

# nwl.data sheet

Data Sheet for Laser Marking System Forano

## ■ Forano

### ■ Technical data

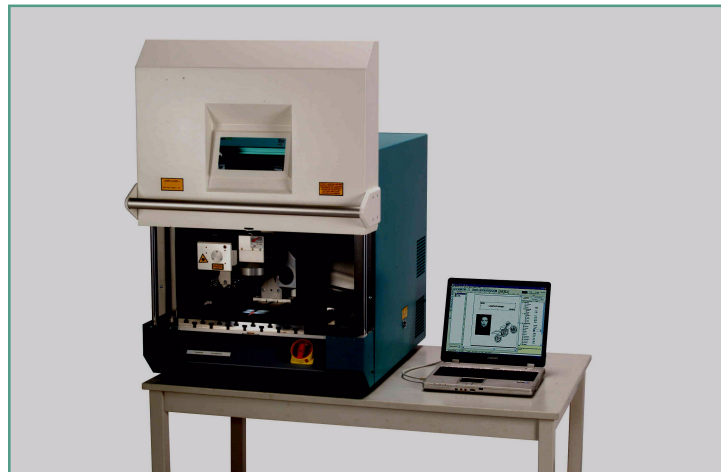
With the *Forano* laser marking system, the user has a handy desktop unit (laser class 1) at his disposal to process small to medium numbers of parts.

The unit offers major advantages of use, especially in the very small diameter of the laser beam, enabling new applications such as micro-labeling to be implemented.

The marking cabin has a size of approx. 665 x 680 x 740 mm<sup>3</sup> (WxHxD) and a weight of 110 kg.

The unit housing is made of fully coated <sup>1</sup> aluminium sheet.

The front side of the unit has a semi-automatic marking room door. The window built into the marking room door allows the marking to be checked at all times.



A PC-guided z-axis is integrated into the booth, allowing the laser system to be adjusted to different part heights with the help of a pilot beam diode and focus diode.

Using the standard flatfield lens with a focal distance of 100 mm provides a marking field size of 70 x 70 mm<sup>2</sup>. The traversing range of the axis is 140 mm.

An integrated, removable T-slot table can be used for the attachment of workpiece fixtures.

<sup>1</sup> Marking room housing = Class of protection IP54

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<b>Laser marking system</b>	665 mm (W) x 680 mm (H) x 740 mm (D)
<b>Weight</b>	110 kg
<b>Laser type</b>	Nd:YAG, $\lambda = 1064 \text{ nm}$
<b>Maximum CW power</b>	3-W <sup>1</sup>
<b>Cooling</b>	Air-cooled
<b>Marking field size</b>	70 x 70 mm <sup>2</sup>
<b>Max. part dimensions</b>	400 mm (W) x 140 mm (H) x 270 mm (D)
<b>Noise emission</b>	Max. 60 dB in standby
<b>Operating temperature</b>	15°C - 35°C
<b>Application software<sup>2</sup></b>	Operating system – Windows 2000 or higher Marking software: nwl.mark
<b>Electrical connection</b>	230 VAC, 16 A

## ■ Laser

The base system is a continuous wave Class 4 Nd:YAG laser, with a wavelength of 1064 nm.

The laser is operated in the so-called multimode, in which it is modulated with 0-50 kHz via a Q-switch.

A long-life diode laser is used as the pump source, and is internally air-cooled by a Peltier element.

## ■ Optics – Deflection

A scanner<sup>2</sup> is used to create the marking. This scanner deflects the induced laser beam via two extremely fast and precise deflecting mirrors.

To obtain a planar marking field, a flatfield lens<sup>3</sup> is used, which by default has a focal distance<sup>4</sup> of 100 mm.

## ■ Connection Data

The entire laser system requires only a power connection with 230 VAC, 16 A.

As long as no additional components are integrated requiring further connections, neither water nor pressurized-air connections are needed.

<sup>2</sup> XY galvanometer

<sup>3</sup> f-theta lens

<sup>4</sup> Working distance from part => marking field 70 mm x 70 mm<sup>2</sup>

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## ■ Miscellaneous

The *Forano* laser marking system can be delivered with a PC of the current performance class, if required.

The *Forano* has a system with two PCs, one of which is a LINUX control computer, and the other is a standard PC containing the current operating system.

For the operating system, the current products from Microsoft® are used (Windows2000 and higher).

Nwl.mark (see separate description) is used as the marking software. A license for the software is included in the delivery. The software – if the system is delivered with a PC – is preinstalled and preconfigured for the respective laser system. Otherwise the installation and configuration of the software is performed on site during commissioning.

If the PC is not part of delivery, then for commissioning a PC with an installed network interface card (100 MB) has to be provided from the customer.

By default the laser system has an PLC interface (see separate description), enabling simple automation processes to be performed.

The *Forano* laser marking system is CE labeled.

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