Dear Partner,

Winter is starting, Christmas coming, the New Year is at the door! The time before Christmas is extremely valuable, so please let us straight away welcome you to our latest newsletter, where we cover:

- A letter from our CEO
- Brief report from the OPTATEC trade fair in Frankfurt
- Second round of the Academy of Innovation Managers in Solaris Optics
- Short interview with our Key Employee: Adrian Bronisz, Quality Control Manager
- A publication premiere: "Spherical Plano Lenses, Mirrors, Windows – Faster with Improved Quality with Diamond-pallet Grinding"

To start, please let us wish you:

CEO LETTER

Dearest Partners,

It is perhaps a commonly shared feeling that 2022, marked by the Russian invasion of our Ukrainian neighbors, was different than other years, including the "corona" year of 2021. For Solaris Optics 2022 has been a year of challenges, but also hope and further company development.

I have been deeply concerned since February 24, when suddenly the unimaginable, the war, became our daily reality. Yet, since that time, I have seen a lot of good from our employees, partners and communities, which keeps my hopes high that the Good finally prevails over the Evil.
The war induced additional challenges for companies, that have to deal with rising prices, shortages of materials and prolonged delivery times. Solaris Optics has also been a victim of those disturbances. However, we attempted to turn those circumstances into opportunities. I am satisfied that we managed to sustain cooperations with our strategic clients and we also welcomed several new ones, with whom we seek to continue the partnerships.
As a company CEO and as a Board Member of the Polish Technology Platform of Photonics I have been initiating activities to set up relations with our partners in Ukraine. In 2023, together with PPTF, I plan to continue towards this direction, which I find natural, when running a business in Poland nowadays.
As said, we continue to support the Good against the Evil.

I would like to thank our employees for their commitment, our clients for their trust and understanding, and our partners for their support and cooperation in 2022.

Please let me wish you a Merry Christmas and a Peaceful, Healthy and Prosperous Year of 2023!

Sincerely,
Michal L. Muniak

DEVELOPMENTS IN SOLARIS OPTICS

Solaris Optics participated in the OPTATEC Trade Fair in Frankfurt, Germany

Cosy, in a friendly atmosphere, with many visitors asking specific inquiries - this is how we could summarize the latest Optatec trade fair.

From October 18 to 20, 2022, Solaris Optics exhibited on the Optatec International trade fair for optical technologies, components and systems in Frankfurt. On a joint stand with Dorotek GmbH, the companies were represented by Mr Grzegorz Fluder, Production Development Manager from Solaris and by Mr Hanno Schmidt, Managing Director of DoroTEK, the partner of Solaris in German-speaking markets.

"*We participated all the Optatec shows from the start in 1992 and after this large break of 4 years it was for us a feeling like coming home into the optic family*", commented Mr Hanno Schmidt about the fair.

We had a tens of interesting discussions with current partners, clients and suppliers, as well as with potential ones! We appreciated all the meetings and talks, thank you and please keep in touch with us!

Solaris Optics Presents its Capabilities at a Defense-focused Conference in Poland

Under the main theme "*Optoelectronics as a key security technology in the new reality*", the 7th edition of the VII Optoelectronics Conference took place in Jachranka, Poland.
The conference attracts Polish experts from science, industry, and defense domains.

Grzegorz Fluder presenting at the Optoelectronics Conference, November 17, 2022

Solaris Optics was represented by Mr Grzegorz Fluder, Production Development Manager, who gave a presentation on the relevance of precision optics in defense projects.

The event was co-organized by the Polish Technological Platform on Photonics., Military University of Technology in Warsaw, Warsaw University of Technology and PCO S.A. Solaris Optics remains a strong partner for the European defense industry.

Other updates

In November 2022 Solaris Optics successfully passed an audit from one of our key clients from test and measurement sector.

EMPLOYEES & KEY EMPLOYEE

Academy of Innovation Managers – Industry 4.0, Part 2.

After a successful completion of the Academy of Innovation Managers (AMI) by three of our key employees in 2021, Solaris Optics has successfully applied for another round to further develop competences of our staff.
This time the Solaris Optics participants of the 9-month lasting AMI program include:
- Adrian Bronisz, Quality Manager
- Agnieszka Gałonzowska, Production Planning Manager
- Iga Kamińska, Production Engineer

Iga Kaminska and Agnieszka Gałonzowska participating in Academy of Innovation Managers opening workshop.

The AMI Program is a competence development program for enterprises, co-founded by the Polish Agency for Enterprise Development.
The program goals include the development of innovation process management skills by managerial personnel in Polish companies as well as generation of innovation by employees.

KEY EMPLOYEE STAGE: Mr Adrian Bronisz, Quality Control Manager at Solaris Optics

In the Key Employee Stage, we introduce our colleagues by presenting their professional bio and asking 3 questions.

Professional Bio

Mr Adrian Bronisz is a graduate of the Warsaw University of Technology at the Faculty of Electrical Engineering. He started his professional career in 2006 in Solaris Optics. He joined the quality control department as the youngest person in the team and took care of measurements. After only 2 years, in 2008, he was promoted to be the leader of the department. Since 2019 works as the Quality Control Manager in Solaris Optics.

Mr Adrian Bronisz, Quality Manager, Solaris Optics

Adrian, you manage the quality department at Solaris Optics - what are your and your team's daily duties?

One of the departments of each production plant is the quality control department. How important is this department? It is very important to me, because both me and Solaris Optics care to offer customers the products of the highest standard. So, I make sure that everything that goes to customers is of the best quality. It is certainly not an easy job, problems often arise and then we look for optimal solutions. In addition to managing the quality control, I also supervise the washing, gluing and packaging of optical elements. Each individual stage of the product journey must be specifically supervised, which is why we perform a number of checks already at the inter-operational stages, to exclude non-compliances as soon as possible.

For me, the cooperation between quality control and production is also important. Only mutual cooperation in searching for and analyzing errors allows us to create a product of satisfactory quality.

Could you please tell us about the most demanding client or project you've come across?

Our company wants to develop and every project, even the one that seems difficult to do at first glance, is analyzed in terms of the possibility of producing it and controlling its quality. Customer requirements have increased significantly over the years. The customer is looking for a product of the highest quality, so in order to meet the customer's requirements, we must have modern machinery, both in production and control. As I supervise the quality control department, I can boast that our measuring equipment is top-shelf! ZYGO interferometers, Zygo profilometer, Dea Global Performance coordinate measuring machine, MÖLLER-WEDEL goniometer and many others. We work with many clients around the world and it is a cooperation that has been going on for many, many years. It tells us that customers are is satisfied with our products and their quality.

I treat every client and every order the same. Requirements must be met and that's it. I particularly remember the design of the mirrors that were to be delivered to the astronomical observatory located in the Atacama Desert in Chile. The mirrors were commissioned by the European Southern Observatory - ESO, the European Southern Observatory. This project allowed us to rise to the heights and produce something that will help humanity discover the secrets of the cosmos. It was a very demanding product…. but we made it and we were very proud of ourselves!

Adrian, if we put work aside, who are you?

I feel like it's hard for me to put work aside. I've been working at Solaris since 2006, i.e. for 16 years, and sometimes I joke that it is my second home. Actually I never thought that I would work in optics; I graduated from the Warsaw University of Technology at the Faculty of Electrical Engineering, but as you can see, I was not allowed to work in my profession :)

Privately, I am a husband and father of four happy (I hope) children. I have four wonderful daughters and raising them to be good people is my goal and my job, which I pursue right after finishing work at Solaris. The effort put into raising is compensated by the joy and smile of children.

Unfortunately, I don't have time for passion, although I loved playing football in the past, so now I'm happy if I can watch a match on TV.

But as they say "happy children are tired parents" and I stick to it!

NEW PUBLICATIONS

Publication premiere: Spherical Plano Lenses, Mirrors, Windows – Faster with Improved Quality with Diamond-pallet Grinding

A shorter lead time is perhaps the third most important criterion (two others are capabilities and price) when it comes to ordering custom optics products, such as mirrors, windows, blanks, lenses (also spherical plano lenses) and prisms. In some market situations, such as we observe in 2021 and 2022, the lead time prevails over price.

Solaris Optics, a manufacturer of precision optics elements, finds shortening lead time as one of priority development areas, next to quality and technical capabilities. In the following article we refer to findings from our recent investment in new grinding capabilities.

New Grinding Technique for Improved Quality

With technical capabilities, quality and lead time development as the main goals, Solaris embarked on an investment project aimed at development of R&D infrastructure, back in 2019. The project assumed purchases of various equipment, including one-sided automated grinders along with a set of diamond pallets. The project resulted in several R&D projects and developments in Solaris Optics, as described in detail in our earlier publications, such as Subsurface Damages Reduction for Precise Optics Manufacturing or Raster Mode to Expand Capabilities of Magneto-rheological Finishing.

In regards to automated grinding with diamond palettes, Solaris Optics engineers assumed that adding the method to company manufacturing portfolio will allow to speed up optical grinding and polishing phases. The shorter process time shall be possible by higher efficiency of grinding, but also by keeping the subsurface damages minimized, which shall allow to reduce the polishing time needed to reach the required surface quality of optical elements.

Figure 1 – Diamond-pallet grinding machine in use

The machine was turned into use in 2021 and quickly proved the reduction of sub-surface damages. Then it was further tested to understand how the new process can affect the overall manufacturing speed. As explained in the aforementioned article it was expected that "the main benefits for clients include shorter lead times and lower costs with improved final product quality (i.e. less scatter, better durability)." After about 1.5 years after implementation we can announce some conclusions from the investment.

Spherical Plano Lenses – Surface Process Time Down by 40%

Our technology team tested and compared production times of 11 different optical products using a traditional process and a new one, which included the new grinding method. The tested products were of various sizes, materials and types, such as spherical plano lenses, mirror substrates, optical windows and filters. Materials included e.g. borosilicate crown glass, crown type Soda lime glass, Quarz and filter glass.
With the new technique the team managed to significantly speed up the grinding times, whereas the overall gain on grinding + polishing time was reduced by over 42% on average (37% to almost 50%), with many dependencies between product characteristics and processing time uncovered. The exercise proved not only the efficiency of grinding with diamond-based pallets, but also that, there is shorter polishing time needed due to reduction of sub-surface damages at the earlier stage.

Higher Speed, Quality and Increased Competitiveness
The investment in automated grinding with diamond palettes proved successful in the assumed goals, i.e. shortening lead times and improving product quality. Apart from the tested product types, i.e. windows, mirror substrates, filters and sphetical plano lenses, the technology process and it's gains are applicable also to other precision plano optical elements as well as to prisms.
The new production machinery enables further improvement of Solaris Optics competitiveness and the existing clients already benefit from the advantages. In the future Solaris plans to complement the technique with spherical grinding possibilities.

Should you be interested to cooperate with Solaris Optics, please do not hesitate to contact us.

The diamond grinding investment is a part of a project titled Development of R&D infrastructure of Solaris Optics S.A. as a way to implement innovation, realized by Solaris Optics with financial support from the European Regional Development Fund under the Regional Operational Program of the Mazowieckie Voivodeship for 2014-2020, Sub-measure 1.2. Research and development activities of enterprises.

Please also remember to follow our social media sites at Linkedin and Facebook!

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