

Selecting a laser marking system

When the need arises to select a system for laser marking a part with a serial number, logo, or bar code identification information, several parameters must be considered. This includes the information to be marked, the required marking speed and the type of physical mark, as well as the material to be marked.

Material determines wavelength

The selection of a laser marking system involves choosing the proper wavelength for the material to be marked. The two major choices for most industrial applications are Nd:YAG and CO₂, each working best with an array of materials. All materials will, at room temperature, absorb, transmit, refract, and/or reflect light energy at a particular wavelength or range of wavelengths. The ability of a material to absorb light and thus react in some manner to that energy, is the desired property. For example, CO₂ lasers excel at marking anodised aluminum, plastics, wood, glass, and ceramics. Ferrous metals can also be marked. A CO₂ laser is a good choice when an engraved mark in plastic (without a colour contrast) is desired. Glass can also be marked using CO₂ lasers with a process known as controlled fracturing. Nd:YAG lasers are well-suited for most metals and some types of plastics where a colour-contrast is desired. A colour-contrast mark in most steels is easily achievable with Nd:YAG and most Nd:YAG lasers can develop very high peak pulse energies due to a process known as Q-switching, which allows a greater amount of the light energy to be delivered to the workpiece.

Power

Getting the right amount of energy delivered to the part for the right amount of time is the essence of laser marking. For a given material, there will be a change in the material as a result of its interaction with laser energy converted to heat (power).

Marking speed

Buyers need to establish the desired process cycle time to determine the required marking speed, but it can be difficult to translate marking speed directly into characters-per-second for all cases because a wide range of factors must be considered. For example, a single stroke takes less



Factors involved in the selection process include choosing the correct wavelength, power and frequency, and speed as well as integration, software and safety

time to mark than one more elaborate. The size of the character, its height, width, and pitch or the spacing between the respective characters, will also be a factor.

Software

Laser marking system software must be easy to use intuitively. The ability to handle a wide range of graphics file formats and fonts is essential, and the software should allow easy implementation and control of I/O as well as motion control. A laser marking system that allows real-time control of the laser marking process is also important. For example, if the laser system requires that a part program is to be downloaded to the laser controller from a PC first, it is less flexible than a system that can operate directly from PC control. The laser system software should provide the functionality required without requiring custom modification.

Safety

Laser marking systems are manufactured and operated under compliance with government standards. Manufacturers comply to determine the classification of the laser, either Class 1, 2, 3a, 3b or a Class 4 laser and users of lasers must comply regarding eyesight precautions during operation. Most laser marking system vendors can provide their systems in this manner, utilising special shielding and housings that can be tailored to the part or operation.

Conclusion

Choosing a laser marking system can be a daunting task but, by following a plan based on the guidelines set forth in this article, the prospective laser buyer can feel more comfortable in making an informed decision. Buyers must also consider typical aspects such as training, site installation, after sales service, etcetera. **NI**

Article condensed from original document, written by Sam Yerardi, Laser Development Engineer with Telesis Technologies Inc in Circleville Ohio, USA.



Creating Images

NICHOL Industries Pty Ltd.
50 Terracotta Drive,
Nunawading, Vic, 3131, Australia
www.nichol.com.au
Email: nichol@nichol.com.au
Free call: 1800 778 808
Fax: (03) 9894 7977

New Nichol Website up and running

NICHOL Industries

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The Quarterly Newsletter Towards Developing a Professional Image

NICHOL Industries is an Australian family-owned business established in 1958. Over the years we have built a strong reputation for reliability, to the extent that most of our new business comes from referrals. As most of our products are custom made we dedicate ourselves to working closely with our customers to ensure the product we provide is exactly what our customers require. We take care with each job to make sure every detail perfectly suits its intended use.

OUR PRODUCTS

BADGES

For a badge to be effective for you it must be made right. At **NICHOL** High Quality Badges, Lapel Pins, Keyrings and Medallions are specifically made to each customer's requirements. Ideal for promoting your business, organisation or association.

