

Magnetic fixturing systems keep workpieces in place

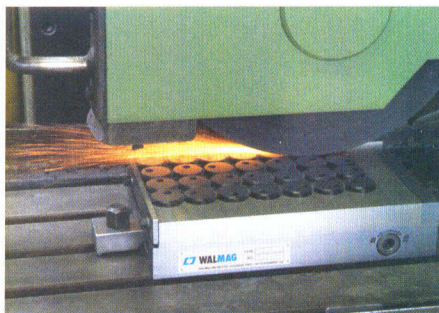
Magnetics are a real fixture

Tamworth-based workholding specialist Leader Chuck Systems has recently expanded its product range for securing workpieces during machining operations with the addition of the extensive range of magnetic fixturing systems from Walmag Magnetics.

These include permanent magnet, electromagnet and electropermanent systems for grinding, turning, drilling and milling, as well as wire and die sink EDM machining.

'Fixing the workpiece on a magnetised chuck allows easy access to five faces for the machine tool, making it an effective way of holding the raw material for simultaneous five-axis or 3+2 positional milling operations,' according to managing director Mark Jones.

Designed to be robust and totally maintenance free, the range of Walmag permanent magnetic chucks are suitable for grinding. Activated by physically moving a handle they operate with no electrical power supply, so they are easy to



install and can be quickly transferred between different machines if required. A permanent magnetic system does not generate any heat so there is no risk of thermal deformation of the pole plate or the workpiece, helping to maintain machining accuracy.

Coils supplied with a DC current generate the magnetic field in electromagnet fixture systems. A control unit that allows quick magnetisation of the workpiece activates the field. With the coil sizes designed to suit the application a

very strong magnetic field can be created resulting in a tight clamping of the workpiece, and they are typically suited to grinding and turning operations. With a powerful magnetic field it is possible to reliably clamp even rough workpieces, as it can overcome any gaps between the workpiece and the chuck. The control unit allows the magnetic force to be varied to suit the application and operation can be manual, automatic or combined, and chuck sizes can be matched to the workpiece.

Combining permanent and electromagnetic technology the electropermanent magnetic range offers high clamping forces for heavy milling operations. As power is only required during clamping and unclamping the chuck is fail-safe in operation, all machining is done without any current. The minimal requirement of electrical current means no significant heat is generated, minimising the thermal impact of the chuck on the machining accuracy. This makes it suitable for high precise grinding.

Milling tools assist in cost reductions

Cutting tool specialist Guhring has been working with HepcoMotion to enhance productivity and reduce costs in the production department.

Initially taking delivery of its first Guhring cutting tools some five years ago, the successful implementation of Guhring drills, milling and threading products has resulted in the Tiverton company now retaining a consignment stock of Guhring products.

Martin Shapland, CNC process engineer at HepcoMotion, said: 'We work closely with the Guhring technical sales engineer who regularly visits us to ensure we are kept abreast of all the

latest technology and tools. The engineer also ensures we have everything we need from a standpoint of the most innovative cutting tool solutions. We use a lot of Guhring's milling, drilling and tapping products. This includes 5XD solid carbide drills and the Ratio RF milling cutters with an unequal helix.'

One such product that has proven particularly fruitful for HepcoMotion has been the RF line of milling tools. The unequal helix of the RF tools has benefited HepcoMotion with its geometry that improves chip flow, surface finish and above all, it reduces vibration to extend tool life and consistency. Despite the Guhring RF



milling line saving HepcoMotion thousands of pounds in productivity, capacity and tool life over the last three years, the company has now taken delivery of a new line of cutting tools from

Guhring – the new high performance Guhring RF Diver milling line.

Ian Goffey, Guhring's regional sales engineer, said: 'The Diver is an extremely versatile cutter that will machine a range of materials including mild steel, stainless steel, cast iron, aluminium and a wide variety of super alloys. It has a flute spacing that is unique to this four-fluted tool. It rapidly removes swarf from the work area and tool while the end geometry enables the Diver to plunge in at 90 degrees or even ramp into a workpiece at 45 degrees. This combination gets the chips away from the job, which makes it suitable for high-speed machining.'