

# Microsystems (UK) performs precision grinding with Okamoto



Based in Golborne, Greater Manchester, Microsystems (UK) Ltd's hi-tech facility is widely regarded as one of the most technically advanced medical mould making operations in Europe. In addition to enjoying a long-established reputation for producing premium quality precision micro moulds, the company also has considerable experience in the design, manufacture and validation of multi cavity valve gate, high-volume injection moulds for the demanding medical, pharmaceutical and ophthalmic markets.

All Microsystems' moulds are manufactured in-house within pristine, temperature-controlled workshops. Given the autonomous nature of the business' operation, in addition to using the best available high-precision mould manufacturing machines, the company also makes use of a wider range of first-class machine tools.

As grinding processes impart the final

precision form, dimensional accuracy and surface finish to Micro Systems' output, the company uses a range of advanced grinding machines, including Studer machines for cylindrical grinding.

The most recent additions to Microsystems' comprehensive grinding provision are two recently installed Okamoto 450 AV, surface and profile grinding machines. Purchased from Okamoto UK distributor DF Precision Machinery Ltd, the globally popular Okamoto 450 AV machines have earned an excellent reputation for the precision and the surface finish of the parts they produce, and also for the machines' outstanding reliability and longevity.

Paul Mills, Microsystems (UK) Ltd financial director, explains the company's policy of providing its staff with premium quality, high-precision production aids and outlines the reasons behind the recently installed Okamoto 450 AV precision surface and

profile grinding machines: "We consider that we have one of the most advanced mould manufacturing capabilities in Europe and possibly the world. Microsystems invest in the best available precision mould manufacturing machines. For example, our Kern Pyramid Nano micro milling machines have a repeatability of less than 0.5 microns and are capable of producing a surface finish of less than 10 Nm Ra.

"As an ISO 9001 and ISO 13485 certified business, our critical processes are backed up by a robust control system. Our quality control staff have access to a wide range of high precision measuring equipment, ranging from CNC coordinate measuring machines with 1 micron tolerance capabilities, to cutting-edge confocal measurement systems that provide nanometre resolution capabilities.

"In accordance with our policy of continuously upgrading our production equipment we recently traded-in two older

Jones and Shipman profile grinders as part of an agreement to purchase two advanced Okamoto 450 AV precision surface and profile grinding machines. Although we did consider a couple of alternatives, the impressive specification of the Okamoto grinders, their cost-effective price and the machines' excellent reputation within the precision mould making sector, convinced us to place the order.

"Following a trouble-free installation and operator training, as our two new Okamoto grinders are so easy to use, our production staff soon became proficient in their use. Working on two shifts, the grinders are now used by our skilled operators, to precision grind our mould surfaces and to achieve accurate profiles. The Okamoto machines are now delivering on the promises, related to precision surface finish and efficiency levels made by the staff of DF Precision."

Founded in Japan in 1935, Okamoto has grown to become one of the world's best-known manufacturers of high-quality precision grinders. The company produces almost 2000 machines a year from three ISO 9002 and ISO 14001 certified factories. To ensure maximum control over its manufacturing process, in addition to

first-class machine shops and assembly halls, Okamoto also operates its own state of the art foundry.

Okamoto 450 AV precision surface and profile grinding machines, as purchased by Microsystems (UK), have table areas of 450 mm x 150 mm, table movements (longitudinal/cross) of 500 mm x 165 mm and provide a maximum grinding height between their tables and wheels (Ø 205 mm) of 357.5 mm.

The machines' robust castings are designed to deliver high static and dynamic stiffness and to aid precision by providing excellent damping qualities. To avoid the adverse effects of heat expansion and vibration, the 450 AV machines' hydraulic units are isolated from the main unit.

Automatic oil lubrication, applied to guide and slideways, helps to deliver maintenance-free operation and ensures the machines' long working lives. In addition, a combination of both scraped V-V slide ways and the use of low friction Turcite further aids the Okamoto 450 AV machines' longevity and continued accurate grinding capabilities. A micro-feeder for convenient manual adjustment of cross feeds, together with a related, high-visibility digital readout,

is included as standard equipment allowing fast and simple changes from 0.02 mm to 0.001 mm graduations.

To ensure that each customer receives an Okamoto 450 AV machine that matches their requirements, several high-quality options are available. Customers are able to choose a fully enclosed, or a traditional open cover. Whilst a wide selection of coolant filter systems are also available. A range of chucks are offered, including electro-permanent chucks that prevent heat build-up during the grinding process.

The addition of a simple, yet effective overhead manual dresser can be specified, providing straight line dressing for vitrified grinding wheels. In addition, a variable speed wheel option provides precise control of the grinding wheel, enabling it to exactly match material and surface finish requirements.

**DF Precision Machinery Ltd**

**Tel: 0116 201 3000**

**Email: [mike@dfpmach.com](mailto:mike@dfpmach.com)**

**[www.dfpmach.com](http://www.dfpmach.com)**

**[www.jonesshipman.com](http://www.jonesshipman.com)**