New Single Frequency CW Laser in the Deep UV

The new FQCW266-series of cw lasers from CryLas GmbH, Berlin, deliver up to 10mW at 266nm in single frequency operation. Compared to other CW lasers at 266nm, the FQCW266 system has a low power consumption of less than 100W (average 70W) and a small footprint of only 271 x 190 mm. For the cooling of the laser head just air convection is sufficient, no other provisions (chiller, fan etc.) are needed. The laser comes with a control unit, allowing either push button control or remote control operation via serial (RS232) interface. The lasers offer an excellent beam quality with an M2 below 1.3, a beam divergence below 0.7 mrad (full angle), low intensity noise below 1% (100Hz-10MHz) and a good power stability (<2% in 8 hours). Two models FQCW266-05 with 5mW and FQCW266-10 with 10mW output power are available right now, higher power models up to 100mW are in development.

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LASER 2007, BOOTH B1.106

Controlled Intensities for the Cure of Precision UV Adhesives

Lightcuring adhesives offer various advantages over alternative assembly technologies: The “cure on demand” property allows for the precise alignment of parts before cure and fast processing. To best support these adhesive properties Dymax has developed the new UV spot lamp system BlueWave 200 with integrated intensity adjustment. This technical feature allows for the exact determination of the required intensity to reach fast, low shrinkage cure of the adhesive with minimized heat development to protect sensitive parts. Intensities of more than 17 W/cm² render the BlueWave 200 into a powerful UV spot curing system. The device primarily emits UVA and visible light (300 - 450 nm). Until now, a decrease in intensity over time has been an inherent problem in UV bulb technology (discharge lamp). However, the intensity adjustment feature allows control of the desired intensity level. A removable knob at the front panel gives the user easy access to the precise manual adjustment of the emitted intensity (for verification a radiometer such as the Dymax Accu-Cal 50 is used). In optical and fiber assemblies the intensity control supports consistent high quality and high performance bonds. The system can be activated via an I/O port or by a foot pedal. Complemented by the Dymax Accu-Cal 50 Radiometer the BlueWave 200 significantly helps to ensure high quality assemblies for optical precision manufacturing.

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Dual Band Line Scan Camera for IR and VIS

AMS Technologies presents the new Dual Band Line Scan Camera for IR and VIS produced by Princeton Lightwave. The dual band camera is a one dimensional line scan camera that utilizes two independent sensors. The optical coupling of the sensors allows simultaneous imaging in both visible (400 nm - 900 nm) and infrared (100 nm - 1700 nm) wavelengths. The two images are automatically spatially and temporally registered. The visible sensing is provided by a 2048 element whereas IR sensing is performed by means of a S12 InGaAs element enabling the simultaneous imaging of both spectrums at a 4:1 resolution. Each sensor provides two analogue output streams that are processed using correlated double sampling and dark level correction. The streams are converted to a 12 bit digital data and buffered into dual-port RAM for synchronisation and further digital processing. This Dual Band Camera allows system vendors to add additional value to machine vision application. Current systems are applied for inspection in the food industry and for sorting different plastic materials in waste management machinery.

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**LASER 2007, BOOTH B1.301**

Ultra-High Stability Laser Diode Module

Frankfurt Laser Company offers a new line of temperature stabilized laser diode modules. Modules offer elliptic and circular beam shape combined with low beam divergence, ultra-stable power output (<1%) and wavelength (<0.2nm) over a wide temperature band (0°C to +40°C) and exceptional pointing stability and alignment. Laser diode modules are available with the optical output in UV, Blue, Green, Red and Infrared wavelength range (375 nm - 3100 nm). The module offer modulation ports for max 10MHz digital and 10kHz analog modulation. Green DPSS laser can be supplied with 30kHz digital modulation.

**APPLICATIONS:**
- Display
- Fluorescence
- High-resolution printing
- Industrial inspection
- Interferometry
- Machine vision

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**LASER 2007, BOOTH B1.324**

Blue-violet Laser Diodes

As manufacturer, distributor and service provider in the fields of laser technology, optoelectronics and fiber optics, IMM Meßtechnologie GmbH offers, among other things, the product series of laser diodes with 405 nm by Sanyo. The laser diodes are available in power ranges from 5 mW to 60 mW. The 5 mW and 35 mW laser diodes are delivered with a photodiode integrated in the casing.

The laser diodes are applied in the field of biomedical diagnostic devices and in the print industry (Computer to Plate).

