

Cast iron reputation

Machines that sell themselves? Well, not quite, but a respected British machine tool brand is making a strong comeback, with a little help from new owner Nigel Grainger. Andrew Allcock reports

What's in a name? Well, if it's one that dates back to 1865 and you've delivered thousands of large capacity flatbed centre lathes to countries all round the world, then a lot.

That's why 46-year-old Nigel Grainger's first task when he acquired DSG Lathes, Keighley, was to resurrect and reuse the Dean Smith & Grace title. The new company's logo is also the original Dean Smith & Grace logo.

"Dean Smith & Grace means quality, worldwide, that's why the first thing I did was to replace the DSG Lathes name and put Dean Smith & Grace back on the map." Without a sales force – bar Mr Grainger himself (see bio, page 16) – turnover for the company has rocketed from under £1 million in 2004 to £2.2 million this year, and he predicts £3.6 million next year. The current 17,000 ft² site is reckoned to be able to sustain an £8 million business.

And while the company's 2004 turnover was derived entirely from rebuilding and spares, under its new owner revenues have become 90 per cent new, almost all CNC, with the majority

having been sold to UK aerospace firms.

"When I took over the company, I had every intention of making new lathes, but I didn't think it would happen so quickly. It's because people want quality. I am about to buy a lathe made in 1908 to rebuild for show purposes which is still being used in production today. Dean Smith & Grace lathes will last you a lifetime – and what's more their value goes up, not down!" – second-hand machines fetch more than their original purchase price.

MORALE BOOST

The power of the brand name has not only attracted new machine business, it has also boosted morale within the firm – some employees can trace family connections back two generations. The local pool of ex-Dean Smith & Grace skilled labour has not only allowed initial expansion but will support future growth, too (1,000 were employed up to 1990 and it has been on the same site since 1870).

Next September will see the start of an apprenticeship training programme at the 26-employee firm, while one of

Mr Grainger's own teenage children is likely to join him next year.

The new owner has just employed his first salesman – the company's first direct salesman since 1990 – and foresees eventually having two to cover the UK. Setting up a US distributorship network is high on the list of priorities, while forays to Russia have also been made. South Africa, India, Australia and New Zealand are also targets. The Middle East is seen as having large, latent demand suppressed by regional political instability – the oil and gas sector was and is a major customer for Dean Smith & Grace. But right now, the company has absolutely no sales agents anywhere in the world. "Can you believe that?" he asks with exasperation.

However, winning orders is no longer the main problem; it is making machines, or rather delivering them in short lead times. The company has just lost a three-machine UK order because of that. So next year will see the company make stock machines – four 2413s, one 25P and a large 4000 series (see box item for product range details).

Product range – understanding the numbers

Imperial measurement rules Dean Smith & Grace product codes. So, a 1910 has 19 inch swing over bed, 10 inch swing over saddle. A P suffix means a hollow spindle bore (P for pipe), but these break the rule as swing over bed is 2 inches greater than the name suggests. The company has six CNC ranges: 1508,

2000, 3000, 4000, 5000 and the P range.

The 1508 is the smallest, so-called Compact CNC lathe. There are three models in the 2000 range – 2110, 2413 and 2817; two in the 3000 range – 3220 and 3624; three in the 4000 range – 4028, 4230 and 4432; one in the 5000 range – 5644; six in the P range – 3524P, 3624P,

4432P, 5644P, 25P and 30P. Centre distances can be up to 5 m. The company will still build new manual machines (see page 7) and will rebuild/upgrade existing machines. Indeed, the company actively buys manual units on the second-hand market such is the continuing demand.

