Fanuc's fine outlook

There's a new man at the top, but 'walking the narrow path' remains the focus for Japan's Fanuc. Andrew Allcock reveals the company's achievements, changes and ambitions

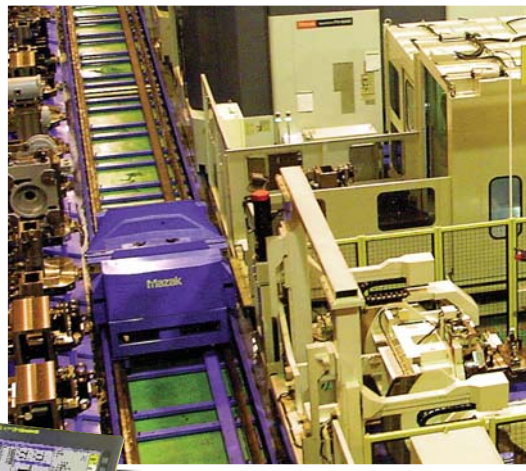
Dr Yoshiharu Inaba (pictured, inset, right) has been at the helm of Fanuc Ltd, Japan, the world's largest producer of CNCs for around a year. He succeeded his father, Dr Seiuemon Inaba, who is now honorary chairman and who led the company from its establishment in 1972 – although Fanuc's CNC activities date back to 1956, when it was part of Fujitsu, which remains a 29.51 per cent shareholder.

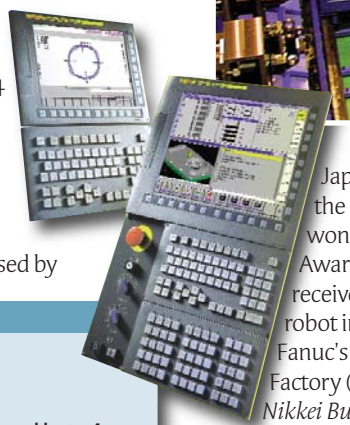
Under Dr S Inaba's leadership, the company has "walked the narrow path", as he describes it – this is a focus on R&D, robotisation of production within its own facilities, and globalisation.

Testament to its success were figures released earlier this year which showed Fanuc of Japan has worldwide installation totals of over 1.4 million CNC, over 5 million AC servo motors – a record number in the industry – and over 115,000 robots. Production of Fanuc CNCs now exceeds 12,000 per month – the highest ever figure – while AC servo motor capacity exceeds 65,000 units per month, and robot production is around 1,300 per month.

AWARD-WINNING HABIT

And the company has received numerous national awards for its products and factories. Last year Fanuc picked up a *Nikkan Kogyo Shimbun* 2003 Best Ten New Products Award for its 30i CNC unit (see *Machinery*, 4 July, 2003, page 8). The Awards have been given every year for the past 46 years to the top 10 new products of the year developed or commercialised by Japanese companies. This was the 16th time that Fanuc had won a *Nikkan Kogyo Shimbun* Award, in fact. Previously it received one for its R-2000iA robot in 2002, while in 2003 Fanuc's Machining (Milling) Factory (pictured, above) won the *Nikkei Business Daily*, 'Monozukuri (technologist) Special Award', which is given to six production facilities in recognition of their competitiveness in global manufacturing markets.





At the Fanuc Machining (Milling) Factory, intelligent robots are used to automatically load and unload workpieces to machining fixtures. "This newly developed advanced machining

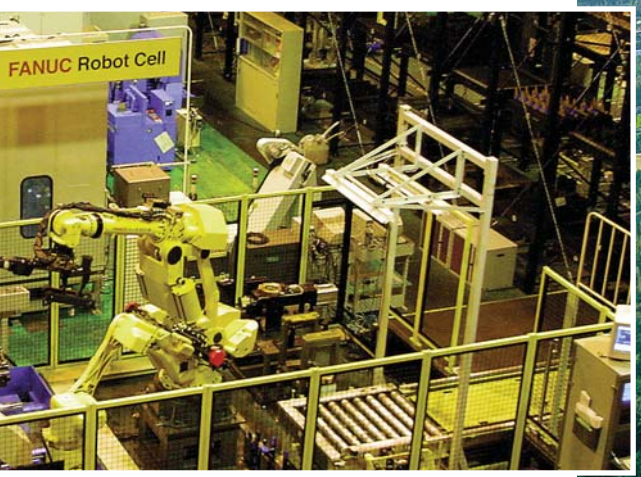
Latest models follow in 30i's wake

The new 31i-Model A CNC offers control for up to 20 axes and 6 spindles. Up to 4 paths are supported, each path selectable from milling, turning and loader types, with a maximum of 12 axes controlled per path, with up to 5 axes simultaneously on the Series 31i-A5.

The new Series 32i-Model A CNC controls up to 9 axes and 2 spindles and 2 paths, with a maximum of 5 axes per path. The Series 31i and 32i have in-built PMC sequence controllers with execution speeds of 25 ns/step for ladder programs, with three ladder programs able to be executed simultaneously.

system," says the company's 2003 annual report, "employs intelligent robots to automate loading/unloading of machining workpieces, realising 720 hours/month of continuous operation, reducing machining costs through enhancements in operation rate, economic efficiency of the facility and reduced labour costs. It is a new generation machining system, expected to be popular in the future."

The use of robots led to a significant reduction in labour costs, fixtures and initial facility investment, and produced a dramatic reduction in machining costs. The factory has realised better productivity than any other machining factory in the world, it was claimed.



Dr Y Inaba (right) sees no need for a radical change of the company's existing strategy

SAME AGAIN, PLEASE

So what next for Fanuc? Well, the installation of Dr Y Inaba was accompanied by what new chairman Shigeaki Oyama referred to as a "new management team" at the company's 31st anniversary ceremony last year.

