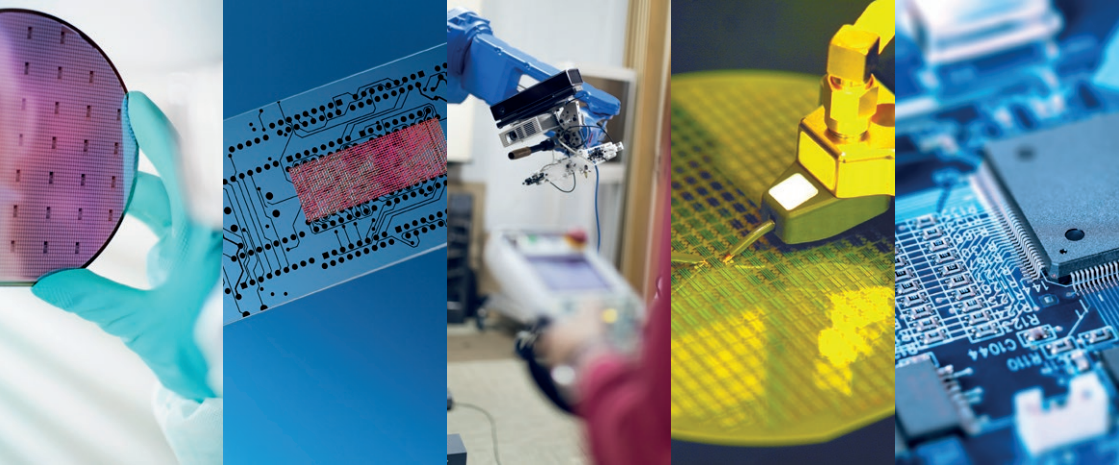




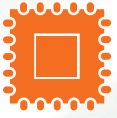
Holland High Tech
Global Challenges, Smart Solutions



The complete Semicon value chain in one country

The Netherlands is one of three countries in the world, to have a complete value chain within its borders.

Technology Cluster of High Tech NL



Holland Semiconductors

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**YOUR GATEWAY TO THE
NETWORK OF SEMICONDUCTOR
COMPANIES AND KNOWLEDGE
ORGANIZATIONS ACTIVE IN THE
ENTIRE SEMICONDUCTOR VALUE
CHAIN IN THE NETHERLANDS**



Dear Visitor,

Welcome to Munich and welcome to the SEMICON Europa 2022! It is a great pleasure to welcome you at the Holland High Tech pavilion. The pandemic taught us how important the digital and electronic industry is and it has become clear that we will not go back. To the contrary, this industry will become even more crucial. There is thus a tremendous need to foster a rich ecosystem, to form connections between stakeholders and to invest in a thriving electronics and semicon industry.

The Netherlands wants to drive innovation in this sector forward by diversifying applications that interact with the real world and that will tackle societal challenges. This week at SEMICON Europa, we present the Dutch semiconductor ecosystem. The semicon sector is one of the largest investors in the Netherlands. Still, it is of key importance that we stay connected with developments in all parts of the world, whether it is for automotive, bio-medical applications or quantum computing. Furthermore we see increasing investments made in the semicon sector in Europe and in particular in Germany. Throughout Germany, in regions like Saxony and Bavaria, there is growing attention for the industry.

The semiconductor value chain highly depends on cooperation and it is at places like the SEMICON Europa where such cooperation is often initiated. I am very happy to see on the participant list a mix of different industries, both medium and large enterprises. The Holland High Tech pavilion provides a perfect space to meet the Dutch and create new cooperation. Almost the whole semiconductor value chain present in the Netherlands is here at the pavilion. High Tech NL has done a great job to organize this wonderful pavilion and I would like to thank them for that.

Here in Germany you see a great interest from manufacturing and software industry on new technologies coming from the Netherlands. The Dutch Consulate General, with its economic and innovation department, is here to support you in growing your business and in finding research opportunities. So please do not hesitate to contact us!

I wish you all a very inspirational and productive week on the SEMICON!