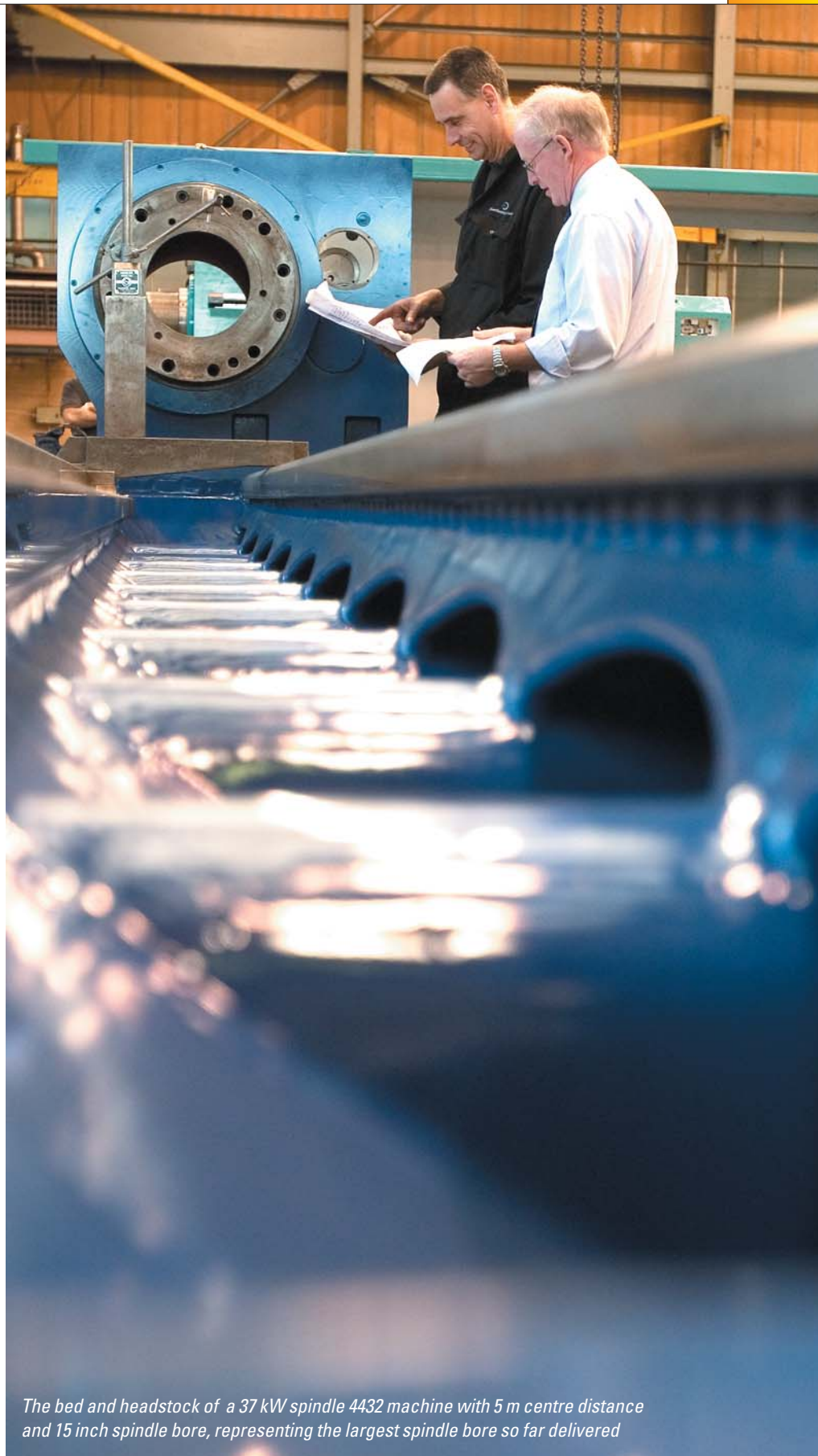
But rewind to the acquisition, which was concluded on 1 February 2005 when "the company was in a poor state". Mr Grainger explains: "There was no product literature apart from the 1980s material that came from the original Monarch Dean Smith & Grace company when DSG Lathes was formed. The computer system was likewise from the 'old' company – in fact, everything was from the old company 'over there'." And it's 'over there' because the new company faces the original Dean Smith & Grace building in Pitt Street, Keighley. Underinvestment was clearly evident.

Improvements to the working environment have been made with a new reception area just completed at the time of *Machinery's* early November visit. Pictures of the founders and a scale model of a 1910 model centre lathe have been rescued and returned to reception, underlining the company's heritage. Decoration reaches up the stairs to the offices, too, with the new blue and grey company colours evident throughout. The machine and assembly shops are next in line for a tidy up.

INVESTMENT OF SUBSTANCE

On more substantial matters, Mr Grainger explains that he is investing in plant and equipment. A rebuilt Butler Elgamill – sporting the new company livery and logo – is now busily machining cast saddles, while a bigger mill for large casting machining is to follow. A Favretto slideway grinder has also been acquired, able to tackle beds up to 6.5 m centre length (larger sizes are subbed out). The firm will replace its existing elderly Dean Smith & Grace lathes with newer models. These will act as production, development and showroom machines all in one, Mr Grainger highlights.

Some 85 per cent of the content of its machines is now manufactured in-house, next year it will be 90 per cent. The reason is simple: control. It is difficult to find supplier companies that have the skills to deliver the precision



The bed and headstock of a 37 kW spindle 4432 machine with 5 m centre distance and 15 inch spindle bore, representing the largest spindle bore so far delivered



Who is Nigel Grainger?

Nigel Grainger started as an apprentice at Rolls-Royce, Barnoldswick in 1976; he left seven years later after working on the then "latest" versions of CNC machining centres as a setter-operator.

Over the next 4½ years he honed his sales skills working as a sales engineer for three different companies: Guysons, Otley; Hodge Clemco, Sheffield; and Agmac, Leeds.

He joined Norman Hargreaves (based in the same street as Dean Smith & Grace) as sales executive when the company had a turnover of just £50,000. He worked his way up to sales director and a turnover of £3.5 million. The company specialised in the rebuilding of large machine tools, of which 80 per cent were export sales.

He then set up Grainger Engineering, a sub-contract engineering company and rebuilt large machines for his own use. After successfully designing and building five large milling machines, he was affected by the demise of Enron and his company was purchased by the Coupe foundry.

