

# Racking up productivity

**With lathes offering larger (and smaller) bar capacities and increasingly high speed spindles, the demands placed upon today's magazine barfeeds have never been greater. Steed Webzell reports**

Even some of today's larger capacity sliding and fixed headstock lathes can offer spindle speeds of 7,000 or 10,000 rpm – levels unheard of as recently as five years ago – so barfeed manufacturers have had to rise to the challenge of such developments to remain competitive. No supplier in the process chain wants to be the factor limiting optimum production efficiency.

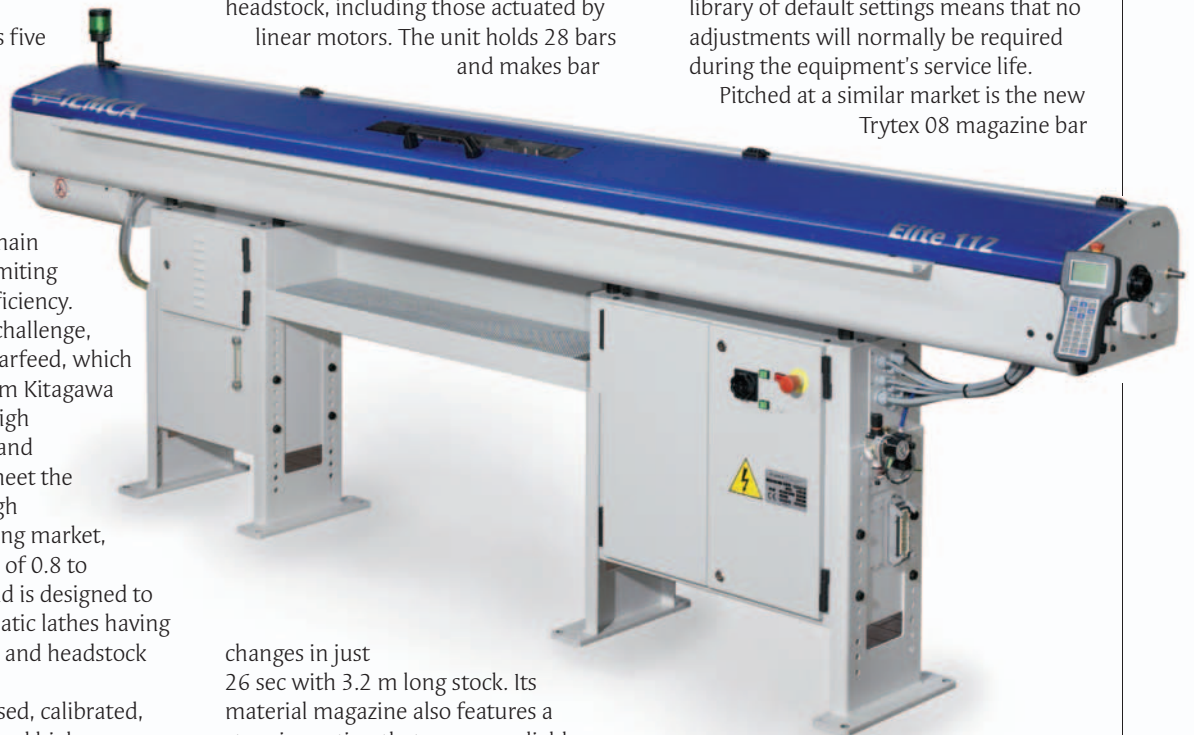
Never one to shirk a challenge, lemca's latest Elite 112 barfeed, which is available in the UK from Kitagawa Europe, is said to offer high performance, flexibility and reliability. Designed to meet the growing needs of the high precision micro-machining market, the Elite 112 handles bar of 0.8 to 12.7 mm in diameter, and is designed to feed sliding-head automatic lathes having very high spindle speeds and headstock accelerations

The Elite 112 uses closed, calibrated, round section channels and high performance rotating tips to achieve fast and accurate operation. In addition, the

development of custom-engineered low inertia components allows precise synchronisation with all types of machine headstock, including those actuated by linear motors. The unit holds 28 bars and makes bar

snap-in channels enable changeover times to be reduced to as little as four minutes, says Kitagawa. Furthermore, a library of default settings means that no adjustments will normally be required during the equipment's service life.