Kind Regards,

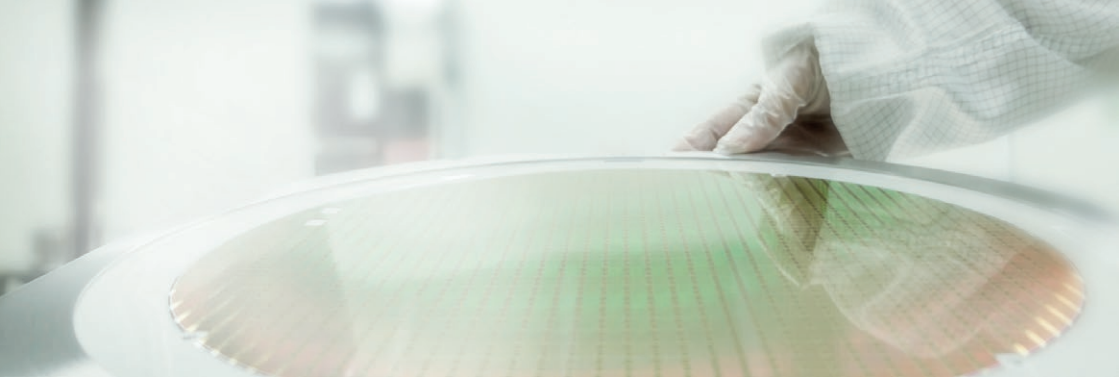
Annelies Faro

Consul General of the Dutch Consulate General in Munich

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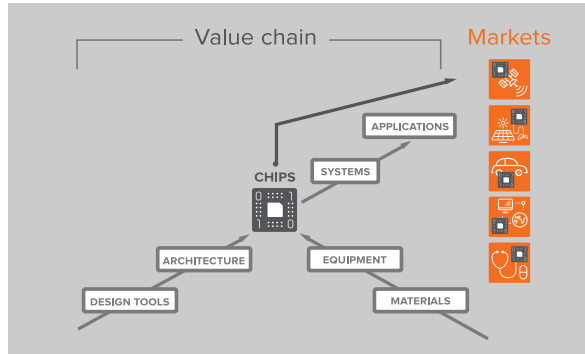
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The Dutch Semiconductor Industry

The Netherlands can provide key enabling technology solutions for themes such as healthy aging, carbon reduction, energy savings, secure societies, and green transport.

The Netherlands' centuries-old tradition of creativity, entrepreneurship, openness and willingness to collaborate has proven to be the ideal breeding ground for the development of high-tech systems and materials. These qualities make the Netherlands the perfect place to find solutions to today's social challenges.

The Netherlands is known for its pragmatic mentality, its smart application of technologies, its partnerships between industry, research institutes and government, and its flat organization structure. It's a great place to live and work. The Dutch semiconductor sector employs over 20.000 highly educated people.



From machines to chips

From applied research, design, architecture, the production of chips and the equipment required to make them, through to system integration and actual applications.

Famous examples are multinationals such as NXP Semiconductors, Philips and Thales. But there are also a large number of SMEs that actively design, test, and use semicon components, mems, micro-fluidic chips and photonics in a variety of applications such as health, energy and automotive. This ecosystem is supported by applied research at the Technical Universities and knowledge institutes.

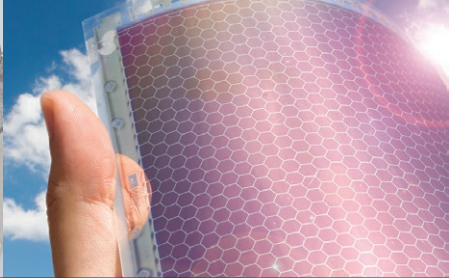
From equipment to components

The Netherlands also has a large base of companies that provide equipment for the semicon manufacturing sector. For example, state-of-the-art EUV equipment by ASML and front-end process, integration and packaging equipment by companies such as ASMi, Boschman Technologies, BESI, ASM Laser Separation International (ALSI), Solmates and Sempro.

Dutch companies work closely with technical universities and knowledge institutes such as TNO and ECN, as well as with dedicated institutes such as the Materials Innovation Institute (M2I). All of these partners have their own semicon expertise and specialization in the development of knowledge-intensive innovations across the whole semicon value chain. These innovations are used in global markets such as MEMS, flexible electronics, imaging devices and other key enabling technologies.



HEALTH
Micro needles for painless injections



ENERGY
Thin-film flexible solar cells



INDUSTRY
MicroGas Analyzer

Examples of Dutch semicon solutions

Health

U-Needle uses a unique in-plane silicon etching method to produce micro-needles with an extremely short bevel.

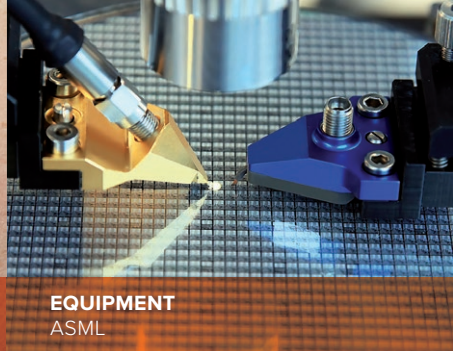
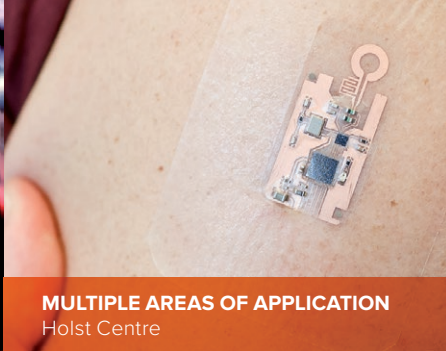
The micro-needles are atom sharp and facilitate perpendicular injections. Their high precision and astonishing ease of use enable accurate, quick, pain-free intradermal and subcutaneous delivery, for example, of vaccinations, drugs, and in-skin aesthetic treatments. The cooperation with other Dutch companies such as Advanced Packing Centre (APC) for the challenges in the packaging of the needles, and with Micronit Microfluidics for the combination with lab-on-a-chip solutions, enabled U-needle to innovate faster and develop and manufacture actual solutions.