The technical data can be accessed as pdf file on the website www.imm-laser.de.

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**LASER 2007, BOOTH B1.400**
Smaller, and more Precise - IMT Leads with Dry-etch Technology

In response to increased demand from customers for bespoke microstructures, IMT has recently invested in new, state-of-the-art dry-etch technology at its Swiss facility.

Leading microlithographic company, IMT (Zürich, Switzerland), is building on its proven process competences in thin-film coating, the structuring of coatings and the manufacture of complex micro-structures with the addition of reactive ion etching (RIE) technology from Oxford Instruments. This new dry-etch technology allows IMT to produce the smaller structures that are increasingly in demand.

The investment, at around 600,000 Euro, is the latest expansion to IMT’s 2300 m² facilities.

With RIE, microstructures of around 0.25 µm can be conceived. The process implemented hitherto – including the necessary wet chemical processes – delivers finished structures in a range down to 1.5 … 2 µm. Applications for these new sub-µm micro-structures include reticles, high-end resolution targets and applications calling for custom-made diffractive gratings.

Dr. Jean-François Willemin, IMT’s Chief Technology Officer, commented: “Our customers are asking for smaller structures and now, with this new technology, IMT is leading the market in delivering what is required. With our investment in RIE we can now produce structures that are smaller than the wavelength of light”.

For details of IMT products and services, visit www.imtag.ch

USB4000 Fibre Optic Spectrometer

Ocean Optics has launched a next-generation, miniature fibre optic spectrometer. The USB4000 replaces the USB2000. Small enough to be held in the palm of a hand, it features a 3648 element linear CCD array for substantially increased signal-to-noise and enhanced 16-bit electronics for controlling the spectrometer and accessories.

With a choice of 14 gratings and six slits, the USB4000 can be configured for thousands of absorbance, reflection and emission applications. It features five triggering options, is responsive from 200-1100nm and has an integration time as short as 10ms, enabling the measurement of transient events such as laser pulses.

The USB4000’s onboard, programmable microcontroller provides considerable flexibility in controlling the spectrometer and accessories. A 22-pin connector enables integration of all operating parameters in the software and additional functions such as light source control and external device triggering. There are eight user-programmable digital in/outs for controlling peripheral devices.

The USB4000 interfaces to a PC, PLC or other embedded controller via USB 2.0 or RS-232 serial port. Data unique to each spectrometer is programmed into a memory chip which Ocean Optics’ SpectraSuite software reads for simple set-up and hot swapping among PCs.

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LASER 2007, BOOTH B1.476

JENCOLOR
Sensor Design and Manufacturing Services
True Color Sensor ICs

Colorimeter with the tristimulus method DIN 5033 (German Institute for Standardization = DIN)
Detector with normal tristimulus value - sensitivity
On-Chip integrated interference filter
small - precise - fast - compact

Color Measurement - like human eye

JENCOLOR c/o MAZET GmbH, Gieschwitzer Straße 37, 07743 JENA Germany, Phone: +49 3641 7809-0, Telefax: +49 3641 7809-17, E-Mail: sales@jencolor.de, URL: http://www.jencolor.de
New Catalogue for Modules and Collimators

As a competent partner in the fields of laser technology, optoelectronics and fiber optics, IMM Meßtechnologie GmbH, lists its standard product series in the field of modules and collimators in a new catalogue. The laser modules and collimators are universally applicable. Special attention is paid to the laser modules of the series 1255FB and 1129F. They are focusable and therefore individually adjustable. Please ask for the new catalogue with the standard products: info@imm-laser.de, or download the pdf file from our homepage www.imm-laser.de. Apart from the standard products, IMM continues to offer customised solutions for laser modules and collimators.

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LASER 2007, BOOTH B1.400

B & M Optik

B & M Optik GmbH, founded in 1991, has established itself in the optics market as a reliable supplier of optical components. The medium-sized company currently employs 75 people. Its registered office is located in Limburg (Lahn), Germany. The company’s production sites are located in Pirna, Germany, and Zaczernie, Poland. Our product range includes, amongst others, spherical and aspherical lenses, flat optics and filters of all kind, both framed and unframed. In addition to our standard products, we also manufacture customized solutions – flexibly, fast and cost-efficiently. A close cooperation already during the development stage of a new project, e.g. by means of trials with sample products, is to the benefit of our customers. For this purpose, we can rely on a range of 1,000 different product types and three neatly arranged boxes of optical products. More detailed information is available on our website or may be obtained by written request. Thus, we can quickly provide you with an optimal solution, both technologically and from a business point of view.