Pitched at a similar market is the new Trytex 08 magazine bar



changes in just 26 sec with 3.2 m long stock. Its material magazine also features a stepping action that ensures reliable operation with small diameter raw material. The unit's purpose-designed

loader from LNS. Exhibited in prototype form at the IMTS exhibition in Chicago last month, Trytex 08 is for high production of small diameter (0.8-7 mm) bar stock. Although it boasts a compact footprint, Trytex holds 44 bars in its magazine to maximise productivity. It also comes with such standard features as an advanced programmable control system, intelligent synchronisation, smooth servomotor operation and an innovative fast retraction system. The

## New FMB bar magazine

The new FMB Minimag 20 bar magazine, available from Star Mirconics GB, has a 22 mm pusher for feeding 20 mm diameter bar without bar end preparation.

Machine features include 35 m/min rapids in all linear axes and deep hole drilling capability using two additional front-facing tools, and Fanuc 300iS CNC with motion control capable of high speed cutting cycles. C-axis positioning of the main and counter spindles in 0.01-degree increments is similarly fast at over 9 rps.



The new FMB Minimag 20 can feed 20 mm diameter bar without the need for end preparation

first shipments of Trytex 08s are expected in early January.

Chip conveyors are also an essential part of the total automation picture, and the innovative LNS MicroScrapper H chip conveyor and coolant filtration system was also unveiled at IMTS.

"Our focus for some time now is to meet virtually any chip conveying and coolant filtering challenge," says the company's product manager Bruce Kiwala. "As a result, we have added a number of products to our range that solve a variety of problems, from tight floor spaces and difficult height requirements to handling the needs of turn-mill centres and other multi-tasking machine tools that process mixed materials. And we are in constant communication with the leading machine tool companies to ensure a seamless fit between their products and LNS chip conveyors."

The MicroScrapper H was designed from the outset as a cost-effective way of providing 500 micron coolant filtration. In applications where longer load lengths are possible, MicroScrapper H can effectively filter coolant through a special screen rather than using the traditional MicroScrapper filtering box, thus reducing the unit's cost.

Taking care of swarf and used coolant

is one aspect of automation: catching parts is another. Parts catchers improve productivity by enabling CNC lathes to run unattended, freeing up operators to handle other tasks. Typically inexpensive, requiring minimal set-up, they can be retrofitted to turning centres or lathes.

One company enjoying the benefits of recently installed parts catcher equipment is Air Bearings of Poole, which has fitted a Rota Rack from Hydrafeed to one of the company's two Mazak 250MS turning centres.

#### CATCHING UP ON QUALITY

As a subsidiary of global electronics giant Hitachi, Air Bearings manufactures high speed drilling spindles for its parent company in Japan. The spindles, which work at between 80,000 and 350,000 rpm in specialised drilling machines for PCB manufacture, comprise high value components that demand high accuracy and impeccable surface finish. To meet a need for increased productivity, the company has introduced four Mazak turning centres in the past two years, adding to the 10 Mazaks already on site.

However, the company still found itself fighting a bottleneck, as manufacturing manager Gary Waldron explains. "Two Mazak 250MS machines are run by one operator who has to

manually remove each component from the part catcher to prevent it from falling into the bin and hitting the previous part," he says. "Aesthetics and surface finish are critical to our components and any marks can lead to re-working or scrap. The main aluminium drill bodies and leaded bronze bearing modules are soft materials that mark easily. We searched the marketplace for over a year without finding a suitable solution until now."

Working with Mazak, the company thought it had resolved the part catching issue by taking completed parts from the machine sub-spindle on to a short conveyor. However, limited conveyor system storage forced an operator to be present at all times.

"This is where the bottleneck occurred. However, since we installed our Rota Rack this has been eliminated and we are already obtaining significant productivity benefits," says Mr Waldron.

The introduction of the first Rota Rack installed in the UK has been a revelation to Air Bearings. "Since installing the Rota Rack in March 2008 we have been able to run the turning centre unmanned. We can store parts on the Rota Rack with the confidence that they will not be damaged. The Rota Rack is lined with a soft plastic that guarantees the parts will not be marked and this is essential to our production. In the few months since installation we have witnessed a massive change in our manufacturing operations."

The aluminium parts manufactured at Air Bearings are 50-75 mm in diameter and 12 mm long, while the bronze components are 20-25 mm in diameter with a length of 25 mm. Batches of 300-500 are typical.

"Previously the machine operator spent his working day moving from one machine to the next, continually starting the cycle, with any time in between spent inspecting parts and setting the machines," concludes Mr Waldron. "Now the operator has more time for other shopfloor tasks. We will consider implementing the system on perhaps two or three other Mazak turning centres." □