

Your worldwide partner on 5 continents



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LASER

marking

Light Amplification by Stimulated Emission of Radiation



A MARK WHICH DEFIES TIME

www.technifor.com



Technifor SA Miribel - Site - F



A MARK WHICH DEFIES TIME

A global player in the industrial marking business

As a market leader and global player, Technifor always listens to the market and responds to its needs. Always striving for greater efficiencies, we use our expertise to develop a wide range of marking systems to suit all types of applications.

Technifor's R&D engineers pool their skills to optimise the design and production of marking equipment, incorporating new technologies today so as to meet tomorrow's requirements.



With over 20 years of experience in industrial identification and traceability, the Technifor Group engineers produce and sell marking equipment worldwide through an extensive international sales network : 10 subsidiaries and over 80 distributors in more than 50 countries.

LASER, a new era in direct part marking

In recent years, laser technology has developed rapidly in numerous industries (CD players, laser printing, barcode reading, dimensional inspection, etc).

As a result, compared with other "traditional" marking technologies, laser has greatly increased its market share, heralding a new era in direct part marking, identification and traceability.

Driven by the desire to continuously raise the standard of marking quality and resolution, we are committed to the constant improvement of our marking systems.

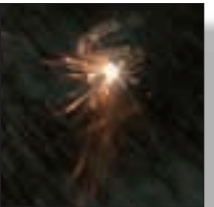
- 1960:T.H Maiman creates the first laser source
- 1981:Formation of Technifor
- 1985:Technifor invents micro-percussion technology and starts to develop worldwide sales network
- 1987:Gordon Gould's gas discharge laser is patented
- 1994:Technifor launches its first Nd: YAG marking laser



Applications for high power Lasers

For several years, high power lasers have replaced other technologies in various industrial applications, usually resulting in important productivity increases:

- > **Welding of** car bodies and plastic materials
- > **Cutting of** sheetmetal and plastic components
- > **Surface cleaning** of injection moulds and ancient buildings
- > **Marking on metal**, plastics, ceramics, etc...

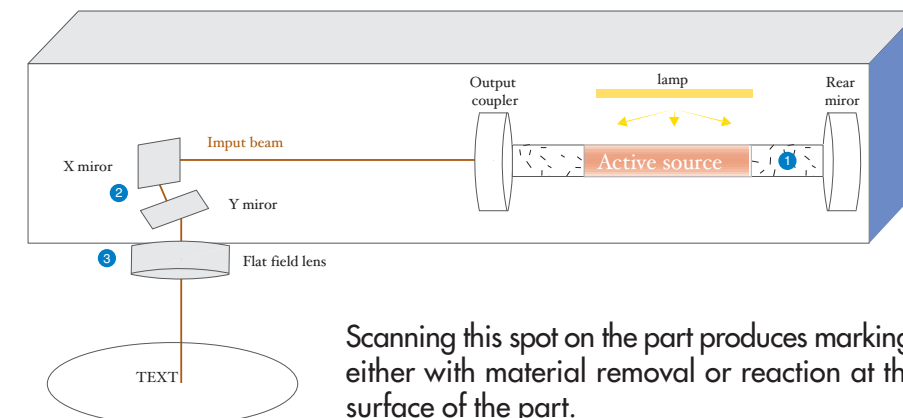


Marking on stainless steel

Principle of Laser marking

The physical principle of the laser is based on Light Amplification by Stimulated Emission of Radiation. In other words, the energy emitted by a source (eg arc lamp) onto an active source (eg nd: YAG crystal) will be collected and concentrated between two opposing mirrors.

- The oscillation of specific light particles (photons) that travel between the mirrors generates a high power laser beam. Only part of this beam passes through the output mirror (typically 10 to 20%), the rest being reinjected for the amplification process: the laser beam is thus created.
- The beam is deflected by two scanning mirrors, driven electronically and via software, thus enabling a very high scanning speed and exceptional positioning accuracy.



- The flat field lens then concentrates the beam energy in a very tiny spot, greatly increasing the power density on the surface to be marked.



Flat field lenses

Scanning this spot on the part produces marking, either with material removal or reaction at the surface of the part.

We can classify the different markings in three categories:

Engraving with material removal (sublimation)



The energy is delivered with high peak power pulses so that the material is instantaneously removed without thermal side-effects on the part.

Material annealing with surface color change



The energy is delivered with lower pulses, heating the material and changing its surface appearance. No material is removed

Marking through layer removal



On coated material, the contrast is created by removing the top layer, thus showing the color of the base material.

TL400 Integrated Marking Laser

Dedicated to on-line marking of your parts and products:

- > Nd : YAG Laser source
- > Wavelength 1,064 nm
- > Marking area from Ø 80 to Ø 350mm
- > Resolution up to 5 µm
- > Data exchange and communication with monitoring and supervision systems



A flexible automated marking system suitable for a variety of parts, with automatic selection of marking parameters.