Undeterred, he then operated as an independent consultant and designed and built a large (25 m x-axis, 2.5 m y-axis, 1 m z-axis) duplex milling machine for an Ipswich engineering company before joining DSG Lathes as its southern area rep in August 2003. He was made sales director in February 2004, managing director in July 2004, eventually purchasing the company in February 2005.

required – its Favretto grinder can, with the appropriately skilled operator, achieve flatness of 0.0002 in over 6 m. Also, external suppliers can impose delivery penalties if they have no capacity available when required.

The company has in-house electrical design and panel manufacture resources, with in-house software design also under consideration, although sub-contract will remain a feature. A second mechanical designer has been recruited – ex-Dean Smith & Grace designer of 25 years John Hartley. A new two-station AutoCAD design system has been installed and all 35,000 existing drawings will be scanned using a new full-size scanner to make them accessible within the new CAD system.

Apart from the emphasis on in-house manufacture, the company's policy is to go for local procurement, whenever possible. Castings come from Halifax-based Hargreaves Foundry; patterns are bought in Keighley; hardened and ground gears come from companies in Wakefield; and sheet metal guarding comes from within a five-mile radius.

Again the thinking is simple. Local supply provides short lines of communication and flexibility. "We are a maker of bespoke lathes; if you want a pink lathe; one with toolchanger; one with taper turning; a larger spindle bore; CNC controlled tailstock or steadies, or an automatic chuck system, you can have it."

And while there is a price to pay for local/UK manufacture, Mr Grainger reveals that the company has been able to take some £20,000 of cost out of its most popular range – the 2000 – through better design.

CORE DESIGN VALUES

There has been, however, no change to what he describes, albeit somewhat more graphically, as the well-engineered Dean Smith & Grace approach in the areas of castings, hardened slideways, lubrication, hardened and ground gears and heavyweight headstocks. Indeed, the same full-depth-cut test, which deliberately stalls the spindle, remains a feature of machine pass-off. Important, as Mr Grainger cites a case where a modern, imported CNC lathe actually

twisted when cutting aerospace alloys at a UK company; the firm's 13-year-old CNC Dean Smith & Grace took the challenge in its stride. No change in substance, then, but around the heart of the machine – its rigid castings and ways – there are new control systems, new guarding, design simplifications and emphasis on commonality of components.

But UK/local supply and "bullet-proof" engineering notwithstanding, the machines are cost competitive, which is why the company is winning orders. Batch production will drive costs down further. "Next year we will be putting a batch of four or five machines of the same type down. That's something that has not been done since the mid-1980s."

A walk round the crowded assembly shop reveals a strange mix of the old and the new; both in design principles/technology and customer base. The company heritage is represented by hand-scraped slideways, rigid cast beds and substantial geared headstocks, while the use of modern CNC and ballscrew technology, c-axis and driven tooling

deliver the modern innovations.

In terms of customers, one machine was destined for Kenya – a 1910 Manual plus/CNC – for the maintenance of the milling rolls in leaf milling machines used to shred tea for teabags. This is a reflection of the confluence of UK machine tools and Empire, but the order actually came via the Internet! A new Dean Smith & Grace website was another of the managing director's early initiatives.

Close by, however, is a 5644 machine for a UK aero engine maker. This chucker model is a special, large swing CNC machine that also offers the operator access required by the customer. It features an in-house manufactured VDI 60 mm turret which can be upgraded to live tooling in the future; x and z axes feature linear scales. It is, in fact, the first of many such machines for this customer.

Elsewhere, a 2110 CNC machine of 1986 vintage being rebuilt before delivery, has been supporting the development of a composite bearing machining process.

And highlighting the increasing size of oil industry components is a 37 kW spindle 4432 machine with 5 m centre distance whose 15 inch spindle bore is the largest so far delivered. Previously, Dean Smith & Grace machines offered two hollow bore sizes 10⁷/₈ and 14⁷/₈ inches. Next year the company will design and produce oil country lathes with spindle bores from 15 to 21 inches.

SLANTBED AND MILL-TURN

Other future product development projects include the reintroduction of slantbed lathes. The company is in the process of getting back the original Dean Smith & Grace designs from Monarch and the product launch is planned for autumn 2006. The machines will have swings from 14 inches up to 44 inch. Mill-turn applications are targeted both for flatbed and slantbed designs. Indeed, already on the shopfloor in November was a 2415 by 120 in model with c-axis, driven tools and y-axis on the turret.

On the matter of slantbeds, Mr Grainger says that they are not automatically better than flatbeds, even though people think that they are. In fact, over 2 m centre distance there is no advantage in going to slantbed, he says, but the company has lost orders because it hasn't got a slantbed design. Slantbed offers some advantages in swarf clearance and supports through-turning with steadies in a less complicated, less expensive manner than flatbeds, but slantbeds for an equivalent capacity will be more expensive, he underlines. For heavy loads a flatbed supports weight better – a slantbed obviously has to counterbalance the weight in shear.

Increasing machine sophistication will take the company's upper price range from £400,000 to £1 million, says the managing director. Adding pointedly: "We are now looking at satisfying the same market as Mori Seiki, Mazak and WFL." □

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