Energy

Tf2devices, a spin-off from Radboud University Nijmegen, developed a innovative production process called 'thin-film lift-off' to produce high-efficiency and flexible solar cells. These cells will be used in the aerospace domain and have advantages in both efficiency (up to a world record 38%), low weight and extreme flexibility.

Industry

Qmicro, specialist in advanced MEMS product development and supply, developed a micro gas- chromatograph for on-the-spot analyses. In cooperation with Maser Engineering and Advanced Packaging Centre, a lab-on-a-chip solution was developed that enables the detection of very low volumes of gas (Part Per Billion or PPB levels), thus providing on-the-spot measurements of gas or breath, without the need of large and expensive labs. Cooperating with both clinical partners such as Radboud University Medical Centre and technical partners such as University of Twente, Maser Engineering and Advanced Packaging Centre (APC), enabled Qmicro to develop and test a revolutionary new high-tech product.



MULTIPLE AREAS OF APPLICATION

Holst Centre

EQUIPMENT

ASML

Multiple areas of application

Holst Centre, the open innovation initiative of imec and TNO, has 10 years of experience in the development of radio chips with significantly reduced power consumption compared with off-the-shelf alternatives. Applications are personal health monitoring, smart homes, intelligent cars, and monitoring of machines, buildings or the environment. Holst Centre also works on biomedical circuits that track physiological parameters such as ECG, EEG, bio impedance and blood pressure for medical-grade health monitoring.

Equipment

ASML is one of the world's leading manufacturers of chip-making equipment. ASML invents and develops lithography machines, metrology systems and software products that together allow its customers to follow Moore's Law and produce ever smaller, cheaper, more powerful and energy-efficient semiconductors. The result? Increasingly more powerful and capable electronics, with faster processing speeds, that enable the world to progress within a multitude of fields, including healthcare, technology, communications, energy, mobility, and entertainment. An improvement of the quality of life. ASML (Euronext Amsterdam, NASDAQ stock exchanges) employs 28.000 people, has over 60 locations in 16 countries, and supplies most of the world's major chip manufacturers such as Samsung, Intel and TSMC.



High Tech NL



Holland Semiconductors

High Tech NL | Holland Semiconductors

With some 230 members, High Tech NL | Holland Semiconductors is the gateway to the full value chain of the Dutch Semiconductor and Electronics industry and fosters innovation and business creation.

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High Tech NL is the branch association of the Dutch high-tech industry consisting of some 230 members, both companies (OEM, SME and startups) and knowledge institutes. We are committed to the collective interests of the sector, with a focus on long-term innovation and international collaboration. To share specific knowledge, each member participates in one or more of our three clusters: Robotics, Semiconductors and Lifescience Technologies.



Tom van der Dussen
Project Manager
Holland Semiconductors

Holland Semiconductors is the Dutch national network of semiconductor companies and knowledge institutes active in the entire value chain. It is our aim to strengthen the semicon sector by stimulating (international) cooperation, initiating new (international) innovation projects and facilitating crossover projects with semiconductors as a key enabling technology (KET). We support international innovation missions, and organize, support and host workshops, seminars, webinars and joint booths at international semicon tradeshows. We fully support the European ambitions for intensifying European and global collaborations. Connecting to the leading high-tech clusters in Europe, Dutch companies and institutes get access to innovative partners throughout Europe. Participation in European projects and in Silicon Europe Alliance are explicit examples of our international collaborative innovation.

Would you like to cooperate and innovate with Dutch companies, technical universities and research institutes? High Tech NL opens the doors to successful cooperation!



BKB Precision

Accurate machining of high-performance plastics up to 3µm precision. That is what we do at BKB Precision. With 40 years of experience to build on, we make the impossible possible.

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Mannes Westhuis
CEO / Co-Owner



Berrie van de Burgt
Sales Director

We are fully aware of the challenges that customers face when it comes to design for cost, design for manufacturing and logistics. And we pride ourselves in constantly improving on our Make & Advise partnership with our customers. BKB is not only a manufacturing partner but also a supplier when it comes to realizing assembly and supply chain needs. Through the years we have built a stellar reputation in various high-tech market segments such as semiconductor, medical, food, machinery and chemicals. Together with our customers, we realize challenging solutions.

From prototypes and single pieces to medium-sized series, we deliver the precision required worldwide. We process technical- and high-performance plastics such as: PEEK, PEI, POM, PA, PC and many more. With state of the art CNC machines of up to 5-axis milling, 7-axis turning-milling and portal machines we manufacture in a conditioned (temperature and humidity controlled) production hall that runs 24/7 fully automated. In addition, we also provide ISO class 7 cleaning, assembly, welding, gluing, measurement reports and testing.



Boschman Advanced Packaging Technology

Boschman is a high-tech, technology driven company, specialised in advanced back-end semiconductor packaging solutions. We are headquartered in the Netherlands with a system assembly facility in Singapore and expanding in China.