ENGRAVING

Precisely made steel type and rollmarking dies are essential for efficient date or batch coding. **NICHOL** works closely with you to ensure your stamps are made to suit your product materials and specifications. We also provide stamps with the longest possible life.

MARKING MACHINES

Traceability and Identification can waste valuable labour time where the wrong equipment is used. **NICHOL** has a range of both computer controlled and manual marking systems to provide you with traceability and identification solutions to your needs.

INKS

To complement our range of marking machines we also manufacture ink suitable for most machines and materials. Our chemists can also develop ink to your specific requirements.

INTERNATIONAL QUALITY SYSTEM

When working with **NICHOL** Industries you can be confident that your product will be made to exacting specifications under Quality Standard ISO9001. This quality system also includes our design process.

YOU'RE IN GOOD COMPANY

Many of Australia's major companies rely on **NICHOL**. Our customers include: Department of Defence, Holden, Ford, and Australia Post.

For products that are made to your requirements by a long established and reliable Australian family owned business, call **NICHOL** on 1800 778 808.

New NICHOL Website

In line with modern information technology, Nichol Industries has upgraded its website to be more informative in the interests of its customers and associates.

The new comprehensive site, structured with around 90 pages, is a guide to NICHOL and its products. It is quick to load and easy to navigate. Some of the things visitors to the site can do include:

- View and read about NICHOL'S extensive range of Badges including Corporate Jewellery, Service Awards, Buttons, medallions and Tokens.
- Find out how other customers use NICHOL'S products.
- Read about NICHOL'S history and vision
- Download specifications on Pinstamp, Laser, Indenting and Printing Machines.

The site also includes an area for the latest news in Badge and Identification technology.

It will be regularly updated to keep you informed on the latest from NICHOL.

While some pages are still under construction, they are expected to be brimming with information in the near future.

Nichol welcomes all feedback from visitors to the new website.

Visit www.nichol.com.au





Token gesture

The next time you take some time to smell the roses and spend a few days on our Apple Isle, if you're a typical tourist there's a good chance that you'll come back with a memento of Tasmania that was made in Nunawading, Victoria.



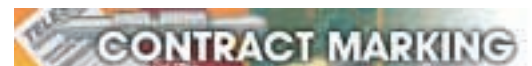
At least, it was made in Australia and not in one of our neighbouring countries.

The Token and Coin Trail patented idea was initially set up for Tasmania but the gem of an idea by Roger McNiece, of Tasmedals, has now been extended to the Mainland as Tasmanians refer to it, or what most of us call, Australia. The concept is that when tourists travel throughout our wide brown land, they can buy a souvenir Coin from a tourist shop, and eventually collect a full set. Tasmedals and Nichol Industries have worked together to produce the finished products. Nichol designs and manufactures the 30mm-diameter coins that depict each of 22 major tourist attractions throughout Tasmania and a significantly

larger number throughout the Mainland, where all major locations are intended to be featured. Tasmedals provide the credit-card-sized presentation pack where each coin sits in a die-punched card that colourfully depicts the tourist location on the front, as well as providing a brief but informative description on the reverse side. The memento is pocket-laminated to protect coin and card from damage and, at less than ten dollars each, is a well-priced item for tourists to keep forever to remind

them of their holiday down under. The coloured, enamel-bronze, two-sided presentation coins are beautifully finished, provide instant recognition of their featured location and are expected to be a must have with collectors of fine workmanship. Roger McNiece, Tasmedals managing director, reported that Nichol Industries has been excellent to deal with and has assisted along the way to help produce a product that has become a favourite among tourists from all over the world. **NI**

Reducing your marking costs



Yet another string has been added to Nichol's bow.

A rapid-turnaround, top-quality, contract marking service is now available and is most attractive to businesses who don't wish to purchase another machine that may only return low utilisation. Nichol's sizeable investment in one of Telesis' latest laser markers, Eclipse, has provided them with a unit that is significantly more powerful than models commonly

used by the average manufacturer. The bottom line is that you get a better result - quicker, reports Adam Nichol.

The finish is better by far and regarding time, what their machine may need two minutes to mark, our Eclipse can do in around 30 seconds. A simple service to use, those needing this facility have only to ship their components to Nichol Industries Nunawading address, e-mail the industry-standard computer data file, and forget the rest. Nichol will then mark each item as specified, repack the components, and return them to the customer. Whether ferrous, non-ferrous, plastic, glass,

wood. In fact, because of this remarkable reasonably-new technology, just about any solid material can be laser-marked with 2D code, barcode, logo, 3D, graphic or simple alpha-numeric characters. When you consider a time saving of 75 per cent per item, multiplied by the number of items you need marked, add your labour costs and you will see that contract marking can be a most viable alternative. Overall finish also plays a big part in the future sales of any business. Many a fine product has been aesthetically destroyed by improper marking, often through impact distortion, heat damage or inability to read the finished mark. Draw on Nichol Industries' 45 years of expertise to ensure that your products are properly marked by this cost-saving service. **NI**

Hand-held option

PINSTAMPING

With the rugged, low-maintenance Telesis TMP1700 pinstamper representing around 75 per cent of local impact-marker sales, a further option is now available to make the handy unit even more flexible for manufacturers of large assemblies or sub-assemblies.

A handle/trigger assembly, depicted Hand-Held Tooling with Part Number 40721, converts your TMP1700 from a fixed piece of equipment into a fully-portable pinstamper and allows operators to carry the lightweight unit to any sizeable job and mark it accordingly in a generous window, up to 1-1/2 by 2-1/2 inches, in materials from soft plastics up to hardened steel — Rc60.

The handle kit includes an ergonomic handle with Start-Print pushbutton, flat-faced standoffs that maintain a preset distance between workpiece and pinstamper with pin stroke adjustment feature, plus an eyebolt for suspension of the TMP1700 from a cable balancer. No special equipment or computer software is necessary to convert between hand-held to machine-mounted or back, and common workshop tools are all that are needed for the quick change-over.

The Hand-Held Tooling kit is ideal for manufacturers who mark large parts that are difficult to move around the factory or for cost-conscious businesses that require the flexibility of a fixed/portable marking system. **NI**



TMP1700

- Ergonomic Handle with Start-Print Pushbutton
- Flat-Faced Stand-Offs with Pin Stroke Adjustment Feature
- Eyebolt for Suspension of the TMP1700 from a Cable Balancer (right)



Identifying asbestos hazards

LABELS & TAGS

New Occupational Health and Safety (Asbestos) Regulations 2003 came into force in February this year. Their objective is to protect people from the risk of asbestos-related disease resulting from airborne asbestos fibres.

Basell, a venture between BASF and Shell, was eager to comply with the new regulations and as part of their ongoing commitment, has introduced a simple but highly-effective tag system to identify asbestos-free gasket/flange assemblies. Unless flanges are duly identified as asbestos-free, they must be considered unsafe to work on by everyday personnel and require licensed asbestos handlers to remove the offending material. Punched from 0.7mm stainless steel sheet, ASBESTOS FREE is reverse-

stamped in letters 8mm high into the tags, to result in them standing 1mm proud of the surface. The tags are then rumbled to eradicate sharp edges that are produced during the process.

A hole is also punched into each tag to accept a flange-bolt or stud during flange assembly, to provide permanent identification, with various sizes made to cater for differing bolt diameters. Keith Williams, maintenance manager of Basell's Geelong plant, who approached Nichol Industries to quote supply of around 1500 such tags, explained.

Our plant has been in operation for over 25 years and like most other process plants of that era, used composite asbestos flange gaskets throughout vari-

-ous systems.

Now, prior to opening a flange, we treat it as an asbestos hazard, unless otherwise identified. We found Nichol Industries on the internet. They fitted us into their production schedule, supplied the goods, and we expect to place another sizeable order with them soon. Suitable for up to 900 degrees Celcius, apart from petrochemical usage, the tags are also suitable for all industrial applications as well as ship-building and commercial building services where physical identification of product or hazard is required. **NI**

