# Industrial marking

## Compact laser marker for the desktop

The number of applications of industrial laser marking are steadily increasing - and its advantages are becoming more and more apparent. The TOPMARK NEO laser marker addresses many current market requirements – and can be controlled from the PC both via the integrated marking software and the configuration software. It is operated via a 7-inch multicolor touch display at the device (Figure 1, lead image).

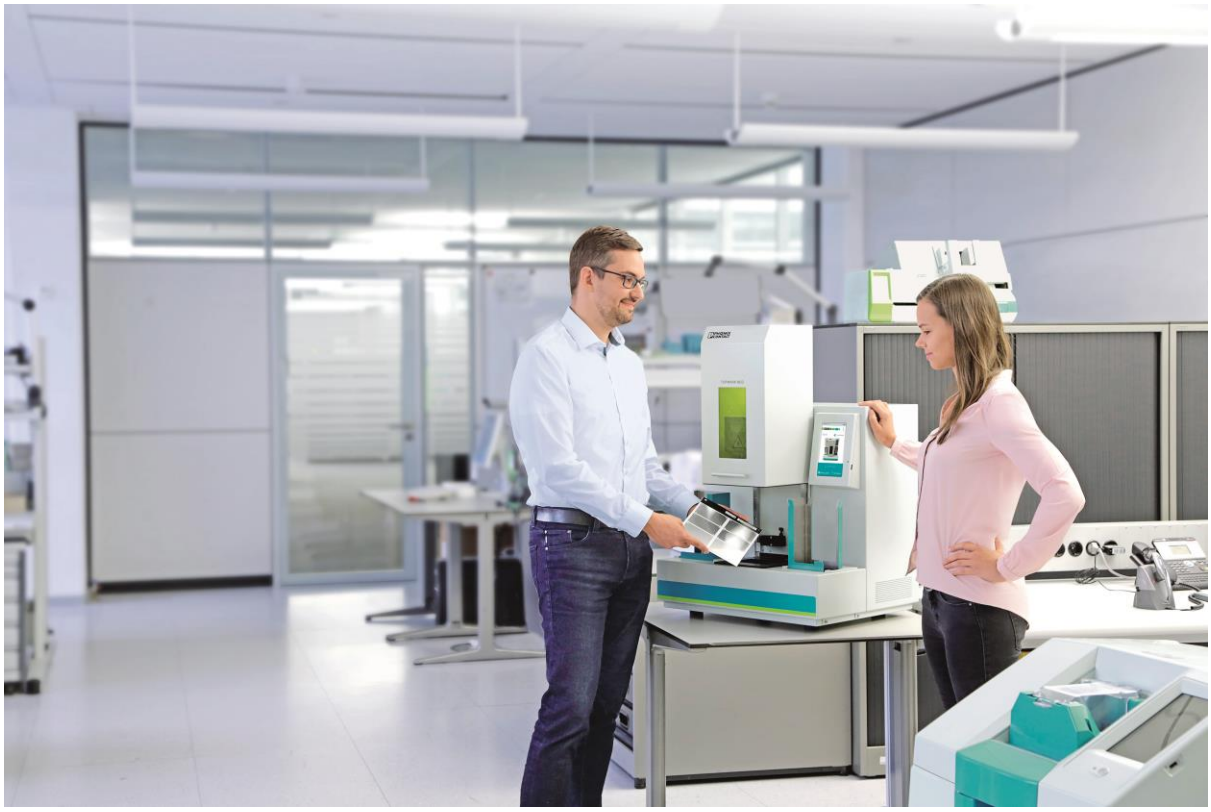

**Figure 1 – Lead Image -** The possible applications for marking with laser technology are many and varied, and include automation technology and machine building

The TOPMARK NEO is the result of systematic further development of the classic TOPMARK LASER. The high-performance new laser marker is equipped with a 20 watt fibre laser and processes more than 400 plates a minute – i.e. one plate every 0.15 seconds.

The laser marking system with automatic material infeed is compact – and requires an area of two DIN A3 sheets arranged side-by-side. Despite this small footprint, the marking field which measures 180 x 180 mm is the biggest in this class. This means that not only large individual plates can be marked, but also several smaller labels can be marked in one operation. This saves operators valuable time because they do not need to change the material as often.

## Also stainless steel, aluminium and DIY labelling

The areas of application of laser-marked material are many and varied – they range from the harsh offshore and process industry environment through to automation and machine building. Laser markings are ideally suited for labelling high-endurance metal plates. This kind of marking is used in the offshore industry due to their high corrosion resistance, and also in the process industry due to their high resistance to aggressive chemicals.

Whereas in the past marking of this kind of metal plates frequently had to be outsourced, users can now create the required markings themselves using the 20 W Ytterbium fibre laser of the TOPMARK NEO. The TOPMARK NEO can also be used universally for conventional terminal, conductor and equipment marking using plastic labels (Figure 2).