In Europe, at GE Fanuc Automation SA, Luxembourg, change was seen at the European headquarters last year with the departure of David Avrell as overall president and elevation of Pascal Boillat to president with responsibility for Fanuc's CNC Business, Europe, while John Pritchard was elevated to president for PLC Solutions Business, Europe. (GE Fanuc Automation is a joint venture between Fanuc Ltd and General Electric Company, USA.)The reorganisation was made to better target growth opportunities in product sales and to gain market share.

And in Germany the appointment of a new managing director has seen Fanuc more aggressively targeting major machine tool builders, with some success. Important customers in that market are DMG, Chiron and Stama, while here in the UK, 600 Group is Fanuc's largest UK CNC user, of course. Incidentally, just to add to the tally of awards, GE Fanuc Automation Europe became the Quality World Champion of all Gildemeister suppliers in 2001.

But Mr Oyama highlighted that "Fanuc's fundamental management policies remain unchanged. They are 'Strengthening of R&D', 'Robotisation of Factories', and 'Conservation of Natural Environment'." A slight shift in terms of globalisation, but the company has achieved much in that area.

MORE VIGOUR: MORE SPEED

It is not surprising, then, to hear Dr Y Inaba say: "I don't feel any necessity to change our established policy which has led Fanuc to today's success. The new management – which was renewed drastically last year – is pursuing the existing policy more vigorously and at greater speed."

And in terms of CNC production levels, which stand at a record 12,000/month, the company is performing well in what might still be described as a 'tight' market. "The machine tool business in Japan has been recovering in the past two years, while Korea, China and Taiwan are active. Our CNC production continues at record levels and our world market share, which exceeds 50 per cent, is still growing," reports Dr Y Inaba. But he adds that the company is fighting hard to be number one in Germany, too.

Inroads being made at Stama and Chiron will help, so will successes such as those at PSA Peugeot Citroën where GE Fanuc has won a major order to fit controls to machine tools in a new power train plant in northern France.

The PSA Peugeot Citroën engine plant, Française de Mécanique, will manufacture small car engines. Machining processes include those for the engine block, connecting rods, and crankshafts and camshafts and will use machine tools from a number of manufacturers, all fitted with GE Fanuc CNCs and drives.

On-board intelligence

A development from the GE side of GE Fanuc Automation and intended to benefit users of Fanuc CNCs, i Adapt Milling is an adaptive control productivity solution for milling applications. By automatically maximising a machine's material removal rate during rough cutting, i Adapt can reduce cycle times by as much as 40 per cent, as well as increase tool life and allow users to maximise their existing installed base of CNC technology.

"In roughing cycles, maximum material removal rates are even more critical than precision and surface finish," says Frank Müller, manager service Europe, GE Fanuc Automation. "As an enabling technology for this stage of the machining process, i Adapt can help improve production in shops of all sizes."

i Adapt works with all material types and requires no special programming for interrupted cuts. All adaptive monitoring is programmable through the CNC and is transparent to the operator. i Adapt, also offered for turning machines, is offered on 30 days' free trial.

5-AXIS FUTURE

While asserting Fanuc's strengths, Dr Y Inaba is honest about the company's 5-axis offerings, of which he says: "There is a difference of demand for 5-axis functionality between Europe, and Asia and Japan's users and so we lagged behind European requirements. However 5-axis functionality has been very much enhanced with the new Series 30i CNC and I believe we can meet European 5-axis requirements today."

And proof of the pudding is in the 30i's fitting to Eikon's MTX5 combined machining centre, horizontal and vertical lathe (see *Machinery*, 7 November, page 28) and Ibarmia's 5-axis ZVH 55 L3000 machining centre (see *Machinery*, 5 March, page 6). And Fanuc's 31i and 32i models (see box item, page 8) have followed since last summer's top-of-the-range 30i launch.

High CNC program and logic processing speeds plus high-accuracy functions are features of these latest models, which variously employ AI Contour Control to support smooth high-speed machining with Nano Interpolation, Nano Control and Nano Smoothing to enhance the quality of the machined finish. Dr Y Inaba indicates that 'openness', networking capabilities and on-board intelligence (see box item) are elements that will be pursued as well.

'Openness' is realised by the integration of a Windows XP and Windows CE environment on its 300i, 310i and 320i, for example, this providing standard networking interfaces, for example.

Of course, while Fanuc is pre-eminent in CNC manufacture, it is also active through its Group companies in robots, moulding machines, high-speed milling/drilling centres, wire-cut EDM units, with the Robonano – which can machine diffraction gratings of sub-micron pitches for blue laser related moulds of less than 1 nanometre in surface roughness – laser sources, and linear motors to complement its servo motors, while its GE Fanuc operations are involved in plant automation software (Cimplicity) and PLCs.

FIVE-YEAR PLAN FOR GROWTH

Last word to Dr Y Inaba, though. Speaking in January this year he said: "Our new project is to increase our sales to ¥300 billion for Fanuc Ltd in five years, from ¥200 billion. We have named this project 'V3000'; 'V' symbolises five years to goal and victory and '3000' shows our new target ¥300 billion which is '3000 oku-yen' in Japanese counting way. Starting the project this year, we are going to take new steps towards the future development."

In the event, the majority of that growth will come from robots and Roboshot injection moulding machines – the latter another award-winning product – rather than CNC units and associated technology. Robot and moulding machine sales are each predicted to almost double from 2004 to 2008, CNC packages seeing just over 10 per cent growth in that period. M