

Inseto

ADVANCED TECHNOLOGY FOR RESEARCH & INDUSTRY

CONNECT NEWSLETTER

Welcome to the twenty-fourth issue of our company newsletter, "Inseto Connect", dedicated to providing information on new products, suppliers & company news and technical announcements. Inside this issue:

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Inseto Knowledge Base



Have you visited the Inseto Knowledge Base, now accessible via the "Knowledge" icon on our website?

A wide source of technical information containing over 60 process help, setup and guidance documents, new updates recently added include:

- Die Attach Process: Guidance and Setup.
- What is a Mask Aligner?
- Wafers Selection Guide.
- Bonding Wedge Hole-Wire Dia. Guidance.
- What is Spin Coating?
- Bonding Battery Connections.

Click [HERE](#) to visit the Knowledge Base.

Lockdown Support for Seven Local Charities

In April, Inseto donated £7,000 to seven local charities, all of which are close to the hearts of the company's employees. Within days of the donations being made all seven charities sent letters that not only expressed huge thanks to Inseto's employees but also conveyed how important the donations have been and what a positive impact they have had.



"It was great to receive these letters of thanks, which we've shared throughout the company", commented Matt Brown, "but it was also nice to be reminded of the work these charities are doing during challenging times. It's all too easy, particularly when social distancing measures are in force, to look inwards, and not beyond the immediate boundaries of our personal and work lives."

To read more details and snippets from the letters of thanks Inseto received, please click [HERE](#).

Slot Die Coating Equipment Manufacturer Signs Distribution Agreement with Inseto

Founded in 2012, as a spin-off from Risø/DTU (Danish Technical University), FOM Technologies manufactures a range of precision slot-die equipment used by researchers, scientists and other industry professionals to develop functional coatings for R&D purposes. These materials, once perfected, can then also be applied using FOM's roll-to-roll production systems.



Michael Stadi, FOM Technologies' CEO, comments: "In order to strengthen our global appearance, we are pleased to announce that we have signed a strategic partnership with Inseto. Inseto is representing complementary equipment manufacturers and supplying materials into the sectors we already serve. The company has a long track record for sales of laboratory and industrial equipment and has an excellent reputation for customer service."

Matt Brown, Managing Director of Inseto, concludes: "We are excited to be working with FOM Technologies. We always research the technologies of companies when expanding our services. Because FOM Technologies' precision coating solutions are enabling battery, solar and other electronic technology companies to deliver increased performance and reliability, that is of great relevance to the industry sectors we've been supporting for more than three decades. This agreement is a win for us and for our customers".

Click [HERE](#) for more information on FOM Technologies.

New Webstore Open for Semiconductor Wafers



Inseto has added an online store to its website. The store, which carries Inseto's current inventory of semiconductor wafers, including silicon, silica, glass, coated and silicon on insulator (SOI) & SOS Silicon on Sapphire (SOS) and sapphire, features secure online

payment and rapid delivery of stocked wafers.

A powerful filtering tool enables users to narrow down their searches by specifying properties common to all wafers, such as diameter and thickness. Then, depending on wafer material, the properties become more specific. Click [HERE](#) to visit the wafer webstore.

Chris Valentine Joins the Team



Inseto is pleased to welcome Chris Valentine in the role of Technical Sales Engineer to work with customers in the semiconductor research and manufacturing sectors.

Chris has a Masters in Science (MSci) in Physics from the University of Glasgow and a Masters in Research (MRes) from the University of Cambridge. He is also currently working on a thesis that could

result in a PhD in Engineering being awarded by the University of Cambridge.

Matt Brown, Director of Inseto, comments: "We are pleased to welcome Chris onboard. He is set to become a valuable extension to our team of technical specialists, and our customers will benefit greatly from the wealth of knowledge Chris gained during his academic studies and in various research projects."

Lithography Conference – Making things better



With over 90 visitors attending from industry and academia, the inaugural "UK Lithography Conference", had an over-arching theme of 'productivity and efficiency' and was a resounding success.

Hosted by Rutherford Appleton Laboratory and sponsored by SUSS MicroTec, the conference was split into three sessions, comprising Surface Preparation, Exposure and Imprint & Applications.

Please contact us for further details & copies of the presentations.

Exclusive Agreement with Tresky AG



Inseto has signed an agreement to be the exclusive distributor for Tresky AG's range of manual and semi-automatic die attach equipment throughout the UK, Ireland and Nordic regions.

Tresky AG's modular die bonders feature an extensive range of options, including precision optics and measurement systems for the most challenging applications, such as sub-micron die to die and flip chip requirements, plus capabilities for epoxy, eutectic and high force / sinter processes.

Click [HERE](#) to view the Tresky AG range of die bonders.



Probe Station Installed at Warwick University to Evaluate 'Next Generation' Silicon Carbide Devices

Inseto has supplied the University of Warwick with a SemiProbe PS4L probe system for developing fabrication processes for next generation silicon-carbide (SiC) power semiconductor devices. The PS4L provides an accurate and repeatable means of mechanically interfacing fabricated prototype devices – as die or still on the wafer – with an analyser that can inject thousands of volts and measure hundreds of amps.

Dr Peter Gammon, Associate Professor (Reader) in SiC Power Electronics at the University of Warwick, comments: "We're involved in a number of projects that are pushing the boundaries of silicon carbide power device research that will hopefully lead to the volume manufacture of device types that can currently only be fabricated in silicon. The PS4L is an invaluable tool in

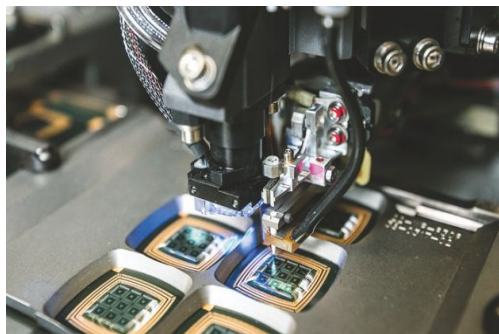
our endeavours as not only can it handle the high power from/to the analyser, but it is semi-automated, allowing us to collect a large amount of data from highly repeatable tests."

The PS4L is enabling Dr Gammon's team to apply voltages of up to 10,000V and measure currents of up to 100A to confirm the performance and breakdown voltages of their devices. He says: "While we're heading towards the production of IGBT and MOSFET switches, we're able to do much of our work on simple structures such as diodes, in order to evaluate the repeatability of our fabrication processes."

Dr Gammon concludes: "Our new equipment represents a real game changer and the support Inseto provided has been exemplary throughout the entire process, from them understanding our requirements through to ensuring the PS4L was fit for purpose now and in the future."

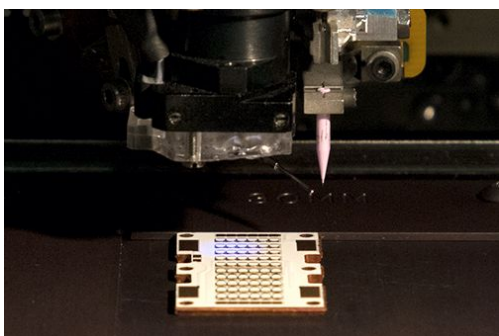
Click [HERE](#) to view SemiProbe's range of wafer probers.

K&S IConn ProCu PLUS Ball Bonder Delivered to Alter Technology UK



Alter Technology UK—a UK-based provider of contract microelectronic package design and precision assembly services, has expanded its manufacturing capabilities having invested in a fully automatic Kulicke & Soffa (K&S) IConn ProCu PLUS ball bonder provided by Inseto. Matt Booker, head of sales and assembly services at Alter Technology UK, commented: “We’re the only packaging company in the Alter Technology TÜV NORD Group, and we serve worldwide markets from right here in the UK. Most of the work we do is for customers directly, but we also enable our parent company to take on projects that require off-the-shelf devices as well as custom-packaged chips. “We serve a variety of high-tech markets. For example, we’ve undertaken projects for ESA (the European Space Agency). We also have customers in medical and we’ve made components for machine vision systems in the industrial sector.”

Booker explained: “A new and more advanced ball bonder would help us respond to requests for quotations and pursue new kinds of work. Alter Technology UK turned to its long-time and trusted equipment supplier Inseto for guidance. Inseto recommended the K&S IConn ProCu PLUS automatic ball bonder, which has a 56 by 90 mm bonding area for X and Y axes, respectively, and a total bond placement accuracy of 2 µm at three-sigma.



The IConn ProCu PLUS also has an ultra-fine wire bonding capability of 40 µm pitch for 15 to 30 µm diameter copper wire, and a gold wire bonding capability of 35 µm pitch for 15 µm diameter gold wire. Furthermore, it has an impressive looping capability of 7.6 mm in length for 25 µm diameter wire and 3 mm in length for 15 µm diameter wire. Ultra-low loops of 40 µm high can be achieved for 15 µm diameter wire and 80 µm high for 25 µm diameter wire.

Alter Technology UK predicts a quick return on investment, realised through reduced manufacturing turnaround times, which will enable the company to take on additional work. Engineering Manager Stephen Robertson concluded: “Inseto and K&S have been extremely responsive throughout this entire engagement, from understanding our requirements and recommending a best-fit solution through to making sure we have the relevant training and

continue to be happy with our investment. Inseto, in particular, is a key supplier. They’re our first point of contact and we trust their views.

Click [HERE](#) to view Kulicke & Soffa’s range of wire bonders.

New DAGE Prospector Micro Materials Tester



The Prospector Micro Materials Tester, from Nordson DAGE, features advanced mechanical testing technology that enables high levels of test flexibility. Its capabilities cover a wide range of test scenarios for micro-components and devices, including push & pull, shear,

tweezer pull, crush, insertion, flex-bend, hardness, scratch, creep and fatigue etc.

The product enables the full characterisation of any device by combining mechanical testing with four other complementary test modes: electrical, thermal, acoustic and optical. These combinations give researchers and product development engineers the ability to test across a wide range of micro applications including coatings and thin films, medical devices, micro-electronics, composites, plastics and fibres.

The unit is built on the strong heritage of testing that Nordson DAGE developed for the bond testing industry and is even capable of using the same test modules from other DAGE bond testers. For those with multiple bond testers in their production line, the Prospector is useful for pre-production R&D colleagues and serves as a suitable method of improving the efficiency of their ‘new product introduction’ testing.

Click [HERE](#) for further information on the Prospector.

Dage Series 4000 Bond Tester Trade-in Offer



The Dage Series 4000 mainframe technology, pictured left, is now over twenty years old! To enable customers to stay up-to-date with the latest capabilities, Dage has introduced a special discounted trade-in offer, allowing users to upscale their equipment to the 4000Plus platform, pictured right.

Features & benefits include:

- Higher speed X/Y table with 160x160mm travel.
- Existing Series 4000 cartridge compatibility (S/W License FOC).
- Continue using your existing work-holder and optics.
- Windows 10 operating system with USB interface & SQL database.
- Old Series 4000 recycled free of charge.
- Improved system accuracy at $\pm 0.1\%$.
- LED illumination.
- Dual microscope mount improved stability.
- Extended test capabilities: 100Kg pull, flex bend, fatigue etc.
- 24 months of warranty on the new delivered parts.
- Replace aging equipment with the latest technology.

Please contact us for further details!

PIXDRO Inkjet Printers now part of SUSS MicroTec



SUSS MicroTec has completed the purchase of PIXDRO, the inkjet printer division of Meyer Burger (Netherlands) B.V., and expands its lithography product portfolio.

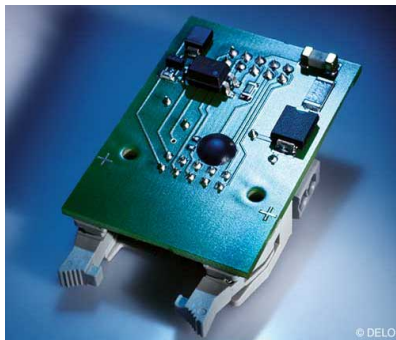
The PIXDRO product portfolio includes semi-automatic equipment for R&D, as well as fully-automated equipment for use in high-volume manufacturing. One major advantage of inkjet coating technology is that it enables direct, selective imaging which ensures only specified areas of a substrate are printed. This results in significant savings of expensive materials such as photoresists. While previous applications were mainly found in R&D, printed circuit boards (PCB) and photovoltaics (PV), the additive, digital inkjet printing technology also opens a range of new and unique possibilities in the field of semiconductor technology.

"With the technology acquisition of PIXDRO, we continue to set the course for the future and growth of SUSS MicroTec," states Franz Richter, CEO and Chairman of the Board at SUSS MicroTec SE. "For our customers, this added technology provides new and unique application possibilities, in addition to the current processes in lithography and thus also a wide range of process and cost advantages."

Click [HERE](#) to view the PIXDRO range of inkjet printers.

New Chip Encapsulation Adhesives

At present, all chip encapsulation adhesives contain very small traces of Substances of Very High Concern (SVHC). Because the European Chemical Association (ECHA) is constantly reviewing these types of substances (HHPA & MHPA, for example), with a view to eventually eliminating them completely, Delo has developed a family of new chip encapsulation adhesives that do not contain these substances.



The new Dam & Fill adhesives are DELO MONOPOX GE6585 & GE6525, one-part heat-cured black epoxies that, in addition to being SVHC-free, offer other advantages over current encapsulation adhesives. First of all, the CTE has been reduced by nearly 50%, while retaining the very high Tg of existing adhesives (>170°C), thereby providing

better protection during extreme changes in temperature.

The new adhesives also have significantly more advantageous curing times: 30 minutes at 100°C, versus 90 minutes at 120°C, saving on utility costs and reducing cycle times. These adhesives also retain the other benefits of the existing ones: excellent resistance to a wide variety of chemicals (oil and petrol, glycol, etc.); retention of bond strength after exposure to 85°C/85RH; and most importantly, retaining the MSL1 approval that is synonymous with Delo's existing encapsulation adhesives.

DELO DUALBOND GE7065 is a one-part heat-cured black epoxy that is used as a standalone GlobTop adhesive for smaller encapsulation areas. It has the added advantage of being light-fixable (optional), allowing the user to freeze the adhesive in place immediately after dispensing, but prior to the heat-cure process. It has a very similar CTE to the existing GlobTop adhesives, but with an increased Tg of 206°C. Additionally, the filler particle size is significantly reduced to around 7µm, allowing the adhesive to flow more easily between wire bonds.

For further information (data sheets, introductory presentation), please contact Inseto.

World Record for DELO Adhesives



DELO has broken the world record for having the heaviest lift using adhesive. The company lifted an 18-ton (17.5 metric tons) truck, surpassing the previous record of 16.3 metric tons. The new record was officially recognized by Guinness World Records.

For the world record attempt, an 18-ton truck was lifted by crane to a height of one meter with only 3 grams of adhesive. The entire weight hung for one hour on a bonded aluminum cylinder with a radius of just 3.5 centimeters. This corresponds to the diameter of a standard soft drink can. With the new record, DELO is seven percent above the previous official record of 16.3 tons.

Click [HERE](#) to view the DELO range of adhesives.

Join us at the following events in 2020/21:

- Battery Systems Expo, 1-4 Dec 2020 - online
- innoLAE 2021, 23-25 February 2021 - online
- IMAPS-UK Annual Conference 2021, March
- Battery Tech Expo, 22 April 2021, Silverstone
- Battery Systems Expo, 7-8 July 2021, NAEC, Coventry
- EMPC21, 13-16 Sept 2021, Gothenburg, Sweden

Contact Information:

Inseto (UK) Limited,
Unit 25 Focus Way, Andover, SP10 5NY
United Kingdom

Tel: +44 (0)1264 334505 - Fax: +44 (0)1264 334449
enquiries@inseto.co.uk - <https://www.inseto.co.uk>