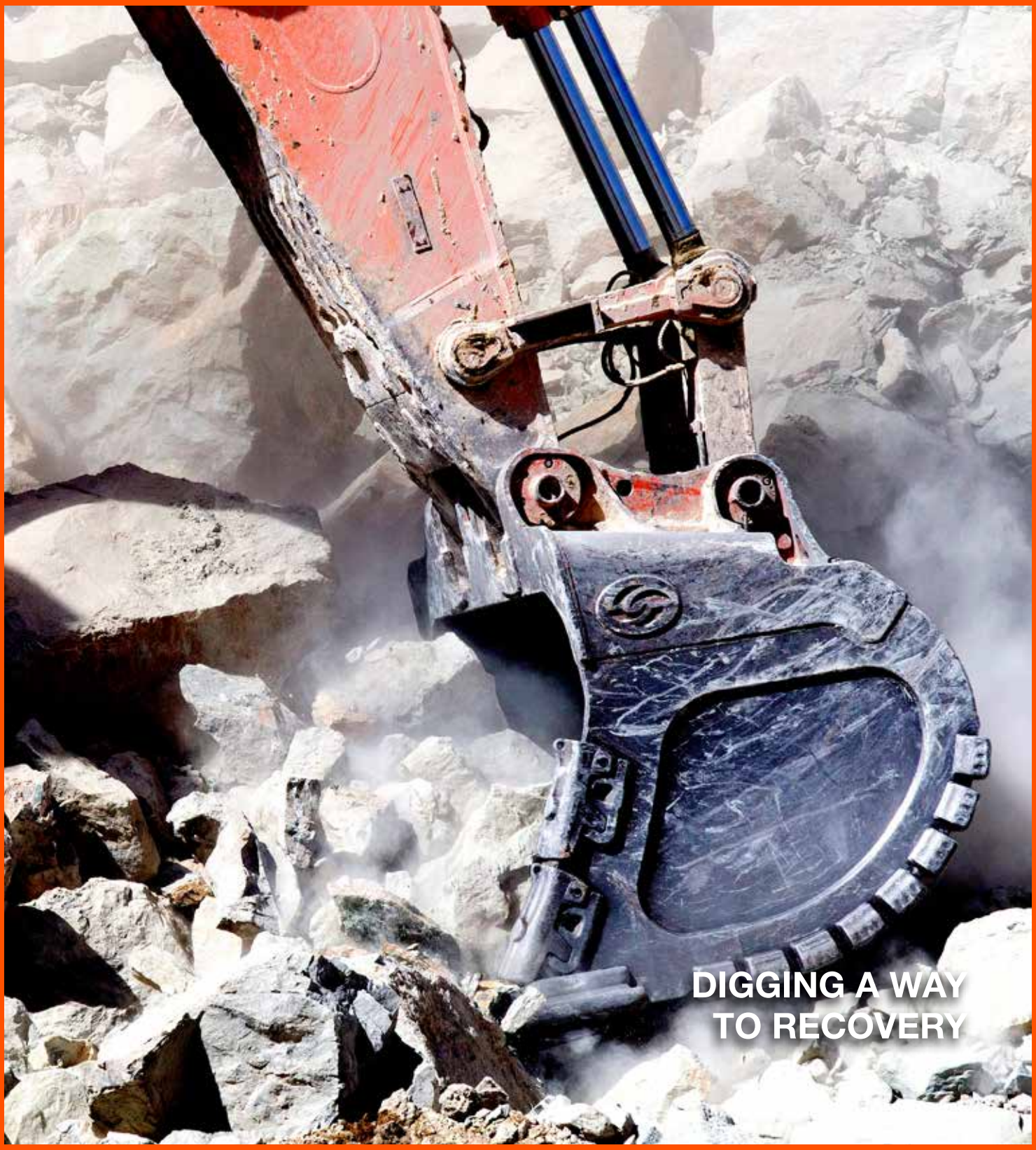

DIGGING A WAY TO RECOVERY

MINING & RESOURCES

Special Feature: Manufacturing & COVID-19

State Spotlight: Victoria

FLSmidth ABON gears up with Mazak and hyperMILL

The FLSmidth ABON brand has been synonymous with reliable, heavy-duty mining equipment for more than 50 years, and combined with the company's 135 years of experience, provides customers with increased output and quality, reduced total cost of ownership, and optimised productivity.