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LASER 2007, BOOTH B2.345

New Sales Manager at IMT Masken und Teilungen AG

Alexios Paul Tzannis is new area sales manager at IMT Masken und Teilungen AG. Dr. Tzannis graduated from the Technical University of Denmark and received his PhD in physical chemistry from the Paul Scherer Institute of Switzerland. With his broad experience in working on customer specific projects Dr. Tzannis will be a valuable partner for the IMT customers. He will be responsible for the contact to customers in Great Britain Belgium, the Netherlands and Scandinavia.

About IMT
IMT Masken und Teilungen AG is a leading provider of microlithographic products and bespoke microstructures - specializing in structured thin-films on glass. With its extensive know-how and long experience in the field of microlithography IMT services customers in the optics and electronics industries, in metrology and medicine, in automation, in aircraft and space technology as well as in defence and research.

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The World’s Smallest Green Laser

FLC offers high power versions of the world’s smallest green lasers, MicroGreen and MiniGreen laser. Optical output power of the new MicroGreen is 30 mW and 250 for the new MiniGreen. MicroGreen laser is mounted on 5.6mm laser diode header and measures 9mm in length. Respectively MiniGreen has 9mm diameter and 13mm length. The lasers are developed to be incorporated in devices demanding small space and low current consumption. At 30mW of optical power output MicroGreen requires as low as <200mA of input current and can be powered with 1.8VDC. Lasers demonstrate perfect Gaussian beam profile and low optical noise <1.5%.

Applications:
- Target designation
- Pointing and alignment
- Marking
- Laser displays
- Nondestructive testing
- Underwater imaging
- Crystal inspection
- Photo processing
- Medical imaging and treatment, patient positioning
- Wafer inspection
- Micro-material processing
- Particle counting
- Metrology
- Interferometry
- Printing
- Photo-luminescence

IR and NIR Cameras

The Belgium company XenICs is a spin-off from IMEC, Europe’s leading research center for micro and nano electronics. Following the development and commercialization of powerful InGaAs line and array detectors, XenICs was founded as an independent company and has since become an established researcher and manufacturer. Their product range comprises camera systems for all wavelength ranges in the IR and NIR as well as some stand-alone detectors. XenICs offers InGaAs line scan cameras for the NIR and focal plane arrays with 320 x 296 or 640 x 512 pixels all the way up to 1700nm. Just recently they have introduced camera systems with MCT detectors with 320 x 256 pixels which extend the NIR wavelength range to 2500nm. For the MWIR (3-5µm) range, in which most high resolution IR camera systems operate, XenICs offers stirling-cooled camera systems with either 320 x 256 or 640 x 512 pixels. These are high performance InSb-detectors with a resolution of approx. 20mK. All of the systems are either available as 50Hz standard versions or as high-speed or even super high-speed cameras with line rates of up to 350Hz. To cover the LWIR range, XenICs provides microbolometers for stationary applications. XenICs offers both a great range of standard camera systems and customized solutions for individual applications. Moreover, since they are a European manufacturer, there is no need for import or export licenses, so that the delivery is always guaranteed.

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LASER 2007, BOOTH B1.324
LASEROPTIK Introduces Ion Beam Sputtering (IBS)

At the LASER 2007 fair in Munich LASEROPTIK introduces its latest major innovation for the laser optics market. The German coating specialists add ion beam sputtering (IBS) to their coating portfolio. In addition to e-beam evaporation, ion assisted deposition and magnetron sputtering, this advanced technology will complete LASEROPTIK’s technology profile for even better layer quality.

The IBS coating plant has been designed with a primary RF plasma source, which is using argon ions to sputter off targets made of common coating materials. In order to guarantee very dense, low stress and well-oxidized layers, a second RF plasma source emits oxygen ions directly on the substrate surfaces (see picture).

With IBS coatings, LASEROPTIK aims at satisfying even most critical demands on laser optics, such as: mirrors with highest reflectivities (> 99.99%) and lowest losses (< 100ppm), thermally and mechanically stable coatings, steep edge filters, band pass designs, non-polarizing beam splitters, high contrast polarizers, high laser damage threshold, coatings on sensitive substrates like nonlinear- or laser crystals, laser diodes, variable and gradient attenuators.

