

Plantline

equipment & ideas for industry

CSIRO'S NEW LASER CENTRE

The CSIRO Division of Manufacturing Technology has established an industrial laser centre (ILC) in Sydney to further promote the adoption of laser technology for materials processing by Australian industry. The Division recognises that industrial laser processing is an important manufacturing technology which will play a major role in strengthening the competitive position of Australian industry in the future.

While industrial laser activity in the industrialised countries is rapidly expanding both in the number of material processing installations and the diversity of applications, in Australia, this growth has been hampered by the lack of a strong R&D base for supporting industrial laser applications. Indeed, the development of new products and processes involving high power lasers has to be performed offshore due to limited local facilities and expertise. The establishment of the ILC is seen as addressing many of these problems and contributing significantly to industry requirements.

Dr Milian Brandt, manager of the Centre, said that while there are many centres of this kind overseas this is the first for Australia and it will play a key role in providing the necessary support for industrial laser applications in Australia. Dr Brandt said "The Centre will enable progressive Australian companies to fully evaluate the widespread capabilities of laser processing technology and to keep abreast of their competitors."

Dr Brandt said the main aim of the Centre is to undertake prototype product development research leading to the manufacture of new products, increased productivity and new market opportunities for Aus-

tralian industry. The Centre materials the Centre has access will also greatly complement and enhance the existing industrial laser activity in Australia. In addition, it will not only assist those Australian companies that have already discovered laser technology but also provide a source of learning for those wanting to enter this field.

Other aims of the Centre are:

- To raise the awareness of local industry to the potential of laser processing as a profitable manufacturing method.
- To engage in collaborative R&D with industry to develop new manufacturing methods.
- To provide a dissemination point for laser technology R&D with particular emphasis on industrial laser applications.
- To provide hands-on experience and training.

The Centre is organised into two sections to provide greater service to industry. One section will be involved in short-term activities aimed at developing and demonstrating prototype products and processes; the other will concentrate on strategic research aimed at better understanding and improving laser processing techniques such as cutting, welding, drilling, cladding and heat treating.

The facilities of the Centre include a 50W average power Nd:YAG laser and a 200W continuous wave CO₂ laser and ancillary CNC equipment. The Centre also recently acquired the latest high average power (500W) Nd:YAG laser combined with a 3-axis fully-integrated CNC system. In the near future the Centre is planning to acquire a high-power CO₂ laser for processing a range of materials at high speeds. To evaluate the effects that different laser processes and parameters have on

to a wide range of metallurgical testing equipment.

Dr Brandt said that the 500W Lasag Vega Nd:YAG machine is particularly suited to the manufacture of precision components with demanding tolerances. The machine has the capability to process 3D objects of maximum dimensions 800 x 400 x 400mm at speeds of up to 10m/min. The positioning accuracy and repeatability of the three axes are ±0.01mm and ±0.015mm, respectively, allowing the processing of components to stringent specifications. The control of all the laser parameters is fully micro-processor-controlled allowing the system to be easily configured for drilling, cutting, spot welding or seam welding applications.

In terms of its processing capability, the laser can drill holes with diameters in the range of 0.1-1.0mm to depths of 12mm depending on the material. It can efficiently cut stainless steel up to 7mm, ceramics up to 13mm and copper and aluminium up to 4mm. With regard to seam welding the laser is capable of producing conduction-limited welds from 0.1-2.5mm in width and up to 2mm penetration. For spot welding, the minimum spot size is 0.1mm and penetration up to 2mm.

The ILC will offer a range of services to Australian industry. Dr Brandt said that in addition to the R&D, the Centre will provide advice, literature searches, and consultancy work related to the broad range of industrial laser applications.

CSIRO, Industrial Laser Centre, PO Box 218 Lindfield, NSW 2070.

138 on Information Card

THE CNC WINDOW FABRICATOR

R&W Vincent, Sydney-based aluminium window manufacturers, have increased their productivity level by the installation of a Numericon CNC Window Fabricator.

The CNC Window Fabricator is a revolutionary new jobbing machine which automatically produces component parts for the manufacture of aluminium windows.

The basic criteria of the machine design was to economically produce one-off orders while being fundamentally easy to operate; therefore, the design is such that the operator selects the required frame size via panel-mounted

thumbwheel switches.

A switch is then set to select either a sill, jamb or header component. This automatically selects the required tooling and parts program. The appropriate extrusion (sill, jamb or header) is then placed on the machine and is automatically gripped by the CNC-controlled autofeeder.

The cycle start button is pressed which advances the product to the trim-cut position. If the product selected is a jamb (following the trim-cut) the autofeeder advances the extrusion to the first tool which notches the product, the second tool which punches,

then to the saw which cuts through the centre of the hole pattern to provide a trailing edge of one part and the leading edge of the next.

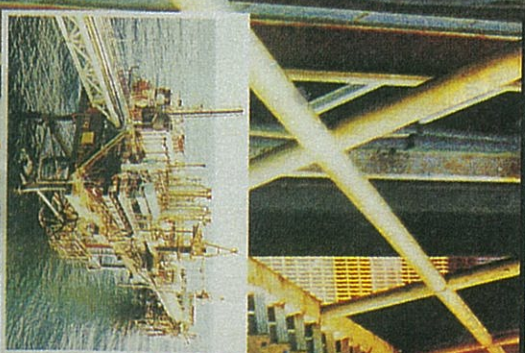
Position of the notches, holes and saw cuts is calculated by the autofeeder according to the overall length programmed by the operator. To produce a sill or header, a similar procedure is followed.

At the completion of the program, the operator can make a shorter component from the remaining offcut.

Numericon P/L, 115 Bath Rd, Kirrawee, NSW 2232.
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ANTISLIP STAIR CAPPINGS PREVENT COSTLY SLIPS

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Safemate systems are now at work around the world preventing costly slips and falls. Major international companies recognise the real value for money represented by the products - long effective life in the face of highly-corrosive environments, messy soilage, heavy impact and ultra-violet action. Rugged industries such as mining, smelting, petrochemical, heavy engineering and food processing need the toughness of Safemate systems in their fight against slips and falls.

Safemate Antislip P/L, 4 Boileau St, Keysborough, Vic 3173.
1 on Information Card

IN THIS ISSUE

News	1-4, 32
Products	5-22
Feature: Plastics & Rubber	23-27
Campus	28-29
Pipeline	30
Literature	31

THE WRIGHT CRANE FOR THE RIGHT JOB

An ability to match the right crane with any given job is the main key to Walter Wright's ever-expanding mobile crane hire operation, which extensively serves Australian industry, ranging from mining through to minerals processing.

The company recently introduced into Australia two all-terrain mobile hydraulic cranes with lifting capacities of 140 tonnes, effectively boosting the company's fleet in terms of overall range and versatility.

Lietherr 140 tonne cranes, manufactured in Germany, weigh approximately 70 tonnes and cost Walter Wright over \$1.8 million each.

They complement their existing fleet which ranges from 10 tonne capacity cranes to massive machines with 1200 tonne capability. The advantage of an all-terrain large capacity mobile hydraulic crane of which Walter Wright have two types - 140 and 400 tonnes - means the machines can be driven to the site and are soon ready for work, saving the hire much time and expense.

Walter Wright, 45-53 Ricketts Rd, Mount Waverley, Vic 3149.
140 on Information Card

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