New System Streamlines Laser Black Marking, Plastics Marking, and More

Challenge

From medical devices to consumer appliances and premium brand electronics, there is a growing need to apply permanent marks directly on metal surfaces without compromising their surface integrity and corrosion resistance in any way. But traditional marking of metals involves photochemical modification of the surface resulting in mark vulnerability. There is also increasing demand to create high-resolution marks on thermally sensitive plastics without any discoloration or other peripheral damage often found with traditional laser marking tools that could possibly reduce the perceived quality and value of the parts.

Solution

Picosecond lasers are now well-proven to meet these needs and the ExactMark 230 USP is the first automated marking system designed from the ground up to fully exploit all the potential advantages of marking with USP lasers. The short pulses and high peak power create a light trapping surface on metals such as stainless steels, aluminum, and titanium. The resultant marks are very black with an appearance independent of viewing angle. And because the marking process does not entail surface oxidation or other chemical modification, the marks do not compromise surface protections such as passivation or anodization, and are extremely corrosion-resistant even after repeated autoclaving or manual handling. This makes them ideal for both UDI marking of medical reusables as well as appliance control panels and smartphones/tablets.

The ExactMark 230 USP includes a user-friendly Laser Framework software suite that simplifies the creation of recipes for marking these products with a library of programs including a 2D graphic editor, a CAD program, Laser Display, 3D Modeler, Laser Parameter Wizard and other configuration tools, all integrated in a single software platform.

Benefit

The new ExactMark 230 USP simplifies the task of permanent marking of metals by using the latest laser black marking process. The short laser pulse duration also supports high-resolution marking of plastics without the thermal effects typical of marking with longer pulse lasers.

Figure 1. Laser black marking produces a high-contrast mark on metal surfaces with enhanced corrosion resistance.

Figure 2. The new ExactMark 230 USP is an integrated laser black marking system that automates and streamlines the entire process.

Application Field

Laser black marking of metals and high-contrast marking of plastics.

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