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Eef Boschman
Managing Director



Huub Claassen
Business Development Manager

We focus on Pressure Sintering and Transfer Molding, two technologies that are in high demand now as the world is converting to high levels of electrification, creating unprecedented opportunities for companies active in the power electronics supply chain.

Core to our strategy is a unique business model, “from Idea to Industrialization”, with 3 highly complementary activities:

- **Package Development:** co-development of semiconductor packages and processes, including concept and design for manufacturing (DFM), prototyping and engineering samples for our (end) customers. Historically this activity was mainly focused on MEMS and Sensors, but is currently shifting towards Power Modules and Inverters, driven by market demand in the xEV segment.
- **Assembly Services:** small to medium volume micro assembly of MEMS, Sensors and Power Modules, with a fully equipped inhouse lab (from wafer dicing to die attach bonding, molding and laser marking). For higher production volumes, we can support to transfer the production to in-house production or high-volume OSAT.
- **Production Equipment:** pressure sintering & transfer molding equipment, a range of systems from R&D Labs to High Volume production solutions.



CHIPTECH TWEENTE

ChipTech Twente | Kennispark Twente

ChipTech Twente is a hotspot cluster for semicon, analogue chip design, photonics, and heterogeneous systems.

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Marieke Stokkelaar
Clustermanager



Lennart de Vreede
Business developer

Twente is a hotspot for semicon and specifically for analogue chip design and photonics, and is an important supplier to ASML. With a strong Integrated Circuit Design department at the University of Twente headed by professor Bram Nauta, the MESA+ institute and around 50 semiconductor-related SMEs, customers worldwide benefit from the unique knowledge of Twente. These companies have a strong international scientific track record in the fields of electrical engineering, microelectronics, nanotechnology, photonics, quantum technology and microfluidics.

We are focusing on three priorities in Twente:

1. Continued investment in electronic chip design
2. Research programme for integration heterogeneous systems
3. Future vision on realisation of heterogeneous fab



Elect High-Tech Electronics

For more than 20 years, Elect High-Tech Electronics has continued its tradition of perfection in consulting and assembling high-quality PCBs, substrates, modules and complete systems. Our reliability in delivering exceptional quality and value for our customers results in long-term, successful partnerships. Of course, we are very proud of our unique position.

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Wolter Hoekman
Managing Director



Martin Kattier
Commercial Director



Steven Bartelink
Sales Account Manager

As an added-value service, Elect supports wire bonding services. Our wire bonding capabilities are suited for chip-on-board assembly, hybrid/multi-chip modules, and optoelectronic parts. We are able to support both aluminum and gold wire. Additionally, we can utilize ribbon. Elect is NEN-EN-ISO 9001:2015 QMS and ISO 13485:2021 (Medical devices) certified.

Elect is specialized in manufacturing innovative low and mid-size volume, high-mix electronic printed circuit board assemblies. Our customers are active in communication, medical, military, avionics, portable device and process industries.



ERIKS

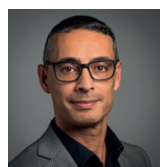
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Theo Kok
Head of Semicon



Jurriaan de Weerd
Key Account Manager Semicon

Pushing boundaries. Companies active in the semiconductor industry know exactly what that means. ERIKS perfectly understands the high tech environment you're working in and offers tailor made solutions, like a wide range of high-quality mechanical engineering components and associated technical and logistic services.

Our customers are both OEM equipment manufacturers in front-end and back-end processes of the semiconductor supply chain. We have plenty of experience supplying FABS with complex mechanical engineering components. We understand both the design and the practical aspects of high tech components and assemblies in the global semiconductor industry.

Are you preparing your next step in performance, in quality and logistics? ERIKS understands your needs, like QLTC governance for example. We are eager to provide technical insights and support your operational excellence.

ERIKS has a large competence center including development, manufacturing, and cleaning of products to semiconductor industry standards. This enables us to supply the required grades of cleanliness and high quality, just in time.

ERIKS develops a wide range of special seals, hose assemblies, instruments, flow solutions, plastics, precision motion control, rubber and damping products, and materials specifically suited for semiconductor fabrication equipment for OEM and MRO needs. How can we help to make your semiconductor business better?



fastmicro
cleanliness control



Fastmicro

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Geert van Bergen
Business Development DACH



