

**Holland High Tech**  
High Tech Solutions for Global Challenges



For further information: <http://www.iterbusinessforum.com>

where business and science meet  
**[www.bigscience.nl](http://www.bigscience.nl)**

## Involving Dutch industry in Big Science



## ITER Business Forum 2015 (IBF/15)

Marseille, France  
March 25-27, 2015

where business and science meet  
**[www.bigscience.nl](http://www.bigscience.nl)**



# Summary CV



**Eric Boom** took his PhD in experimental physics at the University of Amsterdam in 1981 and has been working at Airbus Defence & Space NL for over 30 years. There he was active in various technical and managerial roles, the last 15 years as Business Development Manager in the area of instrumentation for Space and Big Science programmes (which included ITER in particular).

After his retirement in late 2013 he founded EB Consultancy and remained active in Big Science as an industrial consultant for ILO-Net. In this quality he represents the interests of innovative Dutch industries who want to work in the Big Science arena. In addition, he became the Dutch Member of the Fusion Industry Innovation Forum (FIIF) management board, which assists in preparing the way for DEMO at a European industrial level.

# Iter-nl



*Knowledge Transfer*

*Instrumentation Development*

*Industry Days & Matchmaking*

*Engaging 300+ Dutch Companies*

The ITER-NL initiative brings together the know-how needed to develop and construct specific parts of the ITER international fusion experiment. Our aim is to enable Dutch companies to have strong participation in ITER and to facilitate front-line participation of Dutch research in the scientific exploitation of ITER.

ITER-NL is a consortium between four Dutch research institutes: the Netherlands Organisation for Applied Scientific Research TNO, the Foundation for Fundamental Research on Matter FOM (with her FOM-Institute for Plasma Physics Rijnhuizen), the Nuclear Research and consultancy Group NRG, and Eindhoven Technical University, TU/e.

If you are interested in cooperating with a Dutch company, please contact Toon Verhoeven.

Contact:

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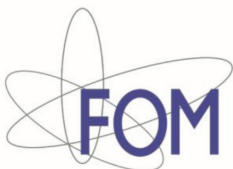
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**TNO** innovation  
for life



**NRG**

**TU/e**

# Dutch Scientific and Big Science

Holland has been joining many Big Science programs for over 60 years. Examples are: particle accelerators like the LHC at CERN, fusion like ITER, optic- and radio telescopes like the E-ELT and Lofar but also light sources, free electron lasers and neutron facilities. Regardless that these projects are very important for Dutch scientists who obviously belong to the top in the world, many highly technological companies in the Netherlands are involved in building these large instruments. There is no doubt that innovation is driven by science and the development of scientific instruments. Innovative companies are the first to emerge when a crisis ends.

Dutch Scientific used to be an organisation of firms developing for science in close cooperation with scientific research institutes and their engineers. Now Dutch Scientific has been re-invented by the Dutch Industrial Liaison Network for Big Science and will be supporting all Dutch high-tech systems companies for doing business with Big Science. The Dutch ILO-net is a network of Industrial Liaison Officers in the Netherlands supported by the Dutch government and NWO.

The Netherlands Organisation for Scientific Research that funds thousands of top researchers at universities and institutes and steers the course of Dutch science by means of finances and research programmes. Since companies listed in this booklet are very well equipped for translating their scientific knowledge to commercially applicable solutions, Dutch Scientific proudly presents a number of frontline high-tech companies who can support you with any project in which you want to be successful.

March 2015

## **Ir. Rob Klöpping**

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Netherlands Organisation for Scientific Research





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# 3D-Metal Forming

## Product information

3D-Metal Forming B.V. is specialized in metalworking by the use of dedicated explosive materials. New production processes are developed within the company by using CAD, FEM simulations and photogrammetry.

**Explosive bonding** makes the joining of unique metal combinations possible, such as molybdenum to copper or tungsten to CuCrZr.

3D-Metal Forming B.V. is your partner in developing new solutions.

We can provide a full process and manufacturing chain including e.g. explosive bonding, machining, brazing, electroplating, HIP etc.

**Explosive forming** provides complex double curved shapes, formed from sheetmetal.

The possibilities in size, shape, metal and sheet thickness are almost unrestricted.

Only one tool part (comparable to a lower die) is needed so that Non Recurring costs are kept to a minimum.

3D-Metal Forming B.V. serves customers Worldwide in the markets Big Science, Energy, Aerospace and Architecture.

We continuously develop new, innovative solutions. For example, the development of the explosive forming of large, 60 mm thick stainless steel plates for the ITER vacuum vessel led to the development of an integral Nose Fuselage for Airbus. This component is explosive formed out of one, 100 mm thick aluminum plate, and fully machined after explosive forming. For Airbus this results in significant weight reduction of the Nose Fuselage structure.

## References

RES (Cadarche): explosive formed panels of the water basin – ITER (F4E): explosive bonded CuCrZr-stainless steel tube transitions – ITER (RFX): explosive bonded molybdenum to copper, machined and warm formed – MAST (Culham, UK): explosive formed cans for poloidal field coils

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# Airbus Defence and Space Netherlands

Airbus Defence and Space Netherlands B.V. is a supplier of high-tech products and services for the international aerospace industry. Since its founding in 1968, the company has contributed to many challenging space programs and has built-up considerable expertise in space technology in areas such as Earth observation, telecommunications and science. The Dutch organization is part of Airbus Defence and Space, a division of Airbus Group. The portfolio of Airbus Defence and Space Netherlands B.V., which employs more than 200 experienced professionals, includes solar arrays, launcher structures and instruments & systems. The company employs more than 200 experienced professionals.

Some examples of relevant achievements for Space and Science are:

- The European Robotic Arm for the ISS is one of the most comprehensive space projects ever executed in the Netherlands. ERA has been developed for ESA by a European consortium, led by Airbus Defence and Space Netherlands. The project provided valuable heritage for remote handling.
- Three major optical spectrometers for measurement of atmospheric gases have been built by Airbus Defence and Space Netherlands, partnering with TNO: Sciamachy on ESA's Envisat and the Ozone Monitoring Instrument on NASA's Aura mission have provided state-of-the-art data and key knowledge of atmospheric processes. Their successor TROPOMI for ESA's Sentinel 5 precursor mission is currently being calibrated and prepared for flight early 2016.
- Six optical delay lines were built and delivered to ESO's Very Large Telescope Interferometer in Chile

The Leiden-based space company is known for its, call it typically Dutch, approach: reliable, solution-driven, with a clear goal in mind, and always open to international collaboration.

## For further information please contact:

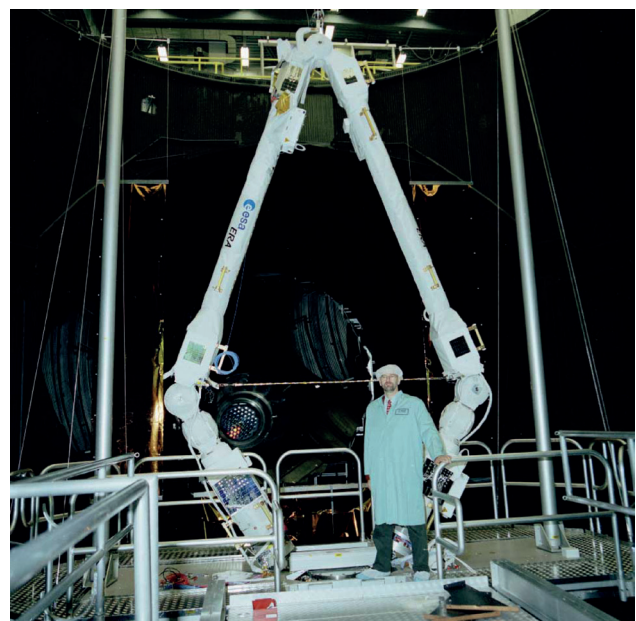
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# Amstel Engineering BV

In business for more than 25 years, Amstel Engineering offers advanced Mechanical Engineering services to customers that help them in developing complex mechanical designs and products. Our customers call on our expertise to design or evaluate critical components for reasons such as reducing cost, reducing time-to-market, increasing load capacity and extending life span.

## End-to-end capability

Amstel Engineering's capabilities in providing solutions throughout the product development life cycle from conceptual design, industrial and mechanical engineering design, CAD modelling and detailing, to simulation, analysis and prototyping, product testing and manufacturing, makes Amstel Engineering a unique one-stop solutions provider for Engineering Services.

Clients outsource their engineering work to Amstel Engineering, allowing them to focus on their core competencies. We not only solve unique engineering challenges, we manage the routine day-to-day engineering tasks that many clients no longer can complete in house.

## Dedicated staff

We are staffed by professional engineers and designers with extensive experience and expertise in engineering design and 3-D drafting in a range of industries. We focus on delivering technically accurate and scientifically sound solutions based on our training and industry knowledge.

## Proven expertise

We have a proven track record of providing complete Mechanical Engineering solutions for customers in verticals like Aerospace, Automotive, Rail, Material Handling, Food Processing and Retail.

What does that mean for you? When you partner with Amstel Engineering, you can depend on better value, faster delivery, superior products and services and a collaborative relationship throughout your project – as well as an engaged, expert partner for the life of your business. Amstel Engineering is part of the Neitraco Groep

## References

ASML – Nikhef – ECN – Dutch Space – Philips – ASM – Vanderlande Industries – Stork/Fokker – Multin Hittech – SKF

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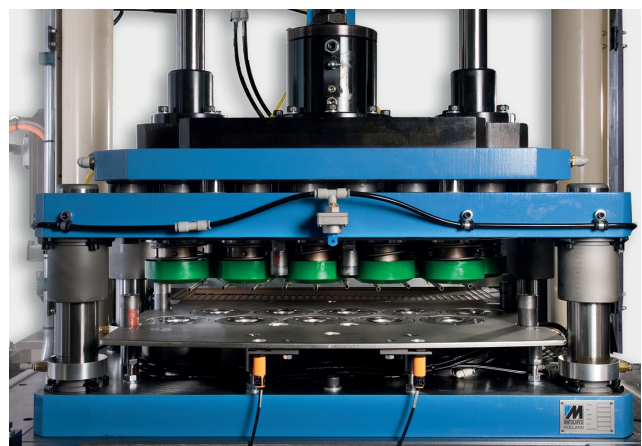
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# Amsterdam Scientific Instruments

We offer you the benefits of cutting edge detector technology developed by the Medipix collaboration lead by CERN.

Our customer-focused team consists of scientists and engineers with a vast global experience covering all aspects of particle detector technology. We close the gap between innovation at the frontier of science and ready-to-use products for science and industry.

## Product Information

Our Timepix hybrid pixel detectors can be used in a wide range of applications.