New Miniature Spectrometers

TOPAG Lasertechnik presents a new series of miniaturized spectrometers. The S41 spectrometer is only 129x78x53mm footprint, being among the smallest instruments on the market. There is no need for an external power supply, all controls and powering is through an USB interface. The included CCD-Tool software allows easy control of all adjustments and a variety of signal processing functions. Three versions, with different gratings, cover wavelengths from 200 up to 1140nm, with resolution down to less than 1nm. The S41 provides high linearity and wide dynamic range (14bit). The input is fiber coupled for maximum convenience and handling efficiency.

Breakthrough in Optics Modeling with VirtualLab™ 3.5

LightTrans introduces VirtualLab™ 3.5, the newest version of innovative optics software. After more than a year of R & D work, the specialists at LightTrans have created an improved version of VirtualLab™, the only optics software on the market that provides comprehensive light information, including phase, amplitude, color, polarization and coherence data. With its new modeling concept, VirtualLab™ 3.5 offers unsurpassed versatility and user-friendly tools. It is ideal for all your optical engineering tasks in:

- Laser optics
- LED and excimer laser modeling
- Diffractive and micro-optics
- High NA systems
- Polarization and Interferometry

VirtualLab™ 3.5 comes with numerous new and improved features such as:

- Automated sampling allows you to focus on optics instead of numerics
- Fast and flexible access to a wealth of light field information in all simulations
- New light view visualizes all light field information at a glance, such as color, intensity, amplitude and phase of all electric field components and polarization
- New source concept featuring a choice of multiple wavelengths, polarization and partial coherence for modeling thermal sources, LEDs, multimode and excimer lasers
- Fast simulation techniques including geometrical optics
- 64-bit upgrade compatible for a maximum in calculating power.

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LASER 2007, BOOTH B2.416

LASER 2007, BOOTH B2.167
25th Anniversary of LASER COMPONENTS

We look optimistic into the future. LASER COMPONENTS is celebrating its 25th anniversary this year and we can look back on a successful corporate history. Gunther Paul founded LASER COMPONENTS in July 1982. In the beginning, the company was dedicated solely to the distribution of high-tech components for the optoelectronic and laser industry. Four years later the curtain went up for the first in-house product. Since then we manufacture hard dielectric coatings for laser optics at our facility. The development of in-house manufactured products was further strengthened and expanded both domestically and abroad. Today roughly half of LASER COMPONENTS’ revenue is generated by components manufactured by the company.

“We have all reason to look optimistic into the future” said Patrick Paul, son of Gunther Paul, who joined the management four years ago. Father and son have jointly lead the mid-sized family run business since then. In addition to the more than 30 people strong sales and marketing team also important departments of the in-house production are located at the company headquarters in Olching near Munich. Here we manufacture laser optics, conversion screens, NIR and IR laser diodes as well as IR spectrometers. We also assemble fiber patch cords. German partners of the LASER COMPONENTS group complement the product line with laser diode modules and optoelectronic measurement technology. Our facilities in Canada and the U.S. manufacture pulsed laser diodes and avalanche photodiodes, respectively. Innovation based on Tradition LASER COMPONENTS sees itself as supplier of both innovative standard and niche products. Through close cooperation with the manufacturers we can ensure a steady supply of the components.

Our core competencies comprise the following five product categories: detectors, laser diodes and emitters, measurement technology, fiber optics, and laser optics. In addition to the range of innovative products and services it is especially our dedicated staff that is making the difference. We have grown our personnel from three people in the beginning to more than 100 employees worldwide today. Our secret of success: We put the customer in the focus. At LASER COMPONENTS we work hand in hand and in accordance with ISO 9001 from the idea to the development to the series production of a component. At the same time, the customer and his individual requirements are the focus of all of our activities. This is what makes LASER COMPONENTS a very special partner.

LASER COMPONENTS would like to thank its customers and suppliers alike for the trust they have placed in us and we look forward to continuing to work with you in the future.

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G.L.D.S.
Global Laser Diodes Specialists
Meet the G.L.D.S. team from OSRAM Opto Semiconductors, your No. 1 partner for all laser diode solutions. Worldwide. Equipped with a full line of state-of-the-art laser bars and our new laser stacks, the G.L.D.S. team delivers the right product and the laser expertise. Brilliant minds, brilliant innovation, brilliant ideas – the outstanding assets of the G.L.D.S. Your experts in laser technology.
LASEROPTIK: Express Service for Coatings and Optics

LASEROPTIK, a German specialist in high power laser optics and coatings, announces the start of a rapid prototyping and Express service with delivery time options starting from 24h for the production of optical components. This ‘LASEROPTIK Express’ service has been launched as a tribute to the growing number of urgent demands in R&D and production. Therefore LASEROPTIK provides one dedicated e-beam PVD coating machine on standby for Express orders only. The following three delivery options are available in the wavelength range from 120 to 2500nm:

‘LASEROPTIK Express 24h’ offers to coat customer-owned substrates with standard sizes and standard coating designs within 24 hours. Besides this, many substrate materials and sizes can be supplied from LASEROPTIK’s large stock of substrates. In a dedicated Express stock, a selection of substrates with common sizes is reserved for Express orders only.

