Press Release

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COX – New Laser Engraving Procedure for Varifocal Lenses: Cost-Effective and with Highest-Quality Engraving

Wessling, 25. November 2009, **Free form lenses require 'semi-visible' laser engraving so that the lenses can be edged into the frames perfectly accordingly. For this, Laser 2000 presents the high-quality COX engraving system, suitable for any kind of plastics lenses.**

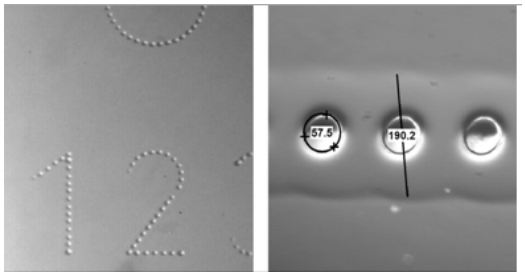
COX – State of the Art

Until now, there were generally two kinds of ophthalmic laser engraving systems: cheap CO_2 laser engravers and high-maintenance and expensive Excimer engraving systems.

The obvious advantage of the CO_2 systems is their low price. Their disadvantage is their 10,600 nm wavelength, which is due to physical reasons and results in infrared heat radiation, which only partially melts the material. In plastics such as CR39, this can lead to a memory effect. The only slightly engraved surface "remembers" the old state, and the engraving will vanish again. In case of so-called "high index" materials, the lens surface will burst open, which leads to cosmetic and quality problems, in particular in the heat-treated zone around the actual engraving.

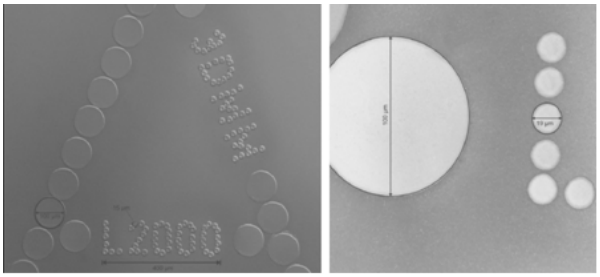
In contrast, Excimer-based systems ablate the engraving points and lead to a very clean and high-quality engraving. However, the Excimer laser requires relatively high expenses both for purchasing and maintenance.

CO_2 Laser engraving



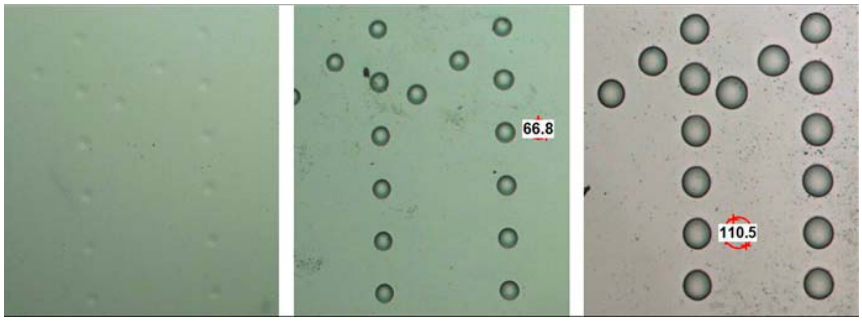
CR 39 engraving by C3.0 System with visible 'heat effected zone'; "123" Character height 1.5 mm

Excimer Laser engraving



CR 39 by MC-Flexc System
"L2000" character height 0.1 mm

The COX Engraving System Alternative: COX engraving results



Different settings for high index material 1.67

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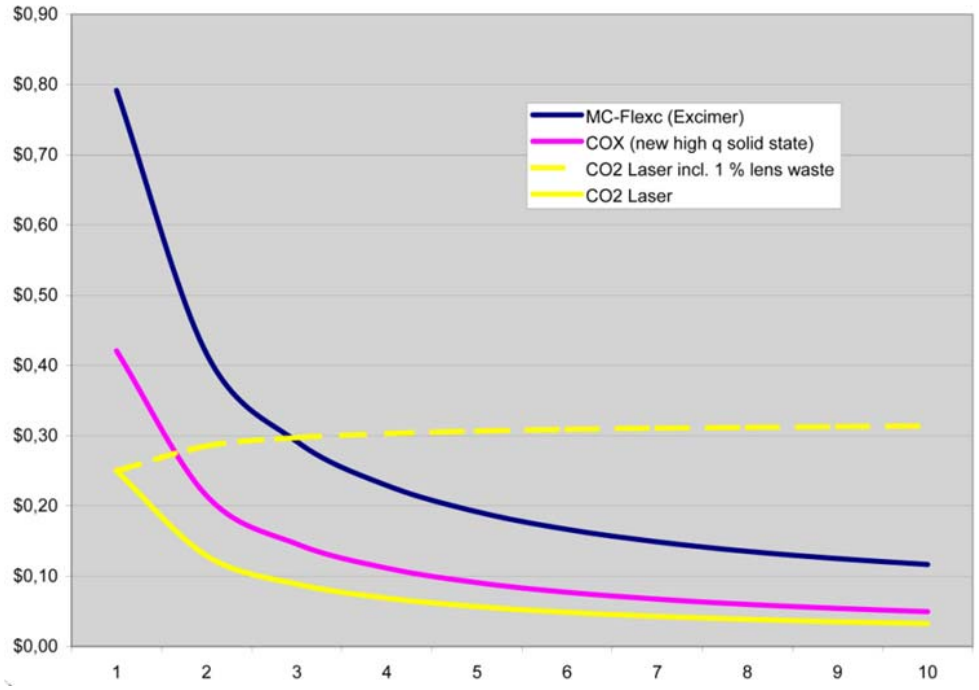
The COX Engraving System Alternative
The concept of the new COX engraving systems directly targets the weaknesses of traditional systems: The low CO_2 laser quality and the high Excimer system prices. The development is aimed at a cost-effective engraving system that is comes close to the Excimer systems in terms of quality.

The new, patented COX system engraves all plastics from CR39 through 'High Index" to polycarbonate in a high quality and without heat-affected zone around the actual engraving. Intensity and engraving contrast can be set in a much broader range than for traditional methods.

Cost Comparison
When comparing investment and operational costs for all three engravings systems, the results seem to be clearly in favour of the CO_2 engraving systems. This, however, changes significantly where even 1% of the CO_2-engraved lenses are categorized as rejects (dotted yellow line).

PAL Laser Engraving Alternatives Cost per Lens over 10 Years (TCO)



Thus, COX qualifies as the best new engraving method for all kinds of plastics with low investment and consumption costs and a high engravings quality.

Laser 2000 GmbH Ophthalmic:
Laser Marking & Engraving for Ophthalmology – Since 1986 Laser 2000 GmbH is a supplier of high technology in the field of lasers, micromachining equipment, optics, and fiber optic equipment. Our products are designed to meet the challenges of both research and industrial production as well as your actual or future requirements of your applications.

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