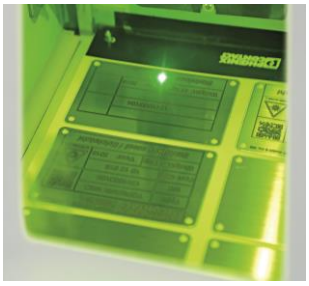

**Figure 2 -** As resilient as the material itself: The material - in this case high quality stainless steel - is marked using laser technology by removing the material

A standard labelling method for metals is classic engraving: the available modes "High Quality", "Standard" and "Draft" differ in terms of the relationship between labelling duration and contrast intensity. This allows the user to respond flexibly to requirements, such as high legibility or high material throughput. The "Annealing" mode, which creates a so-called annealing marking in stainless steel, is also of interest. Due to the energy input of the laser beam, the surface of the material oxidizes with the surrounding atmospheric oxygen, which produces a high-contrast sudden colour change. The surface of the material remains completely flat. As the smooth surface is less prone to soiling, this method is suitable for the stringent hygiene demands of the food industry and field of medical technology.

**Figure 3 -** Marking material for virtually any application scenario: The TOPMARK NEO encompasses a wide product range including stainless steel, aluminium, ABS, polyacrylate and polycarbonate

The device is also flexible because materials can be labelled and cut out according to individual requirements in only one operation. This allows any required size and form to be created from polyacrylate laser film or 0.8 mm thick plate material made of Transply-ABS in accordance with individual requirements. This means that frequently changing size ratios, such as those that arise in special-purpose machine manufacturing, can be handled individually using only one marking material (Figure 3).

## Data transfer from CAE programs

The markings are created either using the freely-accessible marking software "PROJECT complete" or the coloured touch display integrated into the device. TOPMARK NEO, which is supplied with installed marking application, stands for the new class of desktop laser markers. Operation is intuitive - the display is not only used to create marking projects, it also shows status messages. In addition, the user manual and also videos explaining operation can be called up. Even more convenient however is the option of controlling the TOPMARK NEO using a PC or Notebook via the PROJECT complete software directly from the workstation. This is done either by connecting the device to the PC directly, or by integrating it into the network via DHCP (Dynamic host configuration protocol).

PROJECT complete also has the advantage that data can be transferred directly from CAE programs which allows even substantial marking projects to be implemented quickly and efficiently. The software can control every printing and marking system supplied by Phoenix Contact.

## Laser parameters set automatically

Most systems on the market require all the material parameters to be identified and maintained, whereas the TOPMARK NEO comes with a comprehensive parameter database. Pre-set parameters allow reliable marking for every material type and eliminate the need for special laser knowledge. The Phoenix Contact material program currently contains 600 materials and is being continuously updated. The laser marking system automatically identifies materials inserted from the bar code on the material sheet or an integrated hole pattern in the plastic materials. The automatic material detection also prevents marking on unsuitable materials, and consequently incorrect markings. This saves time and is more economical, especially when marking large metal plates.

A laser safety officer is not required for the TOPMARK NEO. According to EN 60825-1, the device is classified as a class 1 laser system – same as the DVD drive in a PC or Notebook (Figure 4).

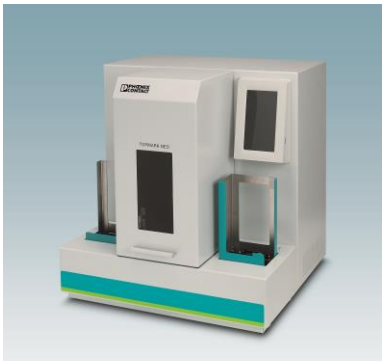

**Figure 4 -** Desktop laser marking system: The TOPMARK NEO is the first in a new class of flexible high-performance marking devices

Using the TOPMARK NEO, graphics can be directly integrated into marking projects and also into individual plates in the bmp, png and jpeg formats. This allows company logos, warning symbols or other visual elements, for example, to be integrated into rating plates with no time-consuming vectorization required. Vector graphics can also be imported into marking projects directly in the dxf, dwg and hpgl formats.

**Summary [optional]**

The demands on the durability of markings in the industrial environment are steadily increasing - an area in which conventional marking techniques are often pushed to their limits. Laser technology produces highly durable markings which are as resilient as the material itself. The TOPMARK NEO desktop laser marking system by Phoenix Contact satisfies the demands for durable markings and sparing use of resources. The compact flexible device can be operated intuitively and, due to integration into the PROJECT complete planning and marking software, is also highly efficient. More than 600 marking materials are available for more or less every application.

**Technical data**

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|---|---|
| Operating temperature range | 5 – 35°C |
| Marking method | Direct laser marking |
| Laser system | Ytterbium fibre laser, pulsed, 1064 nm |
| Laser class | 1 - according to EN 60825-1 classification |
| Interfaces | Ethernet 10/100 Mbps |
| Power supply | 100 - 240 V |
| Power consumption | 250 W |
| CW (Continuous Wave)laser power | 20 W |
| Pulse repetition frequency | 20 kHz … 60 kHz |
| Weight | 47 kg |
| Dimensions (W x D x H) | 580 x 485 x 615 mm |

More information
www.phoenixcontact.net/webcode/#1754

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