‘LASEROPTIK Express Safe’ is the option with a delivery time of 1-2 weeks but for all types of coatings, even for customized designs and for customer-owned substrates with special sizes. As mentioned before, LASEROPTIK can also offer substrates from stock.

‘LASEROPTIK Express Extra’ intends to meet urgent demands for rapid prototyping of special laser optics including extra fused silica or N-BK7 substrates, which have to be manufactured. This requires tight schedules for preparing, grinding and polishing the substrates. The delivery time for the optics is three weeks and includes the coating, which can be of all types.

If customers’ requirements don’t match these options, the Express team of LASEROPTIK will find a solution. Besides the Express coating machine, 15 other machines with e-beam-, sputtering- or ion assisted PVD technology, are currently available. LASEROPTIK develops and produces coatings and optical components, such as high power laser mirrors, thin-film polarizers, beam splitters, variable and gradient attenuators, OPOs, AR- and HR-layersystems and steep edge filters.

Matrox Solios-GigE = NIC Interface Card + Framegrabber + FPGA + GigE Vision

Matrox Solios GigE is a high-performance interface that fully supports the GigE Vision standard, while offering superior value over generic NICs. The Matrox Solios GigE is a x4 PCI Express (PCIe) short card with 4 Gigabit Ethernet (GbE) ports and a full range of auxiliary on-board I/O. By supporting a trigger input directly on the Matrox Solios instead of relying on the camera, for example, the application will always have the required information to react appropriately at critical points, such as what to do in the event of a missed trigger. Furthermore, onboard I/O eliminates the need to purchase additional boards for integrating the use of rotary encoders and more.

Optional FPGA

For applications that must perform intensive computational operations such as flat field correction, the Matrox Solios GigE offers an optional, configurable FPGA-based processing core that can offload and even accelerate image processing operations from the host CPU. Based on the Altera Stratix family of FPGA devices, the FPGA includes a sizable amount of DDR SDRAM and/or a smaller amount of faster QDR SRAM to maximize the performance of your image processing tasks.

Software

Software support includes the MIL/Active-MIL or MIL-Lite/ActiveMIL-Lite development kits under Microsoft Windows XP. Included with these development kits are ready-made configurations for the FPGA-based processing core that implement a wide variety of image processing functions. Custom configurations and processing functions can also be created using the Matrox FPGA Developer’s Toolkit (FDK) Altera Edition.

About GigE Vision

Developed by the Automated Imaging Association (AIA), GigE Vision is a protocol for video transmission over Gigabit Ethernet (GbE) that is attuned to the needs of scientific and industrial applications. As GbE is based on existing Ethernet standards with extensions, the GigE Vision standard includes components for locating a device (i.e., camera) on a network; an XML-based device descriptor for describing a camera’s feature set; a control protocol for device/application control; and a streaming protocol for data (i.e., pixel) transmission.

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LASER 2007, BOOTH B2.416

Matrox will find a solution. Besides the Express coating machine, 15 other machines with e-beam-, sputtering- or ion assisted PVD technology, are currently available. LASEROPTIK develops and produces coatings and optical components, such as high power laser mirrors, thin-film polarizers, beam splitters, variable and gradient attenuators, OPOs, AR- and HR-layersystems and steep edge filters.
Si-Avalanche Photodiodes

The 230 µm and 500 µm APDs are now available with a fiber pigtail for applications in which the APD has to be positioned away from the actual signal being measured. The components are available with different fibers and connectors based on customer requirements.

Low-Cost, General-Purpose Spectrometer

Ocean Optics has introduced the Red Tide spectrometer, a low-cost, small-footprint lab spectrometer. Red Tide is ideal as a general purpose instrument for teaching and research labs. It offers performance comparable to more costly systems including spectral response from 350-1000 nanometres, an order-sorting filter to eliminate second-order effects and integration times as fast as 3 milliseconds.