Besides X-ray imaging, ASI detectors are used for precise spatially resolved detection of electrons, neutrons and heavy charged particles. We also offer our detector in a vacuum compatible system.

Conventional detectors use a counting method. We offer clever pixels: every pixel can operate in three different modes. These are counting mode, time-over-threshold and time-of arrival mode.

For more information on our products, please visit our website: [amscins.com](http://amscins.com) or write us an email: [info@amscins.com](mailto:info@amscins.com).

## References

Nikhef, NL

AMOLF, NL

Reactor Instituut Delft, NL

Royal Adelaide Hospital, AU

Tribogenics, USA

Brookhaven National Laboratory (BNL), USA

Princeton Plasma Physics Laboratory (PPPL), USA

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10 employees

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AMSTERDAM  
SCIENTIFIC  
INSTRUMENTS





# Atkins BV

Atkins BV, part of Atkins Aerospace and Atkins Plc, is a leading multinational aerospace design and analysis consultancy, with over 17000 permanent staff worldwide.

Atkins Plc operates in multiple markets, including: Aerospace, Defence, Highways & Transportation, Oil and gas, Nuclear, Telecommunications, Rail, Water and Environment.

As a result we have access to a variety of engineering capabilities such as Atkins Nuclear. Qualified to AS9100 : 2004 rev. C across all offices

## Product information

We design and analyse main components for many new aircraft programs, as have emerged onto the market over the past ten years such as the Airbus A380, A400 M and A350XWB, Lockheed Martin JSF and Mitsubishi Jet:

- Wing structure including integration of engine, landing-gear and movables
- High-lift devices
- Fuselage structure and interior
- Future aircraft program concept studies
- Structural integrity prediction methods development
- Landing gear systems & structures engineering services
- Engine components for low pressure compressor

For ITER-NL, Atkins performed an optimisation study of the concept for Remote Handling Tooling of the Port Plugs.

## Specific expertise includes

Structural and mechanical engineering for large and complex international projects including integration and design for manufacturing.

- Structures – Light weight metallic and composites
- Systems – Landing gear, Controls, Fuel systems
- Interiors – cabin, cargo-hold, flight-deck
- Aero Engines – Compression & transmissions
- Our main tools are CATIA V5, Unigraphics NX, MSC PATRAN/NASTRAN, HyperMesh, PDM.

## References

Our Customers include Airbus, Rolls-Royce, Fokker, Bombardier

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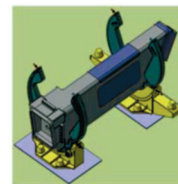
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80+ employees

<http://www.atkinsglobal.com>

# ATKINS



# Bodycote Vacuum Brazing

Bodycote Vacuum Brazing has been engaged in advanced brazing techniques for about 40 years. During these years an extensive know-how and vast practical experience have been built, unique for the industry. Practically all types of base metal, filler metals and brazing processes are being applied to hundreds of different products. Bodycote Vacuum Brazing has several different types of brazing furnaces available for basic research, product development and production.

Bodycote Vacuum Brazing is ISO 9001, ISO 14001 and ISO 50001 certified.

## Product Information

In the high temperature brazing process joints are generated in a vacuum atmosphere. The combination of high temperature and reducing atmosphere ensures metal oxides dissociate at the product surface. The process results in very strong joints (90-100% base metal strength) Due to the automated furnace control these joints can be reproduced with a constant high quality.

Bodycote Vacuum Brazing Diemen provides the following services

Vacuum brazing – Special heat treatments in vacuum or reducing atmosphere – Consulting for material selection and design of braze joints

## Materials regularly handled

Low and high alloy steels – Tool steel – Cast Iron – Stainless steel – Copper alloys – Titanium alloys – Superalloys – Carbides – Ceramic, composites, graphite

## Markets served

Power Generation and Energy – Oil & Gas – Measuring & Control – High precision tooling – Lithography – Aerospace – Pharmaceuticals – Science/research – Plastic Moulding

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# Boessenkool

Machinery Manufacturer Boessenkool: knowledge, competence and facilities. Co-maker mentality. Pro-active thinking and handling. Based on a complete knowhow and service mentality. Engineering, steel structures, metalworks, mounting facilities and mechanical machining. When needed also supplied with controls, electronics and final treatment. For that reason "Made by Boessenkool" is a guarantee for quality and success to many of our customers.

## Product information

Product	Description	Customer
Beampipe Bake Out Shell	Beampipe for electrons, matter research	CERN (CH)
Revolver Mobile Undulator Carriage	Electron fibrillation tool , matter research	E.S.R.F. (FR)
Galacsi Structure + Graal Tools	Alu structure to mount mirrors for space research	E.S.O. (D)
Product & Utility Swivel	Off-shore FPSO (Oil Production & Storage Unit)	Bluewater Energy Services (NL)
Rotary Bottle Filling machine	Bottle filling machine for the food industry	Stork (NL)
Compression Piston Rods	Piston Rod for high pressure compressor	Thomassen Compression (NL)
Rollers & Shaft for Test Bench	Rollers & Shaft of a testbench for trucks diam. 5 mtr.	Froude Hofmann (GB)
Warehouse Stacker Crane	Order picking unit for warehouses upto 40 mtr. height	FKI Logistex (World Wide)
Vacuum Vessel	Vacuum vessel for Wafer-Stapper production	ASML (NL)
Bearings & Gears	Bearing & Gear for Windmills upto 4 mtr. Diam.	Siemens (D) / Flender (D)
Services	Description	Max. weight
Milling	Upto 10 meters to 4 meters to 2 meters	60 tons
Boring	Upto 10 meters to 4 meters to 2 meters	60 tons
Turning	Upto 6 meters length with a diameter of 1 meter	20 tons
Vertical Turning	Upto 5 meters diameter with a height of 4 meters	60 tons
Fabrication	To customer specifications	120 tons
Welding	Certified welding in all materials and thicknesses	120 tons
Machine-building	Hardware incl. electronics, pneumatics and hydraulics	120 tons
Assembly	Products upto 60 meters with weight upto 120 tons	120 tons
Project-management	Projectmanagement incl. traceability	
Powder coating	Upto 4 meters long	
Hoisting	Hoisting capacity inside the factory is 120 tons	Max. 120 tons

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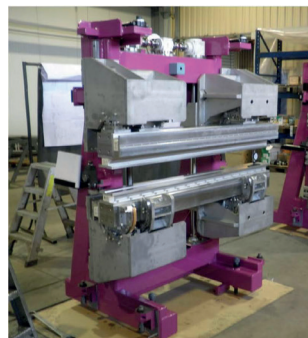
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Turnover: 5 M€ | 40 employees

[www.boessenkool.com](http://www.boessenkool.com)



MACHINEFABRIEK  
**Boessenkool**  
Osse Equipment Manufacturing Group



Revolver Mobile Undulator Carriages for the E.S.R.F. in France. Repeating Parallelism tolerance between the beams is 0,05 mm over 2,5 meters incl. beam rotation.



Large Welding constructions including the Large Machining against small tolerances in just one factory!

# Butraco

## let BUTRACO hatch your idea!

BUTRACO is a small service oriented prototyping activity for machines & parts. We not only engineer but also manufacture. To save time and costs we often work from a sketch only, or convert/ adapt existing products. Knowing many production techniques and having a large network of sub suppliers we can offer the best suitable production technology. Our way of working guarantees professional solutions and low throughput times. We can deliver in a timeframe that it normally takes to merely draw it on paper .

Our offer:

- One stop shop for prototypes: we engineer **and** have it made.
- Over **25 years experience** in machine building and part making.
- **Know how**; always the best suitable production technology.
- Small, flexible, and thus **speedy results**.

### References

Mostly universities or research institutes e.g. Technische Universität München (ZAUM) Germany; RIVM, The Netherlands, Adam Mickiewicz University, Poland; University of Evora, Portugal etc .

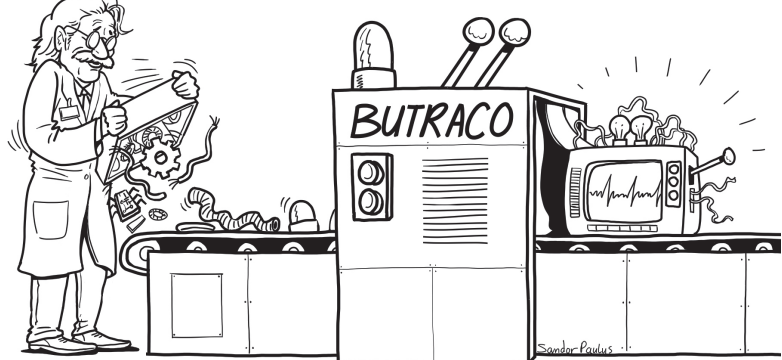
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# BUTRACO

experienced in machinebuilding





CCM is a well experienced innovative product development company, founded in 1969.

### Company Profile

We translate technology into solutions in the field of mechatronic products and systems.

Our main focus goes to the appropriate functionality, performance requirements and time-to-market, without ever losing track of product cost price and development costs.

Our competences in physics, mechatronics, mechanics, electronics and software enable us to support our customer's success.

Commitment, motivation, education and skills of our employees are the solid basis for our business approach.

CCM specializes in customized innovation for the semiconductor industry, medical diagnostics, pharmaceuticals industry and the imaging and printing industry.

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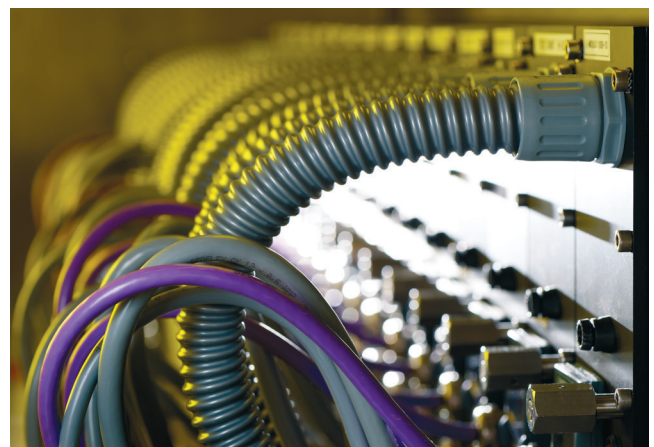
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95 employees

[www.ccm.nl](http://www.ccm.nl)



centre for concepts in mechatronics





# Ceratec Technical Ceramics BV

Ceratec Technical Ceramics BV has specialized in industrial technical ceramic components since 1983. Ceratec's strength lies in the complete formula of problem analysis, development, prototyping and production. Alongside various processing techniques, special joining techniques are applied for production of composite products made of technical ceramic and metal. The requisite metal-working processes and assembly activities are carried out in-house. We produce both small and larger series. Ceratec develops and manufactures products made of technical ceramics for customer-specific applications.

## Production capabilities

Green stage shaping and sintering – OD grinding, max 500mm, max length 1500mm – Honing min 0.6 mm inner diameter – Flat and profile grinding – Centreless grinding min 1mm, max 60mm (tolerance 2 microns) – Lapping with surface roughness of Ra 0.01 um – Coördinate grinding – Drilling of small holes, min 0,3 mm – 4-axis CNC grinding – CNC OD grinding – CNC turning and milling – Brazing of ceramics and corrosion resistant steel.

## Assembly of metal ceramic components

We are a main supplier for various kinds of industries; mechatronics, semiconductor, space & aerospace, medical, automotive, energy, optical, (petro)chemical, R&D, pump industry etc. The ceramic precision products we supply are engineered in house, designed with solid works & cosmos, green shaped & sintered and ground with state-of-the-art (CNC) grinding machines.

Following properties make our ceramic components successful; low density, high stiffness, electrical insulator, suitable for high vacuum, wear resistant, smooth surfaces, corrosion resistant, non-magnetic.

## *Ceramic on the right spot!*

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# DARE!! Development

DARE!! Development is a Research & Development company based in Woerden, The Netherlands, specialized in the development of analog RF and EMC measurement instruments. In the past 20 years DARE!! has acquired a strong name in RF electronics. With the successful implementation of several daring RF projects for civil and military use, DARE!! Development is always stretching the limits.

## Specific expertise includes

Our expertise lies in the field of:

- RF signal generation
- Analog LASER applications
- Custom made RF filters
- Custom made RF mixers
- Custom made antennae, including custom patch antennae.

In our state of the art facilities we can simulate designs, build fast prototypes and perform accurate measurements. As we can perform the total activities in house we have a very fast research and development cycle. Next to the hardware development we have our own embedded software team which has also expertise in the RF field.

## References

DARE!! Development has performed projects for Dutch Defense, Dutch Government and many private companies. Our measurement systems are sold worldwide to renowned customers. Recently a RF power meter has been developed for the linear accelerator of DESY, Hamburg, Germany. This unique power meter is capable of measuring RF signals till 18 GHz at an unprecedented measurement speed of 1 Msamples/sec. At this moment the measurement speed is increased to 5 Msamples/sec. At the same time a trigger input/output is added.

## Patrick Dijkstra

Technical Director

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45 employees

[www.dare.eu/development](http://www.dare.eu/development)

**DARE!!**  
**Development**



# Delft Neutron Instruments BV

The long experience of Delft University of Technology in the development of instrumentation for neutron science now serves the global neutron scattering community through a spin-off company. Delft Neutron Instruments designs and delivers a wide variety of high-tech components for polarized neutron applications tailored according to your specifications:

- High-frequency magnetic flippers and our in-house developed HF-generators
- Foil-based flippers (like in SESANS at the TU Delft)
- Coils for adiabatic spin rotation
- General purpose custom build DC coils and guide field configurations
- Complete add-ons for polarized neutron and Larmor labelling applications (like on OFFSPEC at ISIS in the UK)
- Our product range will be expanded in the future, please contact us if you need any other components or instruments.

*Delft Neutron Instruments BV delivers the full package: not only a component but also design, specify, install, and supply test reports and simulations.*

**Chris P. Duif, MSc.**

CEO

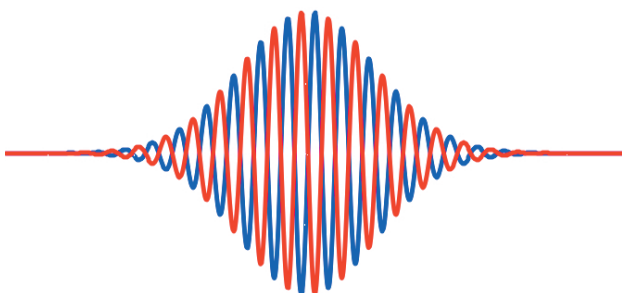
Mekelweg 15

2629 JB Delft

T: +31(0)152 78 42 67

E: c.p.duif@tudelft.nl

**[www.delftneutroninstruments.com](http://www.delftneutroninstruments.com)**



# Delta Elektronika BV

## DC Power Supplies

Delta Elektronika designs and manufactures DC power units since 1959. A power supply is seen as a minor part of any equipment and often taken for granted. For many just an electronic box ordered at the last moment. It can be compared with our heart. It's often neglected and we tend to pay even more attention to our hair. But if the heart fails the system goes down.

## Design concept

By reputation, a Delta power supply must be reliable. This is why our design concept has a strong emphasis on excellent technical specifications and long life. The specifications of our products may seem unrealistic but turn out to be even better when measured. Delta users expect perfection and an almost infinite life time at continuous full power and low cost of ownership. An ongoing research program has resulted in production designs that can meet an ever increasing number of specifications.

## Result

As a result of our design philosophy the units react more than 10 times faster on load transients, produce hardly audible noise and produce 10 – 30 times less electromagnetic interference. Delta customers will never face any problems due to radiated or conducted emissions of our power supplies. The same design philosophy applies for immunity: the toughest standard is not good enough for us. A Delta power supply will operate totally reliably even in a very noisy environment.

All our power supply units are thoroughly tested before being dispatched to the customer. All this ensures the long term correct functioning of each unit and client satisfaction. Delta Elektronika produces world class DC power supplies.

We are proud to hear our customers say: *"you are making them too well."*

## Service and Support

Just designing and producing excellent products is not enough. At Delta we believe that excellent power supplies are incomplete without outstanding service and support. Only the best manufacturers do not let you down when problems might occur. We keep on helping. Also when equipment has been bought many years ago or when you made the mistake.

For us it is only natural that Delta users get technical support and advice about applications within 24 hours. Lead times are as short as possible and our product support is at least 10 years after the production of a unit has been stopped. Just because our customers appreciate this.

**Delta Power Supplies: excellent products, excellent service!**

## M.A. Giltay

Sales

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T: +31(0) 111 41 36 56

E: sales@delta-elektronika.nl

[www.delta-elektronika.nl](http://www.delta-elektronika.nl)



# Demaco Holland BV

*If you are looking for...*

- Support in Cryogenic Engineering
- Cryogenic expertise in manufacturing and installation of your Cryogenic Infrastructure like
  - Helium Transfer Lines
  - Helium Distribution Valve Boxes
  - Helium Interconnections between your facility and the storage tank or liquefier
- Cryostats
- Liquid Nitrogen Systems
- Optimisation or Modification of your existing Cryogenic Infrastructure

*...please don't hesitate to contact us and send us your enquiries. It will be our pleasure to provide you with a suitable proposal with your Cryogenic Solution.*

Demaco is the leading knowledge driven cryogenic infrastructure partner for industrial gas companies, scientific institutes and EPC contractors world-wide. Our team of cryogenic specialists, Cryogeniuses, is committed in supporting our partners in their daily effort to transport and condition all liquefied gasses. By advising on, designing, engineering, manufacturing, testing and installing customer specific vacuum insulated solutions of superior quality we continuously provide the highest yielding infrastructure in the industry.

## References

### CERN

- Multiple Helium Transfer Lines for LEP, LHC, ATLAS and CMS
- UHV-chambers for LEP separators
- Helium Siphons
- Liquid Argon Valve Box

### DESY

- HERA-by-pass Helium Transfer Lines
- Bunch Compressor bypass pipelines I and II
- Helium Valve Boxes and Transfer Lines for the X-FEL Test Facility
- Extension for the TTF Transfer Lines

### ESA

- Main Valve Boxes for the LSS Satellite Test Facility
- LN2 Transfer Lines and Phase Separators

Triumf – NSRRC – ESRF – KIT – GSI – ITER – PSI – ISRO – NIKHEF – Helmholtz – Max-Planck

### Ronald Dekker

Director Strategy & Large Projects

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E: [rd@demaco.nl](mailto:rd@demaco.nl)

100 employees

[www.demaco.nl](http://www.demaco.nl)





# Demcon Advanced Mechatronics

## About DEMCON

DEMCON researches, develops and produces high-tech systems and products for our focus areas of high-tech systems and medical devices. Due to our production capabilities, DEMCON can differentiate our self from other suppliers. Our clients receive not only a blueprint but also a working product or system.

## Markets

DEMCON is a high-end supplier of technologies for the high-tech systems and medical devices markets. Within these markets, our focus is primarily on development and production.

DEMCON is highly proficient at applying, technical skills and high level of expertise in order to come up with surprising solutions to complex problems. The knowledge gained in one market enables us to look at problems in other markets in an open and creative manner.

## Capabilities

We have employees from a wide range of technical disciplines in every project group and make use of a large number of facilities.

- Mechanical engineering
- Software engineering
- Electronics engineering
- Industrial design
- Physics/optics
- Clean room
- Prototyping
- Production

## References

Philips – ASML – FEI – DORC – SIEMENS – TE Connectivity – Bronkhorst

## HenkJan van der Pol

Business Manager Hightech systems

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T +31 881 15 20 00  
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Turnover: 20 M€ | 140 employees



# ECM Technologies

ECM Technologies is a company offering non-conventional electrochemical machining solutions, with its headquarters located in the Netherlands and its production facility in the USA. It has been operating on the global market from its inception in 2003.

## Products & Services

ECM Technologies focuses on offering unique Research & Development (R&D) on materials, followed by Production of the requested product, as well as Consulting & Training services within the expertise of precision electrochemical machining (pECM).

## Precision Electrochemical Machining (pECM/ECM)

Electrochemical Machining is an advanced metal-working technique which can machine products difficult or impossible to design through conventional machining. It is an extremely accurate technique, capable of machining any electrically conductive work, even improved and new to machine metal alloys irrespective of their hardness, strength or thermal properties.

## Application

Process application: Electrochemical Machining can add accuracy and substitute the following processes: *drilling, polishing, milling, grinding, and roughening*; along with machining & designing what conventional-machining cannot, such as *micro-machining, shaping hard to reach locations, flow turning, and die-sinking* among others.

Industry application: Furthermore, there are no boundaries as to where pECM can be applied. ECM Technologies have researched and developed for the majority of the high industries: Aerospace & Space, Automotive, Medical, Energy & Offshore, Consumer products, and Machine Tooling.

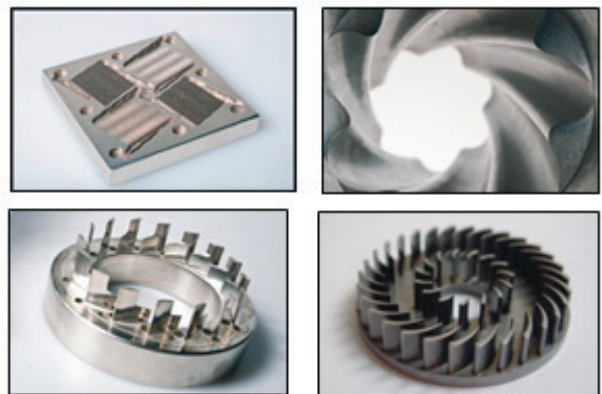
**Hans-Henk Wolters**  
CEO

Ceresweg 42  
8938 BG Leeuwarden  
T: +31 622 37 97 50  
wolters@electrochemicalmachining.com

Turnover: 1.0-1.2 M€ | 10 employees

**www.electrochemicalmachining.com**

  
**ECM Technologies**  
Innovative Electrochemical Machining Solutions



# Futura Composites BV

Specialists in Fibre reinforced Composites

Components for products of the future. That is what Futura Composites produces. As a specialist in fibre reinforced composites, we are a reliable partner for all manufacturers of high-grade technical applications.

Futura Composites operates at the very highest technical level. We supply products of high-grade material according to unusual designs, which require extensive engineering work and are produced using highly advanced techniques. An extremely high delivery reliability complements the picture.

## Technology

Futura Composites offers solutions for the technological challenges encountered by specific clients. We do not supply standard but only tailor-made products. Each product we make requires some measure of innovation. That is why creativity is central to our working methods.

Futura Composites performs the entire production process in-house, from design and engineering to production and testing. For this reason, too, we can guarantee the very highest quality.

Futura Composites is certified Iso 9001:2008 / Iso 14001:2004 / Iso13485:2003

## Production techniques

- Filament winding
- Prepreg (In and out of Autoclave)
- Resin Infusion
- Sandwich Construction
- Resin Transfer Moulding ( also Vacuum Assisted)
- Machining Composites
- Testing Composites

## Materials

- Epoxy
- Phenolics
- Glass Fibres ( E-R-S)
- Carbon Fibres ( HM/ HS - Pitch /PAN)
- Aramids
- Dyneema

## Martino Borgo

Managing Director

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[www.futuracomposites.nl](http://www.futuracomposites.nl)



Specialists in fibre reinforced composites



# Grontmij

Grontmij provides consultancy, design & engineering and management services in a broad range of market sectors related to the built and natural environment. We work in all sectors, ranging from infrastructure all the way to urban development, Energy and Water.

Within our range of expertise, we aim for European leadership in five Group growth activities: Energy, Highways & Roads, Light Rail, Sustainable Buildings and Water. Our guiding principle is sustainability by design which is a leading value proposition for our customers.

Grontmij ranks among Europe's largest engineering consultancies and has a presence in the Netherlands, France, Denmark, Sweden, Belgium, United Kingdom, Germany, Poland, Turkey and China. We have approximately 7,500 professionals around the world where we work on a project basis.

## Our envisioned future – what we aspire to become, to achieve and to create

- Recognised by our clients for market leadership and quality of delivery.
- 'Sustainability by Design' is our leading principle.
- Preferred company for talented professionals and offering ample opportunity for development.
- Among the best on financial performance in the Consulting & Engineering industry.

## Core purpose – our fundamental reasons for being

- We enable our clients to make informed decisions and well-considered investments as they develop our natural and built environment.

## Core values – our enduring beliefs: engaged, collaborative and reliable

- Engaged: Our engagement is driven by our clients' desire to improve life and society. We have the courage to develop new ideas and pursue new ways of achieving a sustainable future. We stay committed, overcoming problems and obstacles without compromising our integrity. Our working environments ensure that everyone's untapped source of creativity adds value to our clients' solutions.
- Collaborative: For us, collaborative means being part of a collective effort to meet our clients needs. We pool our knowledge, skill and expertise – acting as one company and sharing the same goals. We work together to find win-win solutions with empathy and respect for all. Together we celebrate our success.
- Reliable: We aspire always to perform and deliver – on time and on budget. We do more than just the job; we do it well and we are always there for our clients – now and into the future. Clients, partners and colleagues can all rely on us to deliver quality performance. We aim to be down to earth and practical in all our dealings.

### Barry van Sloten

Director Buildings

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[www.grontmij.nl](http://www.grontmij.nl)





# Harsveld Apparatenbouw B.V.

## Engineering, manufacture and installation of

- Piping
- Plate- and construction work
- Pressure vessels & tanks
- Heat exchangers
- Skidbuilding

## Materials

- All Steel and Hi alloy Steels
- All Stainless Steels and heat-resistant Steels
- Duplex and Super Duplex
- Aluminium
- Titanium, Hasteloy ®, Incoloy ®, Inconel ®, Monel ®, Haynes ®,

## Certified

- ISO 9001
- - ISO 3834-2
- PED Module H and H1.
- Workshop Approval Germanischer Lloyd

***“We have built the Smelt Reduction Vessel for the Hlsarna pilot plant”***

## References

Albemarle – Danieli-Corus – EXXON mobil – Gardner Denver Nash – Linde Gas – Tata steel – e.a.

## Rob de Visser

Managing Director

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50 employees

**www.harsveld.com**  
**info@harsveld.com**





# Heemskerk Innovative Technology

Heemskerk Innovative Technology offers strategic and operational consultancy in the areas of robotics, mechatronics and hightech systems, and primarily targets the European institutional market.

## Product information

**Innovation Management** – Heemskerk Innovative Technology (HIT) blends innovation management, systems engineering, and people management to support research projects and to develop spin-offs into proof of concept and market readiness, working in close cooperation with Institutes, Universities, and industrial partners.

**ITER Remote Handling studies** – During operation, plasma facing components of the experimental fusion reactor ITER will get activated and contaminated with radioactive and toxic materials. Remote Handling (RH) maintenance is performed by master-slave telemanipulation techniques. Heemskerk Innovative Technology develops new RH technologies and tools and validates RH maintenance sequences.

**Virtual Slave** – In an industrial partnership with Dutch Space and TreeC, HIT develops a simulation tool to simulate in real-time kinematics, dynamics and physical interaction of designs and environments imported from CAD software. The Virtual Slave system is multifunctional; it can be used to analyse the maintainability of components in the design phase, to validate maintenance procedures, to train operators and to provide operational support during maintenance operations.

## References

ITER – Dutch Space – FOM Insitute DIFFER – FlexGen – TNO – Oxford Technologies – VDL APTS

**Dr. Ir. C.J.M. Heemskerk**

Managing Director

Merelhof 2

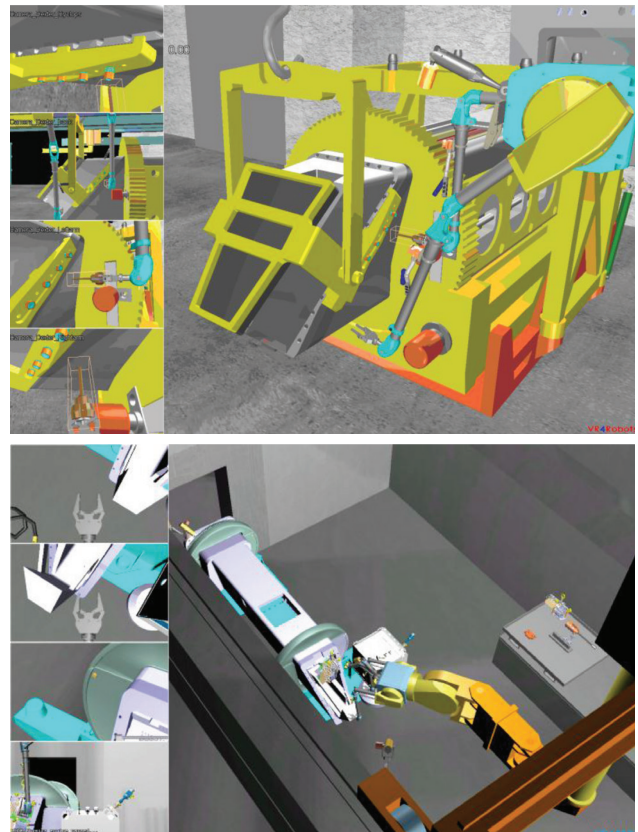
2172 HZ Sassenheim

T: +31 651 34 09 66

E: c.heemskerk@heemskerk-innovative.nl

Turnover: 400.000 € | 7 employees

**[www.heemskerk-innovative.nl](http://www.heemskerk-innovative.nl)**



# Heeze Mechanics

**Design and Precision Engineering for R&D Institutes since 1966; manufacturing of microwave components i.e waveguides, parts for Clic, parts for long en short Yoke, cartridge plate for RAL and parts for Galaxy.**

## Product information

- Design and Precision Engineering for R&D Institutes since 1966.
- Manufacturing of Waveguide (FOM), parts for Clic (CERN), parts for long en short YOKE (CERN).
- Cartridge plates for RAL (Rutherford Appleton Laboratory).
- Parts for Galaxy (ESO).

## References

CERN – ESRF – ESO – Rutherford Appleton Laboratory – TNO – OMT solutions – Rimas – Philips Research – FOM

## Theo van Tongerlo

Managing Director

Biesven 10a

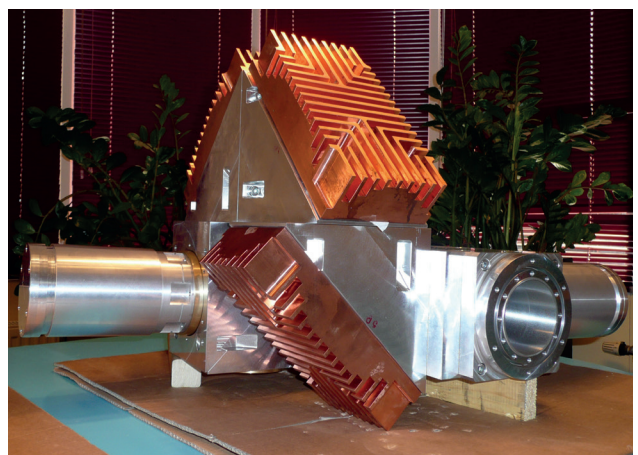
5595 DD Leende

T +31 402 24 01 78

E: [th.van.tongerlo@heezemechanics.nl](mailto:th.van.tongerlo@heezemechanics.nl)

Turnover: 800,000 € | 5 employees

[www.heezemechanics.nl](http://www.heezemechanics.nl)



# HEINMADE

HEINMADE develops and delivers piezo system solutions ranging from a single bulk piezo to servo controlled multiple axis motion platforms. With our long term experience and extended network, we are able to detect critical aspects, to control and solve these aspects and to provide reliable solutions.

## Product information

Through collaboration with Noliac (DK), Nanomotion (Isr) and Piezomechanik (DE), HEINMADE offers a wide portfolio of standard products and system solutions. Over the years HEINMADE has extended this portfolio with developed custom made designs to meet the high demanding requirements of the high tech and medical industry.

Some examples of systems in production are; multiple axis long stroke motions systems, transducers, sensors and active damping systems. Present R&D work is focused on active damping, accurate dispensing and high force high precision stages. HEINMADE supplies basically all piezo related components and (sub-) systems:

- R&D work on piezo components and integrated systems.
- Design, engineering and supply of high precision metal parts like hinge structures, etc.
- (Encaged) Piezo actuators and benders (high and low voltage).
- Piezo motors and steppers.
- Short and long stroke piezo stages (actuator and motor based).
- Drivers and controllers for piezo actuators and motors.
- Active vibration dampers.
- Dispensing systems for low vapour pressure or high viscous substances.

## References

Philips Apptech – ASML – ESO – TNO – TU Delft  
– TU Eindhoven – TU Twente – VSL (NMI) – FEI

## Hein Schellens

Director

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E: hein.schellens@heinmade.com

Turnover: 1.0 M€ | 7 employees

[www.heinmade.com](http://www.heinmade.com)

**HEINMA<sup>2</sup>DE**  
supplier piezo ceramic solutions



# Hitec Special Measuring Systems

Hitec Special Measuring systems bv develops and manufactures off-the-shelf and customer specific current measuring systems for AC and DC currents up to 50kA with scientific class accuracy and stability.

## Product information

Hitec Special Measuring System, part of the Hitec Power Protection Group, has a long and impressive history in developing and manufacturing of tailor made current measuring system for AC and DC currents  
Hitec was the first to introduce a revolutionary high precision current measuring system based on the Zero-flux principle.

The Zero-Flux principle enables galvanic isolated measurement of AC and DC currents with supreme accuracy, linearity and stability.

Many thousands of our systems have already been applied in High Voltage DC, Scientific and industrial applications.

## References

Science: All major scientific research centers

High Voltage applications: Most of the High Voltage Direct Current links

Industry : Power metering/data logging, lithographic systems for semiconductor industry and medical imaging

## R. Lachminarainsingh

General manager

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Turnover: 5 M€ | 9 employees

[www.hitecsms.com](http://www.hitecsms.com)





# Hositrad Vacuum Technology

Hositrad Vacuum Technology combines more than 45 years of experience in vacuum and cryogenic technology. We supply standard vacuum parts CF, KF and ISO components from stock.

## Product information

### Hositrad Vacuum Technology

- Have capabilities covering all areas starting from a standard flange up to designing a complete vacuum system,
- Manufacturing, repair and after sales service of vacuum equipment
- Experts in TIG-Laser and Microplasma welding en He. leak testing  $<1 \times 10^{-10}$  mbar l/sec.
- Laser welding for medical devices and clean technologies
- Own production and an AutoCad design in Holland and in the Far East
- "Custom made specials" according to customer drawing in our workshop
- Supply the following products: CF-KF and ISO vacuum components – Electrical/Linear/Rotary Feedthroughs - Edge welded bellows – Isolators – View ports – Fiber Optics – Glass to Metal seals – Manipulators - Ferrofluidic feedthroughs – All Metal Valves – Angle Valves – Gate Valves – Diode Ion/Triode pumps and Titanium sublimation pumps – Cryopumps – Cryostats

### Hositrad Vacuum Technology represent

**Ceramtec:** Ceramic-to-metal sealing technology. Hermetically sealed electrical & optical components include D-type/circular feedthroughs, multipin connectors, coaxial connectors, thermocouples, isolators, viewports and accessories.

These components are ideally suited to support optical, gas, liquid, power, instrumentation and sensing applications.

**ColdEdge Technologies:** provides custom  $<4\text{K}$  to  $1000\text{K}$  closed cycle cryostats with interfaces.

**Extrel:** Extrel is the world's leading manufacturer of Research and Proces Mass Spectrometers, Residual Gas Analyzers (RGA's), Quadrupole Mass Spectrometry Systems and Components from 1-100 amu to 16000 amu

**Thermionics:** Manipulators, Valves, E-Guns, Ion Pumps, MBE Systems, Mechanical feedthroughs.

## References

CERN, DESY, (XFEL, EMBL, Hasylab Hamburg), Helmholtz Zentrum Berlin (Bessy, HMI), FZ Jülich, GSI Darmstadt, KIT Karlsruhe, GKSS, DLR, IPP Garching, PSI Villigen, ESA Noordwijk, ESRF Grenoble, ALBA Barcelona, FOM-Nikhef Amsterdam, FOM Nieuwegein and all Universities and Research Labs in Europe.

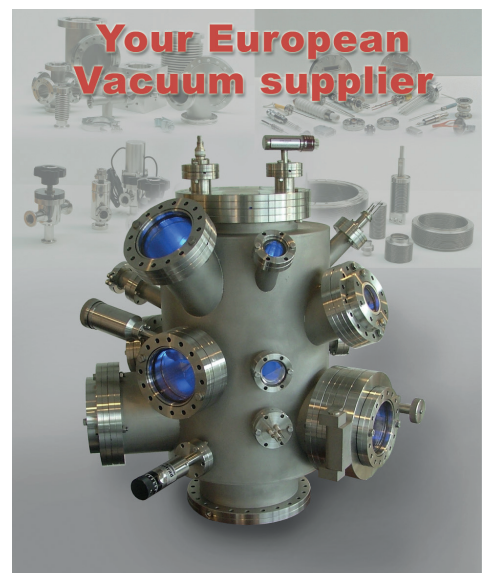
### J.L.J. (Jurgen) Tomassen

Director

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Turnover: 4 M€ | 10 employees

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# IBS Precision Engineering BV

For over 20 years IBS Precision Engineering has been helping its customers to realise their demands for measurement, positioning and motion systems where ultra-high precision is required. With our expert foundation in metrology, we understand the true meaning of precision and how to help our customers achieve it.

IBS products and solutions can be found at leading companies world-wide serving industries from disk drive to semiconductor equipment, printing and medical systems. In the field of machine tools we serve both builders and users with measurement systems delivering significant bottom-line productivity improvements. For the research community, we provide support from standard ultra-precision components to custom made systems.

At IBS we have a long history in successfully helping our customers address unique problems. We do this through both our standard products as well as our design house. The latter provides support from feasibility through to pilot production for modules through to machines.

From advice on component application to full system design and realisation, our aim is to deliver the innovative solutions required by our clients where leading measurement or high accuracy motion capability is critical.

## Hans Ott

Sales & Marketing Director

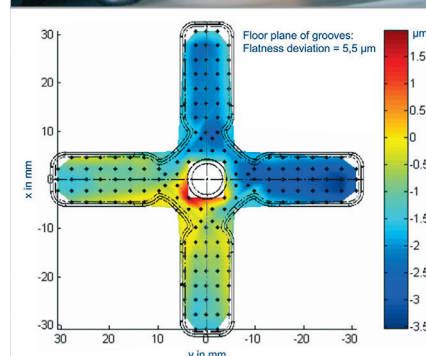
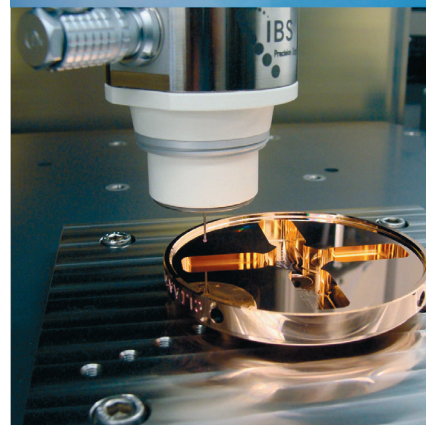
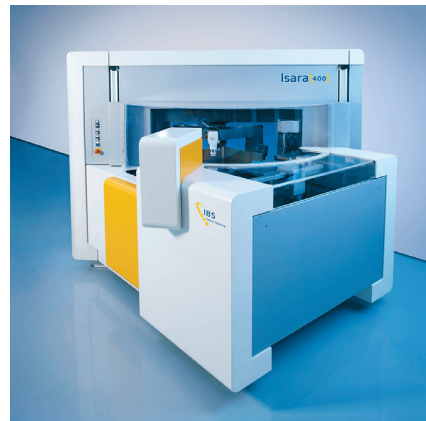
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T: +31 402 90 12 70

E: [info@ibspe.com](mailto:info@ibspe.com)

[www.ibspe.com](http://www.ibspe.com)



# Overview of companies

	*	Speciality		Management/ syst eng	De
		Discipline	Technique		
3D Worknet	S		3D printing		
Amstel Engineering BV	M	Mechanical Engineering	3d Design & Drafting		
Amsterdam Scientific Instruments	S		X-ray detector		
Atkins BV	L				
Bodycote	M		Brazing		
Boessenkool	S				
Butraco	S		custom production machines	x	
CCM	M				
Ceratec Technical Ceramics BV			Ceramics		
DARE!! Development	M		EMC		
Delft Neutron Instruments BV	S	neutron instruments			
Delta Elektronika	S	DC power supplies			
DeMaCo Holland BV	M				
Demcon	M				
ECM Technologies	S		ECM		
Futura Composites BV	M		composites		
Grontmij	L		building management	x	
Harveld Apparatenbouw BV					
Heeze Mechanics	S		Waveguide		
Heinmade	S		Piezo		
Hitec Special Measuring Systems	S		Current measuring		
Hositrاد Vacuum Technology	S	Vacuum	Ceramics		
IBS Precision Engineering BV		Mechatronics		X	
Imtech Industry International	L		Tailor made power conversion systems		
INCAA Computers	S				
inMaterials					
Janssen Precision Engineering	S				
KIN Machinebouw	M				
Mat-tech	s		metallurgy		
MI-Partners	S				
Mogema BV	M		Welding		
Montair	M	nuclear	waste handling		
MTSA Technopower	S	Nuclear			
Nedinsco	M	Photonic			
NRG					
Peter Haak Productontwikkeling	V	Sensor Desgin			
PM-Group	S		HI precision bearings		
Q-Sys			Motion control & positioning		
S&T	S		Data analysis		
Schelde Exotech	M				
Settels Savenije van Amelsvoort			mechanical & process	x	
Sumipro	S		Optics		
Technobis Group	S		Fiber		
Tessella	M	Space			
Thomas Thor Associates					
TNO	L	Space	Optics		
Van Halteren	M				
VDL Enabling Technologies Group	L				
Vernooy	M				
Wilting	S		high precision		

\* V= Very small 1 - 5; S = Small 5 – 50; M= Medium 50 – 250; L= Large >250

Development	Engineering	Production	Test	Area						
				Metal		Mechatr.	Cryo	Vacuum	Electronics	Software
				Large	Small					
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x	x		x						power supplies	
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X	X		X			X				X
x	x	x	x						Power	
x	x	x	x						Anal/Digital	x
x	x	x	x		x	x				
	x	x			x					
x	x		x							
x	x	x				x				
	x	x		x	x			x		
x	x	x			x				power	
	x	x	x							
x	x					x			x	
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x	x	x	x			x			x	x
x	x		x							Modelling
	x	x		x						
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x	x	x	x							x
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	x	x	x	x	x	x				
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x	x		x							

# Imtech Industry International BV

Imtech Industry International BV is an international operating technical service provider with focus on Project Development, Engineering & Contracting, Operation & Service. Imtech Industry International has employed specialism on the Power Electronics, Energy and Oil & Gas markets.

## Company information

Imtech's business unit Power Electronics has more than 40 years of experience in the field of Power Electronics and Applications. Activities within Imtech Power Electronics are conceptual- and detailed design, construction, assembly, factory testing, installation and commissioning of tailor made Energy Conversion and Distribution Systems for Scientific and Industrial applications.

Imtech, has gained a strong reputation of tailor made Energy Conversion solutions up to the following figures:

- current: up to 150 kA
- voltages: up to 100 kV
- rated power: up to 20 MW (continuous)
- up to 150 MW (pulsed)

- frequencies: up to 100 kHz
- stability: down to 1 ppm

Our solutions find their way into various applications

for:

- Enrichment processes
- Nuclear fusion research
- Particle accelerators / synchrotrons
- Galvanic industry
- Film processes
- Electricity distribution grids
- Electrolysis processes
- Fuel Cell processes
- Renewable energy

## Some of our references for scientific institutes

IPP Garching (D) – 145 MVA Modular Conversion System for ASDEX upgrade IPP Garching (D) – Extension of the Pulsed Power Supply Network of ASDEX by a set of Compact Modular Generators (8 MVA, 32 MJ), HFML Nijmegen (NL) – 20 MW DC Converter System – DESY Hamburg (D), Klystron modulator for the XFEL RF station Helmholtz Zentrum Berlin (D) – 8 MW 20 kA Power Converter System, Solvin Antwerp (B) – 1 MW PEM fuel cell conversion system

## Erwin Lenten

Strategic Sales Manager

Modem 30

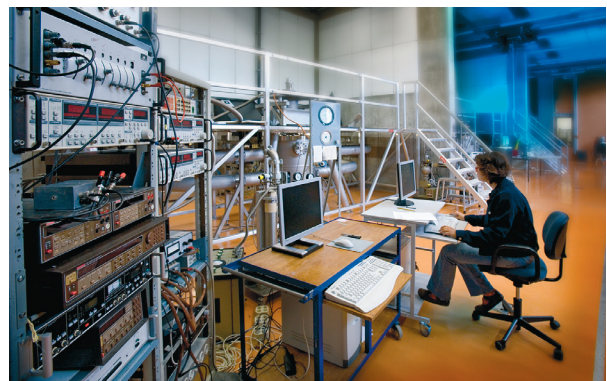
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E: [erwin.lenten@imtech.nl](mailto:erwin.lenten@imtech.nl)

Imtech Industry International is part of the Imtech  
NV Group | 400 employees.

Turnover: Imtech NV 5.1 Billion € | 29.000 employees (2011)



[www.imtechindustryinternational.nl](http://www.imtechindustryinternational.nl)



# INCAA Computers

INCAA Computers is a well-established company with over 35 years experience in design and manufacture of professional high-tech electronic equipment for industry, science, and OEM. We provide solutions for technical automation projects and take system responsibility.

## Product information

Applications extend from industrial and scientific scalable data acquisition systems through transient recorders, timing systems, superconducting magnet test benches and power supply control modules to alarm and safety systems.

**Hardware Development:** Modules can be designed from scratch or standard modules can be tailored to customers specific needs. Characteristic product properties are the high quality level and the relatively small to medium production volumes.

**Software Development:** Due to our in-house hardware expertise we know best to separate projects into hardware and software functions and how to interface them to build innovative fail-safe systems. Specialisations include system software, databases and graphical user interfaces.

**System Integration:** We not only deliver hardware modules and software packages but also integrate these with third-party components into complete functioning turn-key systems.

## References

Our client base includes a wide selection of international organisations and companies:

CERN – Sincrotrone Trieste – GSI – UKAEA – MIT – FZ Juelich – Alstom – ASML

## Bart Sijbrandij

Project manager

Puttenstein 20

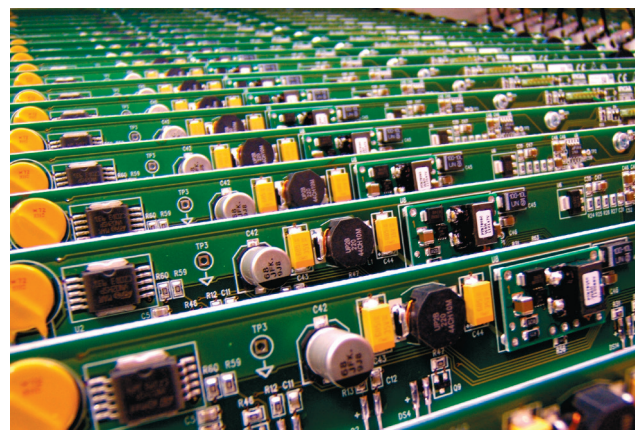
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20 employees

[www.incaacomputers.com](http://www.incaacomputers.com)





# inMaterials

inMaterials is an independent materials consultancy company that provides tailor made solutions for materials testing and materials characterization. inMaterials offers comprehensive materials consultancy services consisting of Materials Science, Materials Testing, Education and Radiation Protection.

## Specific expertise

inMaterials offers expertise on structural materials ageing and materials degradation in nuclear environments. Competences are available for commercial power plants, research fission reactors and fusion facilities. We have a long track record and experience in the materials sector for nuclear applications, firstly working for research institutes and later on as an independent materials consultancy company. The inMaterials consultants have dedicated a lot of effort to the materials qualification for fusion application and for structural materials condition assessment for fission reactors.

inMaterials consultants possess a comprehensive understanding of microstructural changes due to neutron radiation and the resulting changes in mechanical materials properties in a combination with in-depth knowledge of various testing standards and nuclear design codes.

inMaterials has extensive experience in the development of new testing methods and complex mechanical testing installations for materials characterization in hot cell laboratories including development of tools that are needed for work in nuclear environments.

## Natalia Luzginova

Co-founder/Materials consultant

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**MATERIALS  
SCIENCE**



**MATERIALS  
TESTING**



**RADIATION  
PROTECTION**



**EDUCATION**

# Irmco BV

Irmco bv has been formed in 1972.

Irmco bv developed the legendary educational toy **Sjobus**.

Irmco bv takes the lead in co-operation between reliable Dutch companies.  
Heeze Mechanics, Schelde Exotech, Innovation Handling, Sunfys, TNO.

Irmco bv gathers the technology experience and know-how to design and manufacture:

- waveguides
- measuring instruments based on acoustics

**Michael Koot**

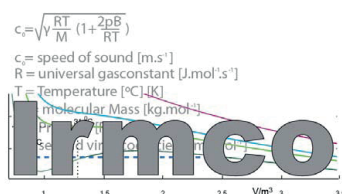
Director


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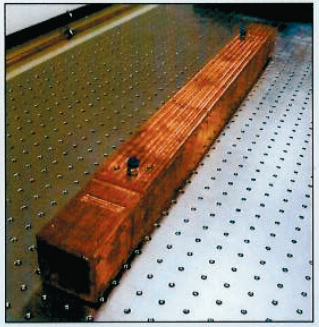
**EFDA**  
FOM-Rijnhuizen  
Edisonbaan 14  
3438 XP Nieuwegein  
The Netherlands

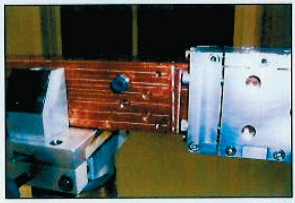
EUROPEAN FUSION DEVELOPMENT AGREEMENT

**Modifications and transportation of the RS  
ITER launcher test mock-up**



Vacuum tests on Dutch waveguide section May 27  
First mmw test May 28 and 29 (Remote during weekend)



Vacuum tests:  
1 mbar after 1 hr  
Effective turbo pumping after 1.15 hrs  
End pressure  $5 \times 10^{-4}$  mbar after 2 hrs  
**Expected leak at the seal surface !!!!**

B.S.Q. Elzendoorn progress meeting June 22 and 23 2005

4-7-2005

# Janssen Precision Engineering

Precision engineering and mechatronic solutions in ambient, vacuum and cryogenic environment.

## Company profile

JPE is an independent engineering group for development and realization of high-tech machinery and instruments. Especially where accurate and stable performance is involved in the sub-micron area.

The company was founded by Huub Janssen in 1991 after several years of experience in the high-tech industry of companies like ASML and Philips. Nowadays, we have built up a team of professionals which are able to find and implement solutions for very challenging engineering requests. JPE has gained multidisciplinary knowledge of technical issues at every level. From system level down to component level, from definition and design, up to prototyping and qualification. By following a systematic approach with high involvement, quality and efficiency are guaranteed.

We develop high-end opto-mechanical applications to be used in deep vacuum as well as cryogenic environment. Our developments typically find their way in an international market like:

- semi-conductor industry,
- astronomy and space,
- scientific experimental instruments

## Competences

- precision engineering
- mechatronic solutions
- nanometer positioning
- positioning in cryogenic environment

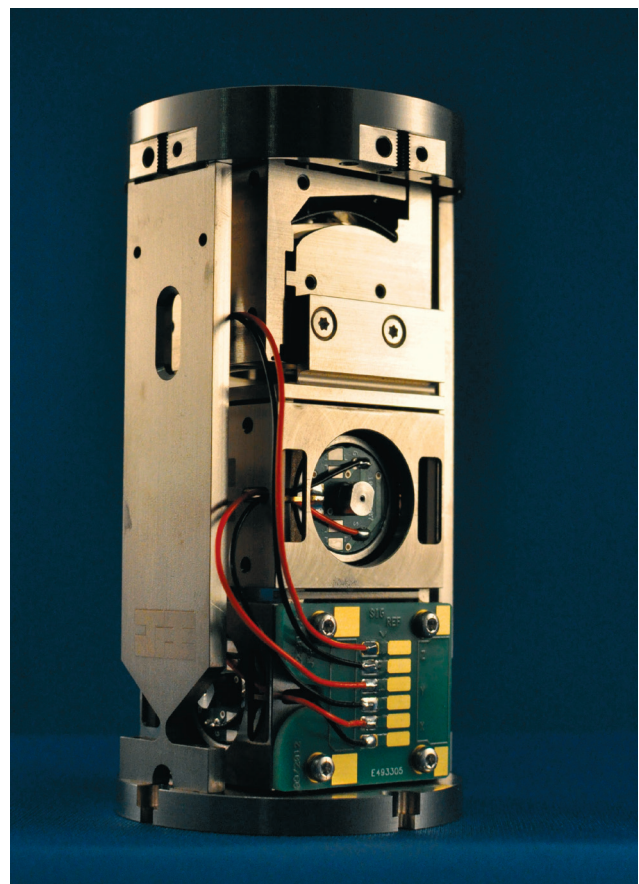
## Huub Janssen

Founder & CEO

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# Kin Machinebouw

**System supplier to the industry. Long lasting experience combined with craftsmanship. Specialized in certified welding constructions and the machining thereof.**

## Facts

- Expert in certified welding constructions in various materials; ISO 3834-part 2 and PED module D certified.
- Modern machining capabilities: boring 1.5x 1.5mtr, milling upto 4,5 mtr, horizontal turning up to 8 mtr, vertical upto 6mtr.
- Experienced engineering capable of co-ordinating large projects ( up to € 3 mio).
- Experienced in the assembly and project co-ordination of complex machines.
- Extensive network of sub-contractors.

## Industry served

Special machines and apparatus for e.g. Defense, Nuclear, off-shore, food and aviation industry. Supplier of pressure vessels, lifting and towing equipment and amusement rides.

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# Landes High End Machining

Reliable supply of mechanical parts ready for assembly is the core competence of Landes High End Machining. Landes incorporates 30 years of experience in the manufacturing and on-time delivery of complex and/or accurate components for high end industries. Products are realised by means of CNC-turning, CNC-milling and CNC-measuring. This privately owned business was established in 1985 and has demonstrated consistent growth in turnover and technology development over the years. Landes currently employs approx. 50 employees and is both ISO 9001 and AS-9100C certified.

## Capabilities

The capabilities within Landes range from the industrialisation of new components and qualification of manufacturing and outsourcing processes as well as high end machining of titanium (all grades), aluminium and high alloy steels. Manufacturing activities may include special processes like heat treatments, surface treatments, finishing and cleaning with the aim to deliver components that are ready for next higher assembly. The dimensions of Landes in-house manufacturing go up to 1000 x 1000 x 1000 mm. Documentation and traceability are an integral part of the quality management system within Landes.

## Products

Structural parts, precision components, turbine components, landing gear components, interior components, frames, housings, limiters, rotation parts, pick- and place components, etc.

## Markets

Aircraft- and Space industries, Defence (land systems, naval systems, air bound systems), Semicon industries, Optical industries, Medical equipment, Offshore industries, Special machinery.

## References

Fokker, Airbus, Marshall Aerospace, General Electric, Stork, Pratt & Whitney, VDL, Siemens, Fresenius etc.

## Certification

ISO-9001, AS-9100C

## Peter Boogaart

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**Landes**  
HIGH END MACHINING





# Mat-tech B.V.

Mat-tech B.V. is an innovative metallurgical company with a proven track record as interconnection technology supplier. Mat-tech consists of two business units and focuses on research, development and production of high-tech soldering and brazing.

## R&D and Production

Mat-tech Development & Testing has specialized in development, optimization and implementation of innovative joining technologies. Various services such as contract R&D (e.g. application and process development), consultancy (process improvement), testing services (reliability) and failure analysis, prototyping and special alloy production are offered. Mat-tech Production offers the opportunity to outsource your high-tech soldering and brazing production, for large series as well as for single pieces.

Mat-tech is servicing a wide variety of industries, a.o. medical, lab equipment, electronics, electronic components, automotive, machine building, process industry, solar industry and aerospace.

## Know-how and Equipment

Both extensive know-how as well as in-house equipment are present at our company and through our trusted network.

A wide variety of equipment, such as Scanning Electron Microscopy equipped with Energy Dispersive X-ray Spectroscopy, Optical Microscopy, Meniscograph (Wetting balance) and furnaces for vacuum brazing, inductive soldering, etcetera.

## Industrial applications

Mat-tech is servicing multiple industries, such as medical, lab equipment, electronics, electronic components, automotive, machine building, process industry, solar industry and aerospace.

## Mo Biglari

Technical Commercial Director

Mat-tech Development & Testing

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**mat-tech**   
innovative soldering & brazing



# MI-Partners

## Innovative High-End Mechatronic Solutions

### Our company

MI-Partners is your contract R&D partner for the development of high-end mechatronic systems. Offering the complete cycle of predevelopment, design, realization and testing of high-tech systems, MI-Partners can assist you in your development efforts. MI-Partners uses a compact and highly educated team which results in fast solutions that work. Operating in a wide variety of market sectors results in solutions that characterize themselves as fresh, innovative and out-of-the-box. Choosing MI-Partners means choosing for open communication throughout your project, profiting from the mechatronic approach and reaching your goals on time.

### Our competences

To assist in developing mechatronic total solutions, MI-Partners has a high level of knowledge of the customary mechatronic disciplines and competences at its disposal:

- Design principles for precision engineering
- (Advanced) motion and equipment control
- Predictive modeling (dynamic/thermal)
- Dynamic error budgeting
- Floor vibration isolation
- Air bearing design
- Design for vacuum/contamination
- Magnetically levitated systems
- Optics
- and of course:
- Project management
- Customer focus
- Cost awareness

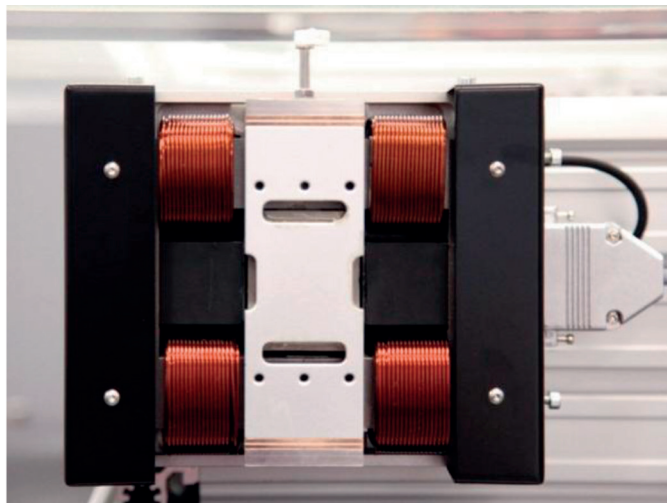
### Leo Sanders

Director

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30 Employees

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# Mogema 3.0

## The combination makes the difference

Mogema 3.0 is high-tech expert in welding, machining and vacuum technology. This unique combination of activities is what makes the difference: we are your partner right through from development up to and including delivery of the complete module.

We specialise in complex and large vacuum chambers and vacuum systems. Our expertise in welding, machining and assembly comes into its own for the manufacture of vacuum chambers.

### Production techniques

#### Precision welding

- Wide choice of materials
- Broad range of sizes over 9000 mm
- Specialized production

#### Advanced machining

- Extreme accuracy to within hundredths of a mm
- Acclimatized production
- Enables highly accurate machining

#### Critical assembly

- Meeting every need

Our commitment to innovation and our belief in the importance of ongoing development is reflected in our investment in new techniques and expertise, as well as our partnerships with scientists and involvement in academic projects.

#### Sebastiaan Vrensen

Sales Manager

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# mogema3.0



# Montair Process Technology B.V.

Montair Process Technology B.V., established in 1971, provides customised turnkey solutions on a worldwide basis. Montair Process Technology B.V. is an independent member of the Manders Industries Group with affiliated companies established in the Netherlands, Belgium, Romania, India and the USA.

## Product information

The core business of Montair Process Technology B.V. is divided into two categories:

- Air pollution control & thermal treatment systems
- Special process equipment.

## Turnkey projects

Montair Process Technology B.V. focuses its activities mainly on realisation of turnkey projects. From the design and engineering phase to the final start-up of the systems, Montair Process Technology B.V. will carefully manage all aspects of a project. All stages of a project are realised under our own administration in our brand new plant.

The manufacturing department of Montair Process Technology has a well-equipped machinery. This department mainly processes stainless steel, high-nickel alloys, aluminium and thermoplastics. The engineering and manufacturing department is also responsible for the development and assembly of complete control systems including HMI and data logging capabilities.

Montair Process Technology B.V. is certified according ISO 9001, SCC\*\* and ISO 3834-2 (under construction).



## René Francken

Managing Director

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50 employees

**www.montair.nl**  
**MONTAIR**  
PROCESS TECHNOLOGY  
member of mandersgroup



# MTSA Technopower

MTSA Technopower designs and builds customer specific equipment, installations and machines. MTSA Technopower has own products which are used for switching high power at short circuit laboratories and atomic fusion. MTSA Technopower offers production capacity (manufacturing and assembly) and on-site service.

## Product information

To initiate the atomic fusion process large amounts of energy need to be applied in a controlled manner. MTSA Technopower developed high power switches to make or break a high current at the right moment. Typical products we supply:

Make Switches – Safety Break Switches – Separators – Rogowski measuring systems

This type of equipment is being applied at KEMA, JET and various other short circuit laboratories, e.g. KPT, Toshiba, EETI, KERI and Ormazabal.

In addition MTSA Technopower designs and builds customer specific equipment, installations and machines. Within the nuclear sector we acquired a great deal of experience by taking over KEMA Techniek in 2003 and close relations we maintain with scientific institutes within the Energy Sector like ECN, NRG and TNO. For the nuclear sector we designed and built for instance:

Special remote handling systems for application in radio active environment – High power switch systems – Gas dosing systems – Special machines – Prototype installations – (Spare) Parts and modules/subsystems

Customer specific projects can be divided into the following stages, whereby we can join at any level:

Concept engineering – Basic engineering – Detail engineering – Procurement and manufacturing of parts – Assembly – Testing – Installation and commissioning – Maintenance

## Rob van der Sluis

Manager Marketing & Sales

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70 employees

[www.mtsa.nl](http://www.mtsa.nl)





# Nedinsco

**Nedinsco develops, designs and produces a broad range of photonic technology based systems for high-tech applications.**

Nedinsco has many years of experience providing customers sophisticated systems consisting a combination of optical, mechanical and electrical technologies. Strategic partnership is a key concept in Nedinsco's approach to contemporary as well as future business.

## Capabilities

With our extensive engineering and production knowledge and our state-of-the-art facilities we are providing customers with state-of-the-art and cost effective photonic based systems enabling them to become more successful.

Goal is to deliver qualified serial products and being able to manage the complete lifecycle of the product starting with a basic idea of the customer until the service and aftersales.

## Products

Camera systems, spectrometers, photonic sensors, alignment telescopes, sensor platforms, bore sighting and training systems.

## Markets

Diagnostics (medical, pharmaceutical, forensic, recycling and food branches), semiconductor and defence.

## References

ASML – TNO – Carl Zeiss – Saab Defence and Security – FLIR

### Bob in den Bosch

Manager Marketing & Sales

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# NRG

NRG is a high-end service provider. Based in the Netherlands, we provide products and services to nuclear industries, process industries and medical industries around the globe. For more than 50 years we operate the High Flux Reactor along with Hot Cell Laboratories, Decontamination and Waste Treatment facilities and other advanced nuclear infrastructures. We have an established, licensed site track record combining in-depth knowledge on radioactive material with broad operational experience.

We employ 500 world-class scientists, engineers, technologists, operational staff and highly qualified consultants in a wide range of nuclear technology, radiation protection and radioactive waste disciplines. Together we support the nuclear lifecycle from new build and operations to decommissioning and waste management.

Our extensive nuclear infrastructure allows us to offer a wide range of irradiation and post-irradiation services that cover all irradiation needs for industry.

As an independent organization, NRG offers support with confidential processes from product development to material qualification. We provide understanding of material behavior under neutron irradiation through standardized material test programs.

## **Lida Magielsen Msc.**

Project manager Fusion Irradiation Solutions

P.O.Box 25

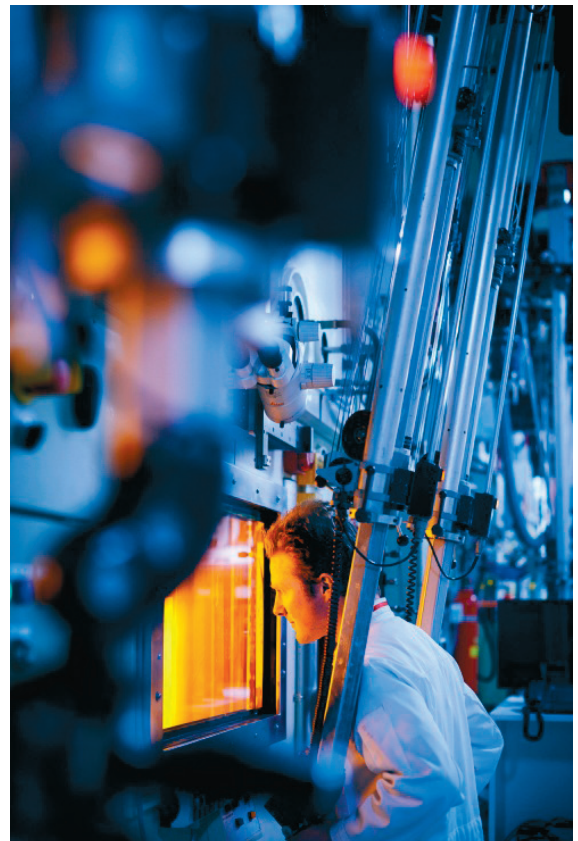
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# PM-Group

DISCOVER PRECISION

## Company Introduction

As a strategic business division of the PM-GROUP we as PM-BEARINGS are highly specialized in designing and manufacturing high precision bearings and advanced motion systems in ultra high quality. We are providing a complete range of linear bearings, frictionless slides, (piëzo)positioning tables and stages, which guarantees high levels of performances at competitive prices. Thanks to almost 50 years history of experience, new findings in research, combined with innovating linear technology, our products meet the highest accuracy and quality demands of today's industry and are successful in use world-wide. As a proud member of the PM-GROUP we are able to realize turn-key projects for our customers starting with design, project management, machining, assembly and after service.

### Our activities

As a strategic business division of the PM-GROUP we are a leading company in the development, integration and manufacturing of linear guides, guiding systems, nano-positioning stages and mechatronical [vacuum] modules for several high-tech markets and Synchrotron initiatives.

### Reference Projects

Our experience with particle accelerator projects and synchrotron initiatives started all ready a long time ago. We have good contacts towards the synchrotron activities with Brookhaven National Laboratory(BNL), Diamond Light Source(DLS) and the Paul Scherrer Institute(PSI). For many years PM-BEARINGS delivered complex ceramic bearings and they have already find a way to institutes as PSI. Furthermore we have a close relation with the Diamond Light Source(DLS) initiative in Great Britain. For DLS we deliver turn-key advanced beam-alignment modules combined with piëzo stage technology and sub-micron mechatronical integrated modules.

### PM-BEARINGS Competences:

Machining of exotic materials (Composites, Glass, Duplex, Hastelloy, Inconel, Nimonics, Invar, AMC, Titanium, Ceramics and Stellite) – from R&D to Serial production – Electro Chemical Machining (ECM) – FEM Simulation – Algor – CAD/CAM Design – Siemens NX7.5 – High Precision Machinery (sub-micron range) – Cryo Positioning Stages – Vacuum Positioning Stages – Nano Motion control  
– Linear technology – Piëzo technology  
– Nano-Positioning Systems – Mechatronical high precision modules  
– System Integration – Cleanroom facilities ISO class 5-6 (>1000m<sup>2</sup>)  
– Vacuum cleaning – (U)HV and UCV knowledge  
– Surface Treatment

### Jos Oldereuver

Sales Manager

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“Q-Sys offers a unique service to motion system users. Whether your requirement is for a single system for research or development work or you are looking for a supplier of series production motion platforms, you have found the only partner you need. With its extensive experience in the specification, design and build of motion and positioning equipment, Q-Sys can take your basic outline or well defined specification and produce exactly the system you require, instead of trying to force an off-the-shelf product to fit your needs. The motion systems we produce use the very latest technologies to ensure performance to your exact needs, be it accurate motion control, precise positioning, stability, etc.

Q-Sys systems have applications in many varied industries and in every application there are a number of key measurables that define system performance. These include geometric and positional accuracy, acceleration and velocity and, some times most importantly, system eigenfrequencies and bandwidth. By a combination of detailed design, modern CAD tools and experience, Q-Sys offers systems that precisely meet the requirements of the given application in a cost effective and timely manner.

As a manufacturer of systems rather than components, Q-Sys is able to pull together the very best hardware available, including motors, encoders, bearings, drive amplifiers and multi-axis motion controllers. At all stages of the design and build process, Q-Sys engineers can work as closely with you as you require. From the initial concept discussions, through feasibility study, CAD design and on to system build and test, your involvement is encouraged. This will take the form of regular discussions, design reviews and sign-offs and even witnessed acceptance tests to validate system performance to the quoted specification.

As an added service to customers, Q-Sys is able to offer complete turnkey system solutions. This provides a motion platform configured as part of an overall package, that may include, for example, a laser source for welding, scribing or cutting, a safety or controlled environment enclosure, integration to existing inhouse systems, etc. In these cases the overall system is designed with safety and CE conformity in mind and is delivered, installed and commissioned with full certification. This method ensures your process is up and running far quicker than normal and with minimal impact on your own internal resources.

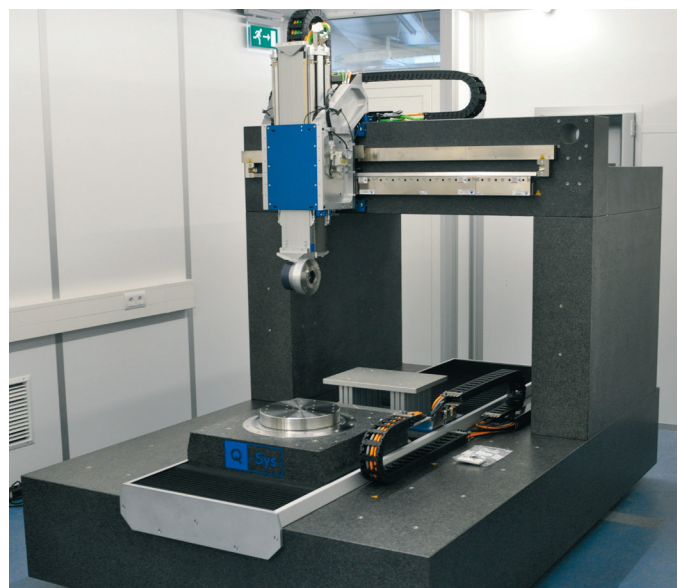
Finally, Q-Sys offers a comprehensive technical support service for many types of motion systems, ranging from telephone support, through system service and repair, to scheduled preventative maintenance contracts for production systems where availability and reliability are paramount.”

#### Henry Over

Managing Director

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M: +31 (0)6 15 83 78 71  
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[www.q-sys.eu](http://www.q-sys.eu)





# S&T

Science & Technology (S&T) has more than 10 years experience in the development of data analysis software for both engineering- and science data. S&T's expertise is applied in a wide range of domains, including space and earth observation, astronomy, oil and gas industry, navigation, and high-tech machinery.

## Product information

The objective of S&T's data processing software is to extract as much information from sensor data as possible. The data processors systems are used to wide range of applications. These applications include (i) the extraction of scientific information from sensors such as Earth Observation sensors for atmospheric research and telescopes for space research, (ii) to derive an accurate estimation of a system's health so that imminent failures are recognized before they actual take place, (iii) to derive the exact positional information using various navigational sensors. For System Health Management (SHM) applications S&T has developed the Uptime tool. This tool encapsulates the state-of-the-art SHM technology to avoid unnecessary downtime, alarm rate reduction, fault diagnosis, and the prediction of imminent failures.

Our scientific data expertise focuses on the analysis of large science data-sets, data visualisation, simulation, the development of software-pipe-line systems and calibration algorithms. The S&T expertise focuses on the (pre-) processing and visualisation of raw data and the generation of calibration key-data for level 0-1 and 1-2 data processors. In addition we develop user interfaces that allow quick-access to level 2 science and housekeeping data.

## References

System health management for the ESA future launcher rocket propulsion – calibration and data-pipeline activities for the LOFAR radio telescope telescope – ITER NL vacuum leak detection and localization – data quality control toolbox (Quadas) used for ground- and space segments for missions such as SWARM, CroyoSat-2, Galileo, Sentinel-1, Sciamachy – on-ground and in-flight calibration activities for various Earth Observation missions such as OMI, GOME, Sciamachy, and Tropomi.

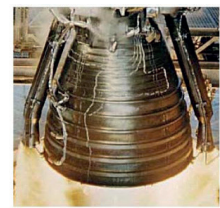
### A. Bos

Director