FLSmidth ABON is a leading manufacturer of low-speed sizers, roller screens and chain feeders for the worldwide mining industry. The company's products are mainly used in mining operations of mineral resources such as a coal, iron ore and copper, and are also used in various industries such as quarry applications, smelter applications, fertiliser production, or cement plants.

To stay competitive in the global arena, FLSmidth ABON has strived to remain at the forefront of manufacturing technology. The company has long been no stranger to the power, versatility and user-friendliness of Mazak multi-tasking machines - having used them over a decade to produce complex high-quality parts in a minimum number of operations. And the team has been highly successful in utilising the Mazatrol programming system to achieve this.

Successful companies seldom rest on their laurels, and do not shy away from a challenge. Recently FLSmidth ABON found a new challenge in the form of a very critical operation that could not be performed on its existing multi-tasking machines. The reason was not only the extremely complex technology involved, but also the lack of a successful precedent in producing dimensionally correct, geometrically true gears of various kinds on a general-purpose multi-tasking machine.

FLSmidth ABON had been a proud customer of John Hart and Mazak for a long time and it was very familiar with the technology and support that John Hart offers. Based on positive past experiences, FLSmidth ABON decided to put its faith in John Hart and Mazak once again, embarking on a journey, the successful conclusion of which has made the company a part of Australian engineering folklore and a jewel in the Victorian manufacturing industry's crown.

Working in partnership with John Hart and Mazak, the team at FLSmidth ABON utilised Mazak's Smooth Gear Machining software suite to machine external and internal gears using a range of techniques including gear hobbing, skiving, shaping and milling. Mazak's Smooth Gear Machining software allows for the conversational input of project parameters on the Mazatrol SmoothX CNC machine controls, making it easy for virtually any operator to handle gear-related projects with Mazak Smooth Gear Milling, Hobbing and Skiving functions to machine parallel-axis OD, ID and spline-type gears.

These advanced gear-making applications require no 3D models or programming steps. Instead, operators can simply enter the workpiece parameters into a conversational dashboard interface and the software will create the necessary machine instructions. Operators can then modify tooth profiles and leads, set up edge tapers, and take advantage of Mazak Smooth Gear Machining's sub-micron profiling capabilities.

FLSmidth ABON had been programming on the machine utilising the Mazatrol conversational programming system. However, a CAM system was also required to complement Mazatrol. The team's objective to have flexibility and failsafe processing alternatives prompted them to search for a reliable high-performance CAM system. As the authorised Australian reseller of hyperMILL, John Hart introduced the software to the company.

After looking at a few CAM systems, FLSmidth ABON selected hyperMILL, having reached the conclusion that it was the leading CAM software available due to its cutting-edge technology as well the high level of support available through John Hart. For FLSmidth ABON, no other system had features that could match hyperMILL, which offered the best post-processors and dynamic collision checking. Key criteria included surface quality, time savings, tool life,

machine performance and increased efficiency, while fast, reliable and collision-free tool paths along with error free G code output were the main advantages. Factors such as these all contribute towards increased productivity, increased efficiency, better quality, better tool life and smoother machine operation.

The combination of machine tool capability, processing design and hyperMILL meant that in-process time was significantly reduced. In addition, hyperMILL MAXX Machining proved to be helpful in reducing finishing and roughing times.

To have synergy between CAD, CAM, post-processor and the machine had been one of the key selection criteria. FLSmidth ABON realised that the lack of even one of these features could set the process back a long way. hyperMILL together with the ongoing and reliable technical support from John Hart engineers, had the team at FLSmidth ABON assured about successfully fulfilling their manufacturing requirements.

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