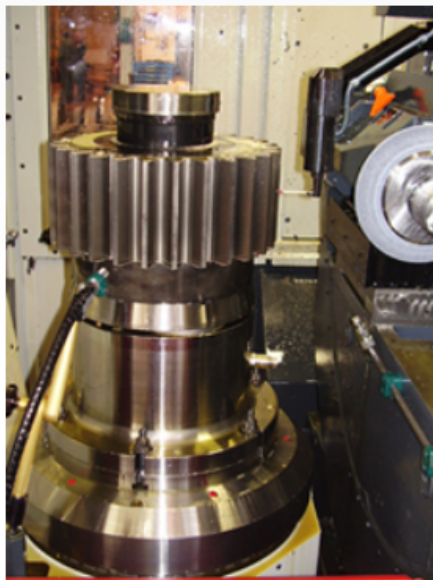
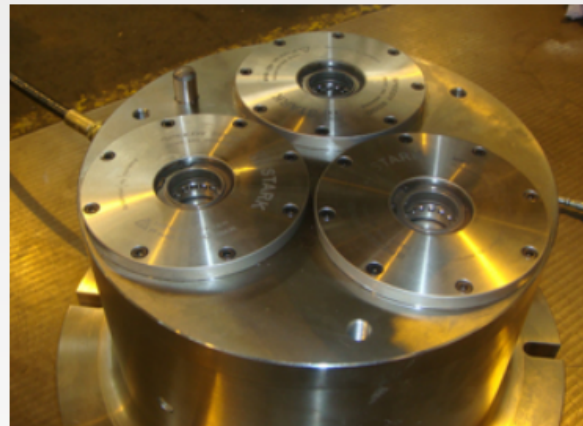


A thing of Joy

When Joy Mining Machinery decided to improve the changeover and set-up times on its new gear grinding machine, it turned to Roemheld to supply the quick release clamping that would work with the large sizes and weights of the components involved. This was a new venture for the Midlands company, and it needed to be that sure zero point mounting would be able to provide the central locating required by this application. The challenge was to locate and clamp a range of expanding mandrel devices onto a raised machined pillar.

To ensure bore concentricity was achieved, it was also necessary to maintain, and ideally better, the existing component gear tooth profiles. With some of the components weighing up to half a tonne, this was also a new application for Roemheld who consulted with the Stark technical team in Austria to check if this different application would affect the products' performance and maintenance requirements.

Months of planning and consultation then took place between Joy Mining Machinery, Roemheld distributor AC Hydraulics, and the fixture builder PTG Workholding of Bristol. As a result, three Roemheld Stark Speedy 2000 zero point units were incorporated into a specially designed and fully machined flanged pillar, to hold gears ranging in size from 150mm to 700mm in diameter. The flanged base was designed to locate and bolt directly to the machine table. Three Stark retractable nipples were also supplied per fixture for Joy Mining to fit to the upper mandrel tooling. Eighteen months later and this mix of new machine technology and Stark zero point components have meant that instead of the old machine production rate of one gear per shift, the new, faster CNC machine along with zero point units produces a batch run of up to three gears per shift. Changeover times have been reduced from one and a half hours to 10-15 minutes.



Ken Barnett, Production Engineer at Joy Mining Machinery, says: 'The Stark product and the expanding mandrels from PTG came in on time and went straight onto the machine and worked. In fact, when we first had the units we put them on the inspection table so the operators from the different shifts could see them. They were so impressed that the next day the units went straight on the machine.'

The units, which are located in a 'clean' area of the plant, are designed to require minimal maintenance and because of Joy Mining Machinery's commitment to general good housekeeping, no maintenance has been required for them so far.

Approximately 90% of Joy Mining Machinery's order book is for export all over the world including the United States, China, South Africa, Australia, Poland and Russia. The company specialises in manufacturing roof supports for haulage mining systems which incorporates large gears used in units as big as 1,000hp drive gear boxes. With countries such as China opening new coalmines virtually every day, this is an industry that is continuing to grow. As a result, despite the current economic climate, Joy Mining has an order book that is full until 2010.

Joy Mining Machinery is a US owned company and its Midlands manufacturing base is supported by plants in Wigan and Sheffield that specialise in product development and repairs respectively. To stay competitive and get the most out of its 300-strong workforce, Joy Mining Machinery is currently utilising the 6S initiative to reduce waste and improve the movement of components between machines. This drive for improvement was also behind the investment in the Stark units.

The company is now looking at the possibility of introducing the Roemheld quick change technology into its gear hobbing machines. Says Ken Barnett: 'Our investment in the new gear grinder has shown us that if we take advantage of new technology we can make the same components more quickly and efficiently, which is essential to satisfy customer demand.'

www.roemheld.co.uk

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