Red Tide's modular design can be configured with various Ocean Optics optical bench accessories, light sources and sampling optics to create application-specific systems for thousands of absorbance, reflection and emission applications.

With its small footprint (89.1 mm x 63.3 mm) and USB interface, Red Tide is perfect for basic lab measurements. The USB port streamlines start-up and supports hot swapping of the spectrometer. Red Tide also interfaces to Pasco's Xplorer GLX. Available from Ocean Optics or Pasco, the Xplorer GLX is a combined datalogger and lab analysis tool that eliminates the need for a PC.

Red Tide operates via Ocean Optics' SpectraSuite spectroscopy software, the first spectroscopy operating software to run on Macintosh, Linux and Windows. A special version of SpectraSuite is available with a module for educational use, with features such as a Beer's Law calculator for absorbance experiments.

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LASER 2007, BOOTH B1.476

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LASER 2007, BOOTH B1.442

Si-Avalanche Photodiodes

Due to the high demand, LASER COMPONENTS DG is expanding its range of standard products. New this year is a reach-through APD with a diameter of 1.5 mm. The SAR1500 has been optimized for the NIR range (900-1064 nm) and, at the same time, has a high sensitivity in the visible range. The 1.5 mm APD thus optimally bridges the gap between the existing 230 µm, 500 µm, and 3.5 mm APDs.
Low Loss Splices for MM and SM Fibers

At booth B1.301 at Laser 2007 in Munich AMS Technologies presents the GPX-3400 glass processing station in combination with the LDC-200 Large Diameter Fiber Cleaver from Vytran Corporation. The GPX platform takes use of Vytran’s patented filament fusion technology which provides a stable high-temperature heat source for precise control of glass processing conditions. Its versatile design allows for fabrication of splices, tapers, mode adapters, N.A. converters, end caps, couplers and combiners with optical fibers ranging from 125 µm up to 1.5 mm in diameter. Used as a splicer it can produce low loss splices for multimode and single mode fibers. The unique fiber end face alignment concept makes it the first choice when it comes to splice Polarisation Maintaining and Photonic Crystal Fibers.

The several variants of GPX-3000 are designed for the specific needs when producing fiber optics components and splices which are used in high power applications.

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LASER 2007, BOOTH B1.301

World Premiere on the LASER 2007. World of Photonics

The brand new ALL STAR laser safety goggle is the new top model from LASERVISION and is characterised by unique versatility and highest laser protection. Designed as the successor of the furthermore available and approved ECO frame, it has been significantly improved. As an example the All STAR laser safety goggle features a highly efficient outside reinforcement, as primarily shown on the SPLIT SHIELD frame. This reinforcement guarantees highest protection levels as well as an additional protection against scratches, when put on the table face forward. For the first time ever the reinforcement is available in two different colours – blue and silver.

By adding special adapters the ALL STAR can be optimised for industrial applications with a Shade Flip for welding applications (available with two shade factors) or for medical applications with a binocular loupe. For the first time these attachments are definitely fixed and assure a stable and well aligned fit of the mounted accessories. The special design with the outer reinforcement enables the mounting of flat filters or filter combinations with a maximum thickness of 12 mm. In order to ensure a high wearing comfort, despite the higher weight of such thick filters, LASERVISION offers different wearing options. So the All STAR can be worn alternative to the standard Duoflex-temples in combination with an elastic strap, an adjustable head band or cold malleable temples. An additional feature is the ability for the user to clip a prescription glasses into the frame.

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LASER 2007, BOOTH B1.605

Costumer-Specific Development and Manufacturing

With its team of experienced engineers and designers, PROJECTINA specializes in providing customer-specific solutions. Our core competencies are in the fields of optics, precision mechanics and electronics. This interdisciplinary arrangement is the base for sophisticated complete systems and solutions.

We bring your specifications into tailor-made products and solutions. You can meanwhile concentrate on your core competencies, with the advantage of predictable development costs.

Our services cover the whole range of activities involved in developing and manufacturing optical, precision mechanical and electronic components and systems.

Examples of realized projects:
- Sensors for the textile industry
- Wire bonder optics
- Spectrometers
- Laser machine tool heads

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Cobalt Tango™ Pulsed Eye-Safe Laser in OEM Version

Cobalt AB, manufacturer of DPSS lasers, announces a new hermetically sealed version of its Cobalt TangoTM laser. This pulsed laser, emitting a peak power >1 kW at 1535 nm with a repetition rate of 3 kHz (pulse length 4 ns), is used in laser range finding, remote sensing and 3D-scanning. The laser operates in single longitudinal mode and emits a stable high quality TEM00 beam. It is designed and manufactured to ensure a high level of reliability also in rough environments. It can withstand temperatures from -20 to +70 degrees C and a shocks of 80 g at 10 ms impact.

