

**LIGHTMACHINERY: IPEX-700 Series Feature; SLM SOLUTIONS: SLM280HL in dentistry; NEWS FROM OUR SUPPLIERS: BeAM, LINX and OPTEC. WHAT'S IN MY INBOX - ?.**

### LightMachinery

Excellence in lasers and optics

#### IPEX-700 Series

LightMachinery is the world's leading manufacturer of Transversely Excited Atmospheric Carbon Dioxide (TEA CO<sub>2</sub>) lasers.

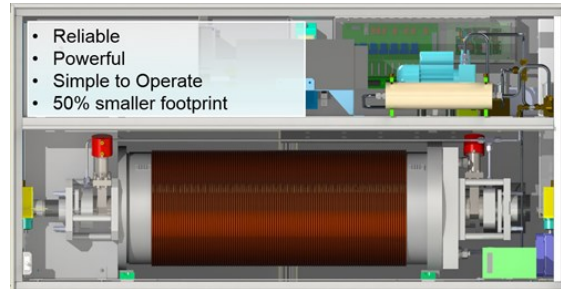
A gas laser that provides shorter pulses and higher peak powers than conventional CO<sub>2</sub> lasers. Designed for medium duty cycle operation in industrial and R&D environments, IPEX-700 Series lasers deliver high power ultraviolet laser machining combined with state-of-the-art performance. Incorporating proprietary ICON™ (Integrated Ceramic on Nickel) technology, IPEX lasers offer long gas lifetimes, superior optical stability and precise control of laser operating parameters.

EasyClean automated valves fitted to the optics ports allow the laser chamber to be sealed and the gas fill / passivation to be retained while resonator optics are removed for cleaning and maintenance.

IPEX-700 is ideal for applications such as pulsed laser deposition, PLD. The IPEX-700 can be operated from any computer using Windows 7 or 8, a Microsoft Surface Pro 3 is included.

#### Features

- exciPure™ technology for ultimate gas lifetimes and lowest cost of operation
- EasyClean automated optics seals to retain gas fill and reduce downtime during optics maintenance
- Optional High-Brightness optics for applications requiring low beam divergence or extended coherence length
- High-stability optics mounts for ultimate beam pointing accuracy
- Simple integration into industrial processing systems
- Microsoft® Surface Pro 3 remote control for the ultimate in simple operation, can be operated as a tablet or with the keyboard



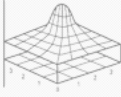
#### Benefits

- Extended gas lifetime, long replacement intervals, low operating cost
- Simplifies optical maintenance, retains gas fill and passivation
- Delivers 200 microradian pointing stability
- No realignment required after cleaning or replacing optics
- Fast, precise energy stabilization in internal, burst and external trigger modes
- Excellent energy stability, better than 1.0% (KrF)
- Removes particulates and maintains optics cleanliness



A technical article on TEA CO<sub>2</sub> lasers appears in this month's *Photonics Media*.

LightMachinery is very proud that their lasers are helping leading researchers around the world to push the boundaries of science, an extensive number of research papers can be found on <https://lightmachinery.com/laser-applications/research/>



### SLM 280HL solutions - Dental Solutions

*Customization affords the medical and dental industries a major benefit in meeting patient requirements with the ability to design intricate and complex parts tailored to everyone.*

Customized 3D printed medical implants have received wide publicity in the popular media but the dental industry has not gained such wide spread news. However, as with medical the opportunities with 3D printing offers reduced costs, along with increased speed and greater accuracy in the production of crowns, bridges and orthodontic appliances.

The success of customized medical and dental 3D printed solutions rely on already available scanning and imaging technology - CT, MRI and ultrasound. Combined with CAD/CAM software, biomedical engineers design the specific 'part', and structure the path or procedure the laser system will follow. This process removes many of the constraints in traditional manufacturing such as casting, fabrication and milling that don't always address the fine detail or complexities required to fulfill individual needs.

Dental implants are seeing consistent growth due to an aging population requiring restorative dentistry. As the population age and seek to maintain their health and wellbeing, this demand will continue. Additionally as anatomical changes occur over time, these patients will require new dentures or partial removable dentures (RPD's). Contrary to the growth in restorative dentistry PRD's or partial removable dentures, are still in demand, particularly where cost is an issue. Co-Cr (Cobalt-Chrome)

provides an appropriate metal for this purpose with testing of finished products using the selective laser melting process offered by SLM Solutions, indicating even better metallurgical characteristics than those from conventional casting processes using the same material.

Both medical and dental experience indicates the advantages of supplying customized products is the superior comfort experienced by the patient, leading in turn to faster recovery and better functionality.



For any information on items in this newsletter contact [info@raymax.com.au](mailto:info@raymax.com.au) or call us on 02 9979 7646

### NEWS FROM OUR SUPPLIERS:

**BeAM**, the European leader in additive manufacturing machines based on laser metal deposition technology, and **GeonX**, a software provider specialising in next-generation virtual manufacturing solutions for science and industry, are forming a strategic alliance with a view to developing the world's first integrated Simulation-Process-Machine system.

#### LINX

Is currently offering a trade-out of old lasers systems. Some have been in operation from 2000, making it 16 years of service! While customers might tell us 'they just keep running' the laser is an electro/mechanical device and will eventually fail. When this happens issues arise as parts are no longer available for some old systems (Xymark EFX, Xymark 5000 and 7000) and long downtime can cut into profits.

Replacing an old system for new means the latest model is installed, it is more reliable, comes with a warranty and will give improved code quality.

*If you would like to discuss a trade-out call John Grace on 02 9979 7646*

#### OPTEC

Belgium-based laser micromachining specialist Optec s.a. developed an automatic, multi-wavelength laser delivery solution featuring novel turret optics based around *Aerotech's* micropositioning systems. The high-repetition, multi-wavelength femto/picosecond micromachining project was designed and built for the prestigious Karlsruhe Institute of Technology. Read more at .....

<http://blog.aerotechmotioncontrol.com/2013/03/12/micromachining-novel-turret-optics/>

#### WHAT'S IN MY INBOX!

No, this is not an image of one of our staff members!!

Does it look familiar to you?

Can you guess what it is?

No?

Well, it is the latest generation of radars – they are always reliable, unaffected by condensation or a buildup on the antenna. If you need one of these little guys they are called a VEGAPULS64.

It popped up in an online journal!