Jon Greenall
Technical Sales Specialist



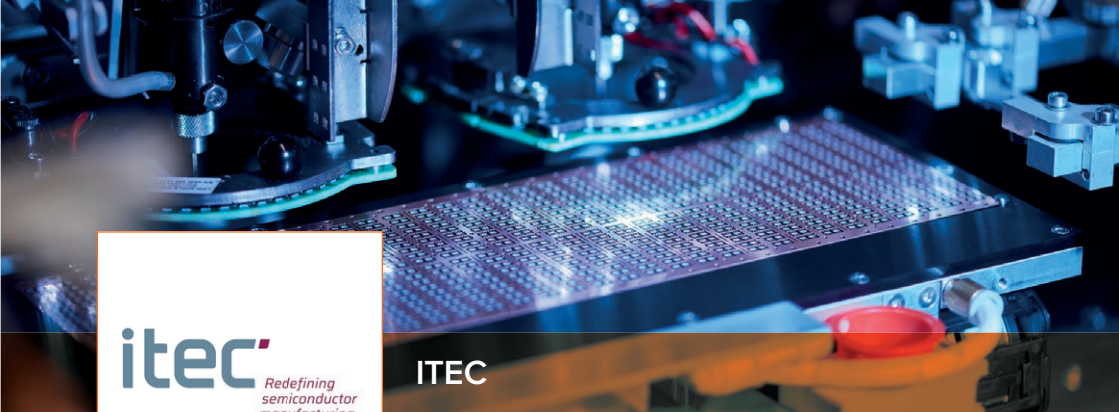
Erik Vermeulen
CEO

We help our customers to overcome today's cleanliness challenges in microtechnology. At Fastmicro, we believe you can accomplish breakthroughs in cleanliness control with fast, accurate and quantitative surface particle measurements.

Fastmicro was founded in 2019 after 15 years of research and development based on technology co-developed with research institute TNO. In just 3 years, Fastmicro delivered installations in 7 countries world-wide. Our customers in the semicon industry are involved throughout the processes of the semiconductor supply chain.

Are you preparing your next step in cleanliness control? Fastmicro understands your needs, like producing according to semicon industry standards (like ISO-14644-9/17), reducing yield losses, and keeping up with ever-increasing cleanliness requirements. We even have our own demo (cleanroom) center located in the Brainport Eindhoven area. Here, we test our newest innovations, you can experience our product portfolio and conduct cleanliness research as well as technical feasibility studies.

This enables us to supply the required metrology solution for surface particle measurements. We enable process quality engineers to make reliable decisions on where and how to improve their cleanliness processes and deliver consistent quality products. And ultimately, achieve high equipment performance for their end users.



ITEC

ITEC combines state-of-the-art equipment and automation expertise. With more than 30 years of semiconductor manufacturing experience as an equipment and automation partner. With an installed base of more than 2500 of the industry's best tools, we enable our customers to test and assemble with the fastest production rates.

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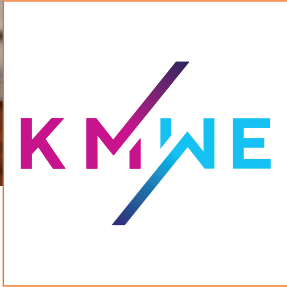
www.ITECequipment.com



Guido Bekkers
Product Management

To truly deliver the efficiencies needed to assemble and test high-volume, high-quality semiconductors, requires both technical expertise and manufacturing insight. Technical expertise delivers advanced mechatronic systems, accurate test electronics, inspection algorithms and smart manufacturing and big data handling. However, to ensure the highest productivity, throughput and quality at the lowest total cost of ownership, a deep insight into the day-to-day challenges of manufacturing is required.

But it doesn't stop there. Ever since the introduction of the Breakthrough in Manufacturing (BIM) concept, ITEC is committed to incorporating the latest technologies and process expertise into tailored solutions. Enabling our customers to excel in quality, productivity, and sustainability with the lowest total cost of ownership. Whether that is for standard discrete devices in the smallest packages and the latest dedicated high-power packages for wide bandgap (WBG) semiconductors, or for new package materials and processes demanded by advanced RFID labels and LED displays. Ensuring that the best commercial options are available for proven, high-quality, sustainable volume assembly and test operations.



KMWE Precision

KMWE Group is a supplier to the high tech manufacturing industry since 1955. We provide complex, functional, critical components and high-end (cleanroom up to ISO class 6) assembled mechatronic systems and modules.

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Jappie Dekker
Key Account Manager Semicon



Danny Tummers
Account Manager Semicon



Geert van Bergen
New Business Development

KMWE is active in various high tech market segments such as semiconductor, aerospace, healthtech and general equipment markets with sites in the Netherlands and Malaysia and a joint venture in India.

We are leaders in innovation, state-of-the-art high precision manufacturing and we are in the forefront of developments such as complex titanium machining and additive manufacturing.

Management of the entire supply chain is an area in which we can really make a difference for customers. We take care of complete production and industrialisation, whilst also advising on engineering and design for manufacturing, and improving cost-effectiveness. This is not only based on our technology know-how and in-house capabilities, but also on our knowledge of various markets, the supply chain and supporting processes. Key developments driving growth in the Semiconductor market include the uptake of portable devices, cloud, automotive technology and IoT.

KMWE, manufacturing the future.



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Carel van de Beek
Sales Manager



Michael Kruithof
International Business Developer

LouwersHanique has been supporting both equipment makers and IC manufacturers for over 50 years. Providing tailor made solutions using all our competencies from UHV precision components in glass and ceramics to feedthroughs, mechatronics and micro-assemblies.

We are specialized in thermal forming of glass and in mechanical/laser processing of technical glass and technical ceramics (such as aluminum oxide, silicon carbide, silicon and Macor). The company activities also include the bonding and [clean room] assembly of unique material combinations based on an extensive range of bonding and integration technologies. We manufacture Ultra-High Vacuum feedthroughs using proprietary glass-to-metal bonding technologies to directly seal pins and other components into metal flanges without laser welding or other sealing technologies.