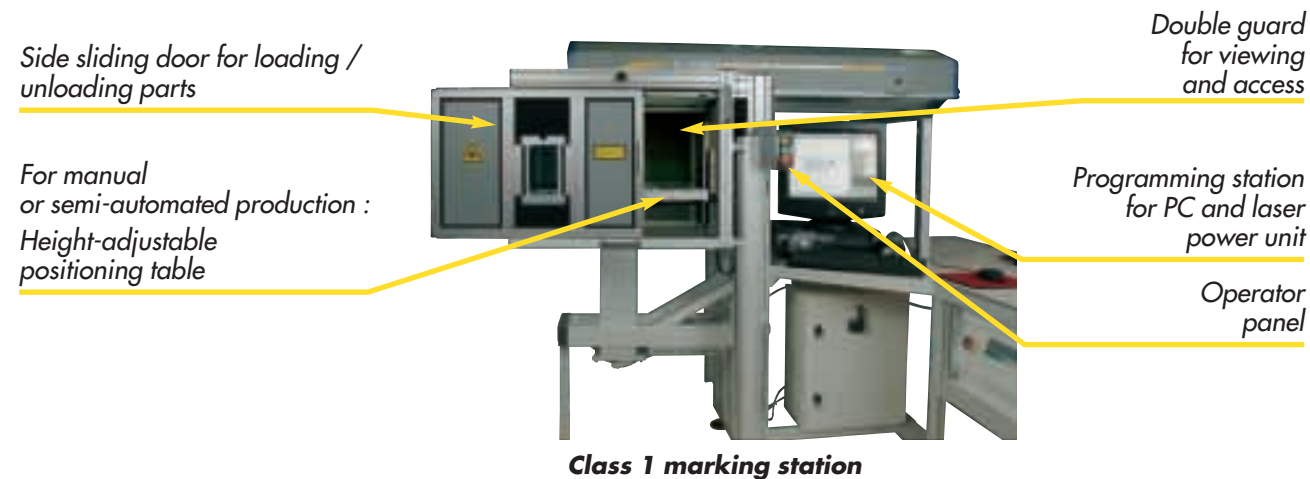
The laser head can also be supplied with a protective cover to comply with the EN-60825 safety requirements for Class 1 operation (protection against laser emission, direct or scattered).

Communications links to computer control systems or PLCs makes it extremely easy to set-up and operate the marking machine.

The best choice for meeting your requirements

Independent Class 1 workstation

As an independent workstation, the TL400 is installed within an aluminium structure, providing versatility and easy programming for the marking tasks.



Turnkey solutions for specific requirements

For laser, as for other systems, Technifor can provide a complete turnkey solution to precisely meet your detailed requirements.

In addition to standard components from our range, these customised machines can include different modules and functions:

- > Motorised positioning axes
- > Rotation devices with 2 or 4 positions
- > Custom loading devices
- > Automatic verification devices (OCV, barcodes and 2D codes)



T700W Marking software

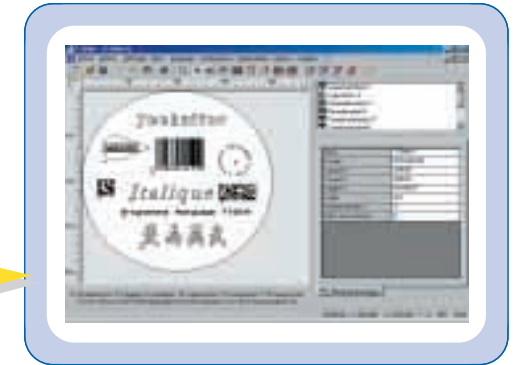
Capitalising on our experience in the industrial marking business, we have developed a complete marking software package to help you prepare your marking jobs in just a few mouse clicks...

• USER-FRIENDLY

Full Graphical preview

• FUNCTIONALITY

- > Easy to program
- > Image and logo processing
- > Alphanumeric text: date codes, sequential serial numbers, shift codes, variables, etc.
- > Barcodes and 2D Data Matrix™ codes



Programming with powerful Windows-based software provides flexibility for preparing various marking jobs, with an onscreen preview of the results.

A complete range of Products and Services

Accessories

3rd Axis: DMC11 or DMC21

Technifor lasers can drive a rotation device to enable cylindrical parts to be marked around their circumference. The final selection of the type of device depends on the specification of the parts to be marked.



DMC 11

Automatic Plate Feeding Devices (PFD)

Technifor's PFD can automatically feed the machine, with a facility for collating the output according to your requirements. Different plate types and sizes can be processed.



The following accessories are available upon request:

Fume and dust extraction system: to extract fumes and dust particles that might otherwise pollute the working environment and lead to health problems. Systems are available that will extract only or extract and filter all fumes and dusts.

Closed loop chiller: cooling unit that includes a chiller, enabling laser cooling with no need for an external water supply and drain.

Handheld Code reader: to read barcodes and 2D Data Matrix™, codes for verification of the mark at the workstation.

Maintenance contract to optimize follow-up of your Technifor equipment:

- warranty extension
- on site servicing



handheld Data Matrix™ code reader

Laser marking applications



Medical industry

Storage of biological samples
Identification of Biofluid Storage Containers (48 wells)
Data Matrix, code (2.8mm) + 10 alphanumeric
Automatic verification of codes and characters



Mechanical metal parts

Steel, aluminium, titanium, copper, brass...
Ruler and scale marking



Electronics and electrical components

Plastics and electronics
Switches, panels, small components
and circuit boards



Aircraft industry

Marking of turbine blades, bearings
Identification of modules and sub-assemblies
Marking on flat or curved surfaces, before
or after heat treatment



Identification plats and labels

Anodised aluminium, plastic labels
Barcodes or Data Matrix™, codes
Facility for cutting out labels



Cutting tools and hard materials

High speed steel and carbide
Custom identification or tool specification
Marking without surface damage (no removal)



Promotional gifts

Logos or text on lighters, pens, clocks, etc.



Implants, prostheses and surgical tools

Stainless steel, titanium, polymers
Identification and traceability of tools and implants
Surface marking with no pitting