MobileDrop with DSA2

The contact angle measuring instrument MobileDrop from KRÜSS determines the wetting properties of solid samples in the field, automatically and nondestructively. With a footprint of only about 13 cm² this handy instrument also masters curved and tilted surfaces as well as those that are difficult to access. The instrument is designed for use with a notebook and allows on-site quality control.

New software features

Autostart mode
The software meets the requirements for rapid and flexible contact angle measurements – with a solution applied for a design copyright. Image analysis registers the entry of the depositing needle in image on the screen; the measurement is triggered automatically as soon as the needle leaves the image. The notebook collects the measured values drop for drop without any keyboard commands. Automatic calculation of the surface free energy
MobileDrop knows a shortcut on the way from the contact angle to evaluating the quality. The surface free energy is shown automatically at the end of the measurement series and evaluated directly. By using a previously defined range of tolerance the program either gives a “green light” or shows the result in a red warning window – this is a signal for the user to intervene in the process.
**Products**

### Femtosecond Supercontinuum Lasers

With the new option for visible supercontinuum generation, TOPTICA now covers the entire wavelength range from 500 nm to 2100 nm with its FemtoFiber® series of ultrafast mode-locked lasers. Femtosecond Erbium fiber lasers are now capable of providing powerful beams at 1550 and 775 nm, infrared supercontinuums (1000 – 2100 nm), tunable < 30 fs pulses in the 1050 – 1400 nm range, and tunable picosecond pulses in the 520 – 700 nm range. Currently pushing the tuning range down to 480 nm, TOPTICA continues to offer the widest wavelength coverage available from a single mode-locked fiber laser source. The supercontinuums are used for example as frequency combs or for the characterization of ultrafast photonic devices. The tunable picosecond beams are applied in nanophotonics and biophotonics. Due to the high peak power and bandwidth, TOPTICA’s ultrafast lasers serve in applications ranging from terahertz spectroscopy and optical sampling to nonlinear microscopy and seeding of optical parametric chirped pulse amplifiers (OPCPA).

### New Infrared Camera with InGaAs Sensor

By means of the NIR-300 camera VDS Vosskühler expands the spectrum of its infrared cameras to the NIR-area of 0.9 – 1.7 µm. The NIR-300 camera is based on an „InGaAs“ sensor with 320 x 256 pixels, being read out with 14 bit at 50 images/sec. As output is available CameraLink or Gigabit Ethernet. Owing to the „snap-shot“ mode of the camera all pixels are recorded simultaneously and are read out within progressive scan. The NIR-300 is available both as cooled and temperature stabilized and as non-cooled camera.

### The MNL 100 Marathon Nitrogen Laser

- 337.1 nm, 1 – 30 Hz or 1 – 60 Hz
- > 100 µJ pulse energy
- semiconductor switch

The name “Marathon“ nitrogen laser MNL 100 reflects the objective of LTb Lasertechnik Berlin to provide the industry a reliable laser with a very long lifetime.

For the first time, a directly acting solid-state switch module developed by LTb is used for high voltage switching. It works wear-free and enables an excellent synchronisation. Its time jitter is smaller than ± 2.5 ns.

The novel sealed cartridge has a lifetime of >60 million pulses (2 years warranty). The energy drops less than 20 %. In a long-term test of over 218 million pulses, the energy was still > 40 %.

A special beam guidance gives a homogenous and symmetrical beam profile.

LTb provides two models, a standard model with a beam divergence of 3 x 3 mrad and a low-divergent model with 0.5 x 0.5 mrad. Both models are available as 30 Hz and as 60 Hz version.

The pulse energy is > 100 µJ. The pulse width (FWHM) of the laser is typ. 3 ns. The functions are controlled and monitored by an integrated control unit. The laser can be equipped with an energy monitor, a fibre coupling, a continuously adjustable attenuator and an optical trigger with a time jitter of < 200 ps. The MNL 100 is small and compact (314 x 95 x 95 mm³). The modular design ensures an easy upgrading and replacement of components. Main applications of the MNL 100 are LIF spectroscopy, MALDI-TOF mass spectrometry, laser micro dissection and LIBS. Developments towards shorter pulses < 100 ps and shorter wavelengths are pursued on the basis of this model.

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Power Pack - Schulz-Electronic Presents New Laser Diode Driver

“This is something many laser systems producers have been waiting for. The new generation of passive laser diodes demand for drivers for high currents. Now a driver is available with up to 200 amperes at a maximum output voltage of 20 volts – the new oEM LdP-C 200-20 from PicoLas!” says Stefan Dehn, Sales Manager of Schulz-Electronic in Baden-Baden, the power supply specialists who represent PicoLas of Aachen in Germany and Switzerland.

The LdP-C 200-20 is a compact oEM pulser that can supply power to almost any type of laser diode. The DC-DC driver generates single pulses but can also be operated continuously. With minimal pulse durations < 500 ns, variable pulse rise times, repetition rates in the 100 kilo-Hertz range and the synchronized tracking option for parallel use of two drivers for currents up to 400 A, this postcard-sized midget will probably dominate the laser driver market.

Schulz-Electronic supplies the necessary tailor-made DC source. The average performance is determined by the duty cycle and the power supply can be customized to output requirements, Control can be analogue or RS232, using the ‘easy-to-operate’ remote control module PLB-20.

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Coherent Shows its Systems Operation at the LASER 2007

Apart from laser beam sources, Coherent has been supplying dedicated UV system solutions for a number of years. Each of these customer-specific optical systems has been tailored according to the exact demands of the downstream user’s individual manufacturing process and production environment. Solutions range from small systems developed for research laboratories through to complex two or three meter long industrial systems. An example will be shown at the LASER 2007 in Munich.

At Coherent’s applications laboratories in Germany, Japan and the USA, existing and potential customers will always find a hearing ear. According to Dr. Klaus Pippert, responsible for the development of the optical systems brand, such laboratories are vital for specifically pinpointing the challenges that customers are facing. “These facilities gather together the know-how gained throughout many years.”

The systems operation has not been set up to compete with existing providers of complete system solutions. In fact, the opposite is true, as Dr. Pippert comments: “In a number of cases, our laboratory finds out that there is a solution. We then contact a system provider that, in turn, integrates our solution into their complete system.” Clearly, areas such as materials handling or total process control do not strategically belong to Coherent.

Numerous demands are placed on Coherent optical systems. For example, when drilling ink jet printer nozzles, holes with a diameter of 30 µm have to be produced in polyamide film. The requirements respecting quality and roundness of the holes are especially high.

Another example of a dedicated application for beam delivery systems is the treatment of silicon substrates for flat screens. Normally silicon is amorphous, i.e. has no long-range atomic order. Dr. Pippert describes the treatment as follows: “We crystallize the substrate through laser bombardment to form a polycrystalline silicon structure. This has the advantage that the electron mobility and, consequently, the switching speed of the display increases. At the same time, there is also a higher packing density possible.”

“The experience gained through the applications laboratory drives the continuous development of optical components as well as the lasers themselves. For instance, substantial increases in the demands for illumination homogeneity have powered the development of extremely stable emission excimer lasers. This necessitates advances in the optical systems to keep pace with the resultant increases in the average laser power output.”

At the LASER 2007 Coherent will be demonstrating an abstracted beam delivery system with a demagnification factor of five that provides a resolution of 1-2 µm and an energy density which will produce sharp images across the illuminated area. Coherent sees excellent business development potential in its systems operation. It is, of course, more than just a door opener for the laser business. According to Dr. Pippert: there is “a considerable number of applications that require a higher and higher resolution that is ideal for the short wavelengths that we work with. A direct correlation between resolution and wavelength.”

For Dr. Pippert, the way forward is clear, “the shorter the wavelength, the higher the resolution and, with that, the smaller the structures that can be produced on the surface. With more and more integration, such as is the case with computers and mobile phones, this is an extremely important issue.”

Completely new applications are also arising. For instance, just recently, the first flat screen based on OLED technology was presented in Japan. In contrast to existing color displays that emit white light and then rely on filters to produce the color, OLEDs use organic substances to directly emit the required colors. Once again, excimer lasers are needed during the material processing sequence.

Other interesting new applications are the structuring of ITOs (indium tin oxide layers), the implantation or the activation of ions in semiconductor materials and the punching of RFID tags. This makes it clear for all, that beam delivery systems will continue to play a decisive part in the industrial application of lasers for micromachining.

Customer-Specific UV Optical System (Application Laboratory in Goettigen).