LouwersHanique is your international supply chain partner in the field of fully integrated solutions. Our state of the art equipment and clean room facilities allow the precision manufacturing of parts and assemblies with tolerances into the (sub)micron region.

Markets include: semiconductor, analytical, [bio]chemistry, energy, laser and optoelectronics, special lighting, pharmaceutical, medical & life sciences, water purification, replication. LouwersHanique is located in the high tech Brainport Region of the Netherlands and is ISO 9001:2015 certified by TÜV.



NEW COSMOS - BIE
Gas Detection Solutions

New Cosmos - BIE

New Cosmos – BIE is a manufacturer of stationary and portable gas detection equipment, mixing high qualified gas detectors with smart forms of communication suitable for applications in the Semiconductor and Photovoltaic industry as well as any other type of industry.

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Martine Zegers

General Manager



Dries Boereboom

Sales and Marketing Manager EMEA



Berto Boer

Business Development Manager

Be Sure Be Safe!

At New Cosmos – BIE we understand what detecting of speciality gases means. Over 60 years of experience in the Semiconductor industry has given us unique understanding in the detection of speciality gases and applications. Next to detecting these speciality gases, the understanding of cross sensitivity issues in this market is very important. Detecting TEOS or CO without interference of IPA is what we deliver. Hydride sensors that do not respond to Hydrogen is also unique. As a manufacturer of gas sensors and detectors we understand your needs. Together with our new ePACT controller platform we manage your safety and give you insight in your gas detection system.

Our strengths:

- With 60 years of experience, we understand what you need
- At New Cosmos we develop our own gas sensors and detectors
- We offer unique sensor selectivity and ranges for different gases
- Excellent (after-) sales and maintenance support.



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Jeroen Sprankenis
New Business Development



Willem-Jan van Rooij
Account Manager Semicon

With an industry track record of over 75 years, NTS is your first-tier contract manufacturing partner to achieve shorter time to market of reliable, high quality semicon modules and systems. We support our customers by complex (co-)development, engineering, industrialization and (ultra-precision) manufacturing.

Semicon systems development & manufacturing that accelerates your innovation.

NTS assists high-tech OEM customers who are active in innovative product and system solutions for semiconductor production steps like photo mask writing (e-beam), lithography, etching, deposition, metrology & inspection and wafer dicing.

Our customers experience rapidly changing environments. To find faster and better solutions, our customers are in need for accelerating innovation on applied product and system solutions. To serve them best, NTS is specialized in capital intensive semicon system production and chip measurement systems. Our customers typically benefit from our expertise in co-development & engineering solutions, mechatronics assembly and ultra-precision components.

With €350+ million revenue and a team of over 1700 colleagues in The Netherlands, The Czech Republic, Singapore, China and the United States, NTS offers worldwide systems development, manufacturing and assembly expertise to our customers in the medical, analytical and semiconductor market. As a first-tier contract manufacturer, we are active in the low and mid volumes and high complexity product domains.



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General Manager



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Sr. Director Global Sales & Marketing



Klaus Werner

Director

Odyssey Technical Solutions. The World's Largest Dedicated RF, DC, Microwave Equipment Repair Company—in business since 2000. Odyssey procedures and processes developed over many years are designed for repeatable success in our repairs and to give our customers a high level of confidence that we will do it right—the first time.

Top reasons why you should choose Odyssey for your equipment repair:

1. Quality, turnaround, and price leader.
2. Many years of repair experience and knowledge of semiconductor and industrial applications.
3. Dedicated customer service reps who will advocate on behalf of the customer and "make it right".

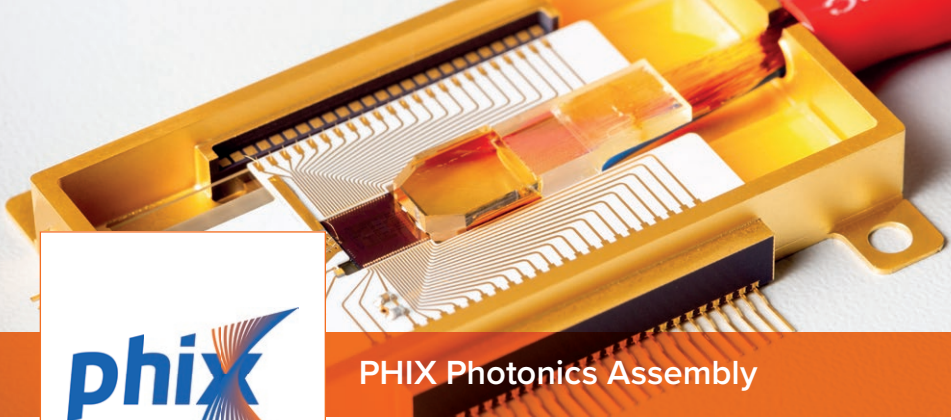
RF, DC, & MW Equip Repair Experts -ISO, ESD, & IPC Certified

About Odyssey Technical Solutions

- World's Largest Dedicated Repair Facility specializing in RF, DC, and MW
- Headquartered in Round Rock, Texas, USA (20+ years in business) , with Repair Facilities in -Singapore and in the Netherlands
- Distributors of EKKSC Eagle Semicon Components ("O" Ring products)

For a list of items we repair:

<https://www.odysseyrf.com/equipment-repair.html>



PHIX Photonics Assembly

PHIX offers packaging and assembly services for photonic integrated circuits (PICs) and MEMS. We build optoelectronic modules based on all major PIC technology platforms, such as Indium Phosphide, Silicon Photonics, Silicon Nitride, and Planar Lightwave Circuit.

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Albert Hasper
CEO



Joost van Kerkhof
COO



Sherif Soliman
Technical Sales Engineer

As a world leading independent photonics packaging foundry we specialize in chip-to-chip hybrid integration, coupling to fiber arrays, and interfacing of DC and RF electrical signals. By offering our knowledge already at the chip design stage, we ensure ease of scale-up for volume manufacturing.

PHIX provides a one-stop-shop for PIC and MEMS assembly, from design to volume production. We have a state-of-the-art production facility located in Enschede, the Netherlands, supporting the global industrial development of PIC and MEMS enabled modules.



PhotonDelta
Gateway to Integrated Photonics

PhotonDelta

PhotonDelta is an ecosystem of organizations that researches, designs, develops, and manufactures solutions with integrated photonics.

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Jorn Smeets
Chief Marketing Officer



Carol de Vries
Program Manager Technology

Integrated photonics is a technology that harnesses the power of light to create energy-efficient, faster, and more accurate microchips. The combination of semiconductor chips and photonic microchips offers a sustainable solution to society's energy consumption and technological challenges such as the expansion of 5G data networks and data centres, safer autonomous driving vehicles, and more efficient food production.

Connecting pioneers in the field with investors, and viable markets, PhotonDelta helps to take the industry forward with funding, investments, R&D initiatives and industry roadmaps. PhotonDelta is located in the Netherlands, a country positioned at the very forefront of integrated photonics that connects and collaborates around the world.

The Dutch government has recognized the technology as one of the most promising technologies for the Netherlands and gave PhotonDelta the green light in 2018 for the implementation of the National Plan for Integrated Photonics. In May 2022, PhotonDelta's proposal for the Dutch National Growth Fund was successfully awarded €1.1 billion to fuel this six-year initiative to cement and expand the country's position in integrated photonics.



RAITH
NANOFABRICATION



Raith

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Benjamin Oevermann
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Raith develops leading edge lithography systems enabling semiconductor customers to drive innovation and production. Our maskless electron beam, laser beam and focus ion beam patterning solutions cover the full range, from μm structures to sub 10 nm critical device fabrication.

The Raith product portfolio is being complemented by automated SEM based chip analysis and process control systems.

Our worldwide service and customer support structures are backed by experienced experts in our international applications and development centers.

We are fully committed to further push the limits of nanofabrication in close collaboration with our outstanding customer base.



Salland Engineering

Salland Engineering in Zwolle – The Netherlands is an international leading Test Technology & Engineering company specialized in solutions and services that enable semiconductor manufacturers to improve the efficiency and quality of their testing.

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Our solutions are delivered via a unique combination of innovative test technology and realization including instruments, applications expertise and supply chain & test services.

ATE Instrument Solutions: We design and manufacture high quality instruments that are used by our customers to upgrade the performance or channel density of their automatic test equipment (ATE) and/or Test & Measurement setups. These instruments provide a cost effective means for our customers to extend the throughput and useful life of their ATE investments.

Test Application Development: We provide a wide range of engineering services including test program development and conversions, test program optimization, load board development and failure analysis. We are specialized in mixed signal, RF and High Speed test techniques.

Supply Chain & Test Services: We have in-house test and analysis equipment to offer packaged and wafer chip testing from sample & process qualification up to mid-size volume production test in Europe. We also provide supply chain services from prototyping, manufacturing up to repair service for advanced measurement solutions.



Sempro Technologies

Sempro Technologies is the expert in trim, form and singulation solutions for the semiconductor and micro-electronics industries.

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Ewald Peters

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Chung Ho Hsieh

Sales director

Dedicated solutions for MemS-sensor and optical/advanced leaded packages. Packages as well as advanced Power modules. Our main market segments are Space, Health, Automotive and Energy.

Solutions

- R&D services on trim and form and singulation
- Soft tools and designs for R&D projects
 - Small series sample production for development purpose
- Trim and form and singulation standard and custom made automation equipment
- Package design
- Spare parts and services

Trim & form equipment

Sempro Trim and Form ensures the lowest cost of ownership, the lowest cost of maintenance and replacement of parts. Our systems are modular and used for single -matrix or super high density matrix products. A large number of custom configurations and combinations are possible.

Integrations

Direct liaison with other parties in the semiconductor or micro-electronics assembly process ensures complete integration of machines. Every aspect of the process is carefully controlled and documented at every step, from design and prototyping through to testing, validation and manufacture.



Sencio

Sencio is an innovative package and assembly solutions design and manufacturing house for MEMs and sensors systems that bridges the gap between your sensor system and the application.

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Sencio B.V. is a world class competence center offering development and manufacturing of functional semiconductor assembly solutions for MEMs and sensor systems. From design, package development and prototyping, industrialisation up to volume manufacturing, Sencio works with the customer to carry out a product which fits to the desired mission profile.



Oliver Maiwald
CEO - Managing Director

*n*Capsulate functional packaging is achieved with a high versatility and compatibility with Sencio's other technologies from exposed die molding to multi-die packaging SiP, among many others. Freeform encapsulate packaging is giving the opportunity to shape the product to the exact requirements of the application. Embedding mechanical systems in electronics using *n*Capsulate offers a real practical solution for system challenges like improved alignment, mounting- and sealing-features, increased measurement accuracy and improved thermal contact.



Ignas van Dommelen
Manager Sales, Marketing & Development



Sonia Elwardii
Sales Engineer



**SMART
PHOTONICS**

Bringing your innovation to life

SMART Photonics

SMART Photonics is a foundry for integrated photonic circuits, offering solutions for data and telecommunication, as well as for sensing – such as Lidar – and medical applications. And it doesn't stop there.

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Creating the Next Generation chips

SMART Photonics aims to be the leading foundry for integrated photonics, creating innovative products that improve people's lives.

Integrated photonics uses the power of light to create energy-efficient, faster, and more accurate microchips. The technology is set to play an essential role in finding and developing solutions for the world's challenges, such as reducing energy consumption, improving healthcare, fighting food waste and our continuous hunger for information.

The EU recognizes photonics as one of the six 'Key Enabling Technologies (KETs)'. The expectations are, that this new technology will cause a revolution similar to that of electronic chips forty years ago, when people first started to integrate electronic components into electronic (micro)chips.



Solutions-on-Silicon / Ascent'tec

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Peter Sakko

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Gerdien Kroesen

Sales for Parts



Meino Noordenbos, Board

SoS Services Engineering partner for sustainable production in the High-Tech industry

- Supporting multiple OEM platforms.
- Maintenance, trouble shooting, upgrading, training and on-site execution with a flexible Field Service contract.
- Auditing, fingerprinting, decommissioning, transport and commissioning.
- CE certification.
- We realized >100 equipment start-ups & installations globally.

SoS-Ascent'tec for Trading Equipment

- Buying and Selling your Equipment.
- Deal structure through our international network.
- Consignment at customer warehouses.
- Refurbishment & smart upgrades to lengthen lifecycles.
- >30 systems directly available from SoS warehouse.

SoS-Ascent'tec Webshop for Spare Parts

- First class second sourced parts.
- >20.000 quality parts on stock.
- Shipments <24hrs.
- Samsung Cheil CMP Slurry.

Our work starts where the OEM stops!

**TEESING****SYSTEMS**

Teesing Systems

Teesing Systems develops and assembles sub systems for the control of gases and liquids. We specialize in Ultra-High Purity(UHP) gas systems, Ultra-Pure Water(UPW) systems, Aggressive media(PFA/PVDF) systems, and Cooling Water Systems (RCW, PCW, LCW).

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Marko Assems

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Reinier Nugteren

Sales Engineer

The transport and control of ultra-pure gases and liquids is our core business since 1952. Our assemblies and products are manufactured in our ISO class 4 cleanroom - leak tight and clean. Our customers are OEMs, co-makers and end-users who are active in the semiconductor, optical, nuclear, and pharmaceutical industries.

Gases in your machines need to be free of particle and molecular contamination. We have expertise in aggressive media, a wide range of operating pressures, temperatures, and flow precision control.

Thermal control is essential in high-end machines and an important part of your machine. Accurate and reliable control of flow in small spaces requires special solutions, such as vibration resistance and immunity to galvanic corrosion. As a strong technical partner, we design your assembly in a cost efficient and certified clean way.

During your product life cycle we will add value ranging from co-engineering, product selection and prototyping to Vendor Managed Inventory and stock keeping. As a solid system supply partner, we offer brand-independent alternatives in low availability situations. We monitor which products are end of life and provide (alternative) spare parts for them. We also provide direct local support with our own offices in China (2001), the US (2004) and Taiwan (2009) to make your technology work.



TEMPRESS

Tempress

Tempress' mission is to support customers in the semiconductor, power, MEMS, photonics, solar, life sciences and coating markets to produce advanced materials and devices with high added value innovative furnace solutions.

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Tempress' over 50 years of heritage in development and manufacturing of diffusion and deposition equipment as well as it's related processes is a testament to the company's flexibility, innovation, quality, and dedication. Tempress's headquarters is located in Vaassen, the Netherlands.

Our portfolio contains horizontal and vertical furnace equipment, ranging from small batch R&D systems up to high volume, fully automated manufacturing equipment.

Customers are supported throughout the world by our highly professional direct sales & service engineers and commercial partner network.



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High Tech NL | Holland Semiconductors connect knowledge institutes and companies in the semicon value chain, thus enabling innovative, fast and flexible semicon solutions and products.

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Global Challenges, Smart Solutions