hittech group

Masters in Improvement

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News Letter 2017/1

Strategic update at the Veluwe

The holding and all company directors have met for two days to discuss the short and long term plan as well as to update the Hittech Group's strategy.

The discussions have resulted in a broad confirmation of the 2020 strategy. Only minor issues and actions have been adjusted.

We will continue to develop ourselves as a System Supplier with many high-level competences aiming to expand the market geographically. It was decided to focus on growth in Asia and to introduce a machine shop in the US.

It was also decided that the Development and Engineering department will grow significantly, autonomously, but we are also equally interested in a possible acquisition.

Laser welding, a new competence

Hittech continuously strives to provide improvements for its customers. Improvements can relate to price levels, lead time, quality, product life time, etc.

An important and recently implemented improvement is the addition of the laser welding competence to shorten the lead time.

Until recently, all laser welding activities were outsourced. Because of this, the lead time of a process - that actually takes less than a day to complete – can result in a delay of 5 days.

Adding this new competence at a high level took place by means of Hittech's project-based approach. The project plan includes all issues that could be of importance, such as a separate shielded room, staff training, testing the weld for strength and determining the correct depth and width - with a renowned German institute - as well as determining the best possible settings.

The materials to be welded are mostly titanium grade 5 parts, and the weld has to take place without any addition of material.

To avoid creating a significant recession at the location of the weld, a very narrow slit between the material to be welded (max. a few hundredth of a millimeter) must be maintained.
An example of a product that is currently being welded by means of the laser is shown on the photograph.

In a so-called cooling plate, a groove is milled - which is later covered with a thin titanium plate - creating a channel.

COLUMN

Every now and then, it is necessary to consider the future. The great danger for a company is that too much energy goes into day-to-day operations and resolving all sorts of issues.

As the Hittech Group management team (11 persons), we have therefore retreated to the Dutch country side of the Veluwe (what a beautiful environment!) for two days to update our strategy, which dates back to the end of 2014.
It became apparent that quite a lot has happened in the last two years and that it is indeed a good thing to agree unanimously on where we are headed and how we want to get there.

We will certainly refer to the matter again in subsequent newsletters.

Dr. Ir. C.P. Heijwegen
President Hittech Group BV

Melt spinning for optical moulds

Hittech RSP Technology has developed a material production technology that is unique in the world. With the aid of the so-called melt spinning technology, liquid metal is cooled at a speed of 1 million degrees per second. As a result of this rapid solidification, the structure of the RSP material is many times finer than that of conventional aluminium (see image).

An important application of the very low surface roughness is the use of the material in mirrors and moulds for the aerospace and optical industry.

RSA-905 for Optical Moulds
Optical moulds, for instance (plastic) contact lenses or reflectors, are typically made of copper (Cu) alloys. These alloys are able to achieve a fine surface after diamond turning. To increase the service life time of these moulds, a nickel coating is often applied which adds costs and logistic effort.

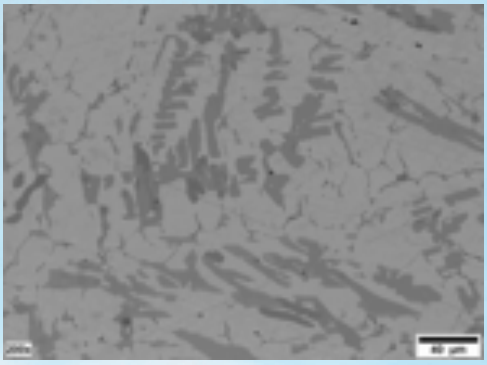
Application of conventional aluminium is not possible, on the one hand due to the poor surface finish after diamond turning, on the other hand because of a too low temperature strength.

RSA-905 is an aluminium alloy with a high Ni content, which is the solution to this problem. With a surface roughness of less than 2 nm (RMS), an additional coating is not necessary and the mould has sufficient strength - even at a high temperature load. The service life time of the mould is increased by a factor of two. Production of the mould is faster and the Total Costs of Ownership can be reduced by a factor of four.

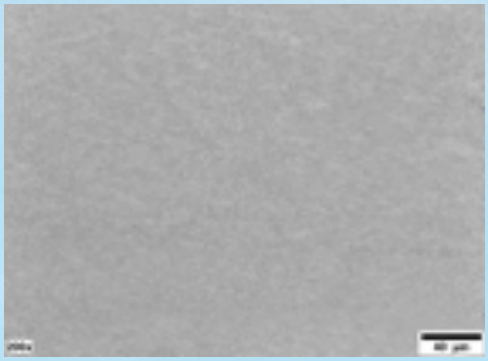
RSP therefore meanwhile supplies RSA-905 to a substantial part of the contact lens industry worldwide. By mid-2017, one out of three contact lenses will be produced with RSA-905 aluminium moulds.

The advantages at a glance:
- Cheaper than any other alternative
- No coating required
- Flexibility in small and large series
- Long lifespan

Magnified 200 times



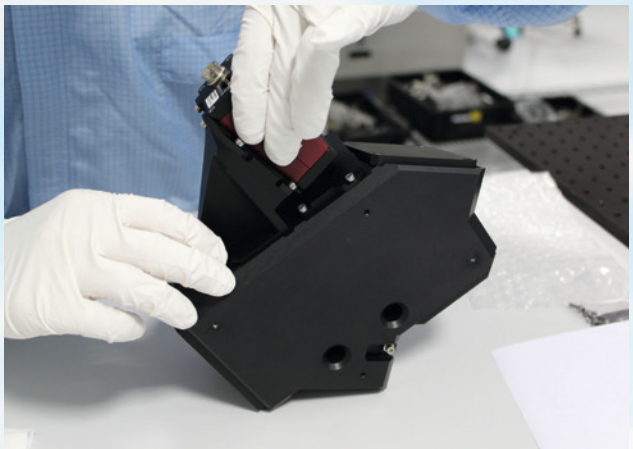
Conventional

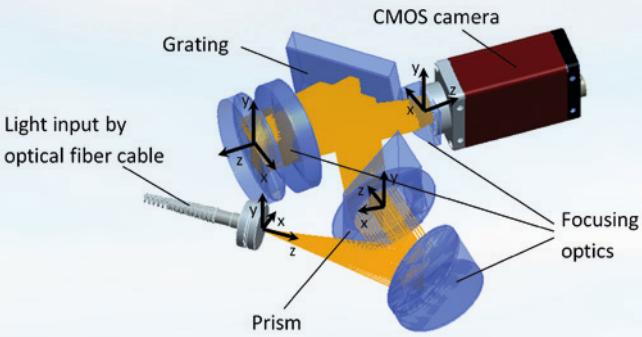


RSA-905

Hittech helps SPECTRAL Industries

From Mars study to a promising start-up





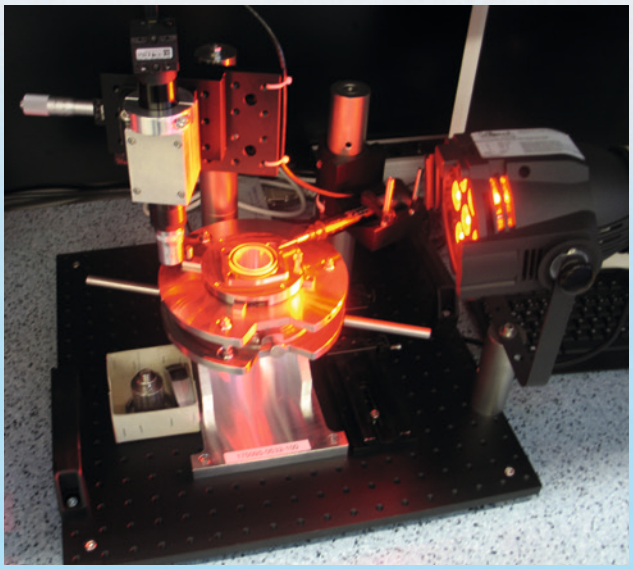
At times, space development forms the basis of a successful earthly product. A well-known example is the non-stick coating in your casserole. Extreme demands and ample time for groundbreaking developments may lead to unthought-of solutions, which - in turn - go well with specific earthly problems.

SPECTRAL Industries saw that potential in a spectrometer designed for the aerospace industry. The compact and robust design seemed very suitable for industrial inline inspection, particularly under severe conditions. Inspiration came from an ESA project in which a tool was developed for the ExoMars rover that could analyse raw materials on Mars. The very limited space on the rover required a compact design. The requirement to survive a launch demanded a robust mechanical design. The observation requirements led to the possibility of combining two optical measuring methods into one single instrument (Raman & LIBS), which can determine the surface composition of a sample in a split second and is completely non-contact.

SPECTRAL chose Hittech to be the supplier as well as developer of the final product. In order to arrive at an industrially applicable product, a new design has been developed in which Hittech was responsible for the mechanical design as well as assembly. In close consultation with our optic designers and those of the customer, tolerances have been optimised so that the spectrometer can be assembled with virtually no alignment. An appropriate supply chain for all optical and mechanical components has also been set up.

The design and product development phase have been successfully completed and have produced a particularly good result. The spectrometer is compact (220 x 195 x 80 mm^3) and has an enormous spectral bandwidth (180 - 815 nm). Applications are numerous and there is plenty of interest from the industry. Among other things, SPECTRAL is working on deployment of this system in the mining and recycling sector. A fine example of applied optics with potential!

FARO: a nice new client



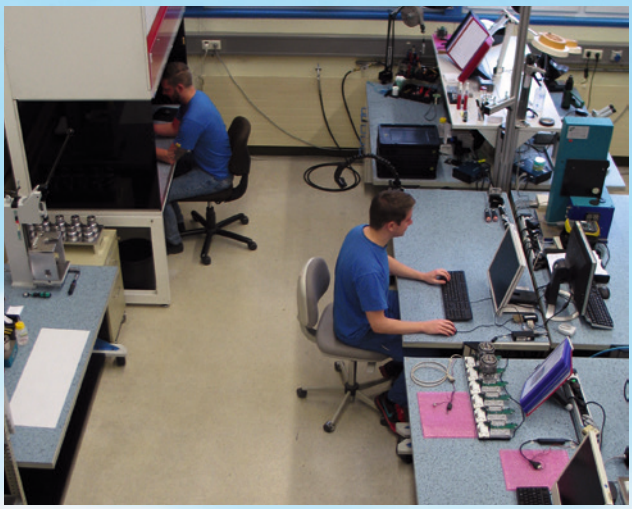
Hittech Prontor has further expanded the cooperation with FARO Technologies Inc. in the field of development and series production. For example, a framework agreement has been signed for the series production of a module. This module is responsible for the 360° rotation of a 3D-laser scanner. Here, the module indicates the exact position of the scanner, so that, after a full 3D scan, the scanned portion can be built in. The Palace of Versailles has also been scanned using this technology, so that people can take a virtual tour.

FARO develops and markets computer-aided measurement systems and software, internationally. The portable measuring equipment of FARO, together with its industry-specific software solutions, makes it possible to carry out 3D measurements and comparisons of both components and complete systems with high precision, inline during the production. FARO measuring technology is used everywhere where precise measurements are needed. The technique is used, among others, for inspecting components and modules, production planning, inventory management, investigating and reconstructing accident and crime scenes, and to make scans of historic sites.

Approximately 15,000 customers, along with more than 30,000 systems worldwide, have placed their trust in FARO measurement systems. The systems can be found in the production and quality processes of leading companies such as ABB, Airbus, Audi, Boeing, BMW, Johnson Controls, Daimler and Siemens.

The headquarters are located in Lake Mary (Florida), US. The European headquarters are located in Korntal-Münchingen, near Stuttgart. FARO also has offices in several other countries.

In Germany, Hittech Prontor works along with FARO Scanner Production GmbH. They offer innovative products for fast and precise 3D measurements of inner and outer surfaces of parts. This includes the FARO Laser Scanner Focus^{3D} X-Series (pictured).

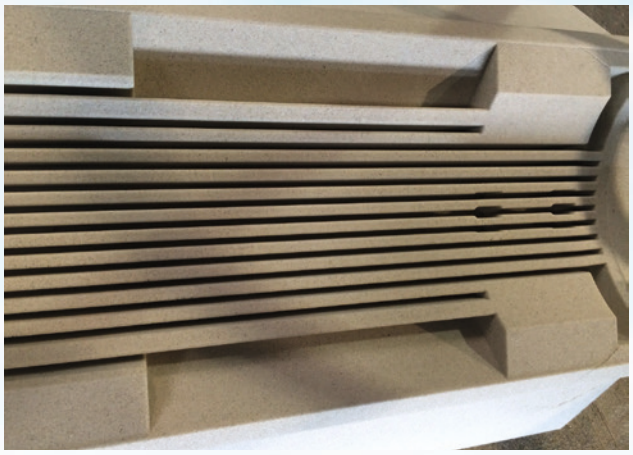


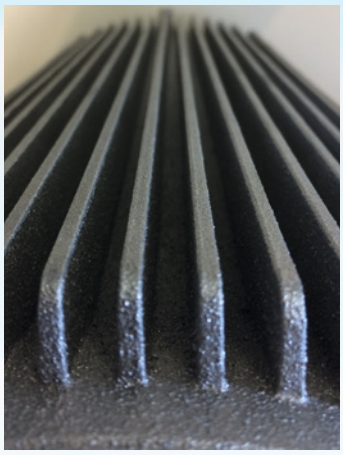
Prototyping at Hittech Foundry Nunspeet through a ‘core’ package

Hittech Foundry Nunspeet has been producing aluminium sand castings for over 65 years. In addition to batch product deliveries, also swift delivery of complex prototypes is one of the the strengths of the company.

A customer recently wanted to receive a number of prototypes at short notice. Due to the high numbers and the 2 mm cooling fins, the product was designed as a high-pressure injection moulding. In order to produce it as sand castings, concessions with regards to manufacturability were necessary, which would negatively affect the lengthy endurance test. In order to still meet customer demands, the Hittech Gieterij Nunspeet engineers opted to cast the part as a core package. This allowed the finer details of the design to take shape, and no further design changes were required.

The result: a fully functional prototype that could successfully be deployed within 3 weeks.





Besi Apac

For the third year in a row Hittech Assembly Malaysia received the Preferred Supplier Award 2016. During the Besi Apac Supplier Day, Mr. Michael Leu of Besi Apac, handed over the certificate to Mr. KK Lai of Hittech Assembly Malaysia. This shows the partnership we have with our customers. We are very proud and would like to thank the team of Hittech Assembly Malaysia with this great performance.

EU sponsored project at Hittech Prontor

Since early 2014, Hittech Prontor is involved in a research and development project funded by the European Union. It is a cooperation between the companies and institutes Edinburgh Biosciences Ltd, Heriot Watt University, Glostrup Hospital, University of Copenhagen, St. Erik's Hospital, Stockholm, Delta Optical Thin Film A/S and Hittech Prontor GmbH.
This project aims to develop prototype tools for a new type of cataract diagnosis as well as non-surgical treatment. This is done by using tryptophan fluorescence (TF), a natural part of the eye lens. This ensures a more reliable and cost-effective diagnosis than the conventional slit lamp and microscope method. This new diagnostic method delivers a quantifiable and measurable result, with which the cataract can be diagnosed at a very early stage.

Tryptophan is an excellent indicator of the eye lens' micro-structure. By using long-wave UV light, a characteristic fluorescence of tryptophan is measured. Due to this high sensitivity of the photomultipliers combined with phase-sensitive measurement electronics, it is possible to carry out interference-free measurements with ambient light. In addition, the diagnosis can be made within the UVA radiation safety limits.
In recent years, research has shown that clouding of the lens is a reversible photochemical process that may be undone by targeted irradiation with a 420 nm LED.

During the second part of the project, the diagnostic module was combined with an appropriate treatment module. Because of this combination, the treatment progress of the eyes can be controlled and monitored.
Over the past three years, Hittech Prontor has developed and produced several parts, components and prototype parts. The results were presented at Medica/Compamed in November 2016.

For the follow-up of this development, an investor is being sought who has access to the market and is able to industrialise the research findings.
Further information on http://www.catacure.eu/.

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Hittech Group NL is a publication of Hittech Group BV, published by Profound Groep BV.

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Hittech Group Update

Michael Bährend
Quality Manager at Hittech Prontor

My name is Michael Bährend, I am 54 years old, married and I have a 21-year-old daughter. On 1 October 2016, I started as the Head of Quality Management at Hittech Prontor GmbH. After my education as a machining specialist, I worked in the production of lathed parts. I took the exam to be a Master Craftsman in mechanical engineering in 1994. From 1995, I was responsible for lathed parts as a production manager and I have been working in the areas of quality assurance and quality management since 2003. The emphasis here was on improving processes, sustainability and maintenance, quality reporting and supplier development. During this period, I acquired my qualification as a DGQ Quality Auditor as well as that of Internal Auditor and Internal Auditor ISO TS 16949. In my last position as a division quality manager, I was responsible for production sites in Germany, Sweden and France. In addition to my family, my hobbies are model making, walking, listening to music and my volunteer work at the Württemberg football club as a Tournament Director for youth football.

Marco Doose
Manager Business Unit Mechanische Fertigung Hittech Prontor

I am Marco Doose. I am 55 years old and I live south of Baden Württemberg, in Bräunlingen. On 1 January 2017, I started at Hittech Prontor as the Manager for Business Unit Machining. The basis of my career was my education as a machining specialist. After my 15-months military service, I returned to my education company and expanded my knowledge in the areas of short and long milling. Then, in 1988 and 1989, I was trained to become a Master Craftsman. I subsequently became production manager and technical director, and I was responsible for budget and staff. I was able to gain more expertise in the areas of CNC milling and lathing. In addition to that, I regularly attended HR and quality management training. I look forward to further contribute as Business Unit Manager of Mechanical Manufacturing. In my spare time, I enjoy walking, jogging and cycling. Youth work of the cycling club in my place of birth keeps me busy as a volunteer, which gives me great satisfaction.

Tanja Klippel
HR manager at Hittech Prontor

My name is Tanja Klippel, I am 34 years old and I live south of Karlsruhe, in Malsch. On 1 December 2016, I started as a HR manager at Hittech Prontor GmbH. During my education in health care I was given the opportunity to get to know the human resources department. I immediately knew that I'd found the right place. In 2007 - after my education - I therefore started working at an HR department. In addition, I trained to be an HR specialist at the Karlsruhe Chamber of Commerce. After having worked as a consultant for four years, I opted to take a business course with particular emphasis on human resource management, which I successfully concluded in 2014. I have come to know different companies and industries in the meantime. I look forward to my new challenge as an HR manager at Hittech Prontor GmbH. In my spare time, I enjoy fitness and I love riding horses. I thoroughly enjoy visiting beautiful places, getting to know other cultures and meeting different people, but reading and cooking are also among my leisure activities.

Danielle Quarles van Ufford
Controller at Hittech Multin and Hittech MPP

My name is Danielle Quarles van Ufford, 43 years old, I am married and I have two sons aged 15 and 12. At home, we also have a 17 year old boy from Belgium. He has come to the Netherlands for one year to master the language. In short, a real men's family. I love sports and chocolate, which fortunately coincide well. In the past I worked at Siemens for 11 years, which I always enjoyed. Not only have I discovered my preference for a production environment there - thanks to regular job rotation, I have also gained experience in large IT projects and change management. After a number of interesting assignments as an interim consultant with KPN, Stork Fokker and Siemens, our family moved to Switzerland in 2010 because of my husband's job. The start of secondary school for our eldest son has brought us to cosy The Hague. In the spring of 2016, I started as a controller for both Hittech Multin and Hittech MPP. Two totally different companies within the group, which is fun because of the variation. With great enthusiasm, I try to generate proper analyses and reports that will hopefully lead Hittech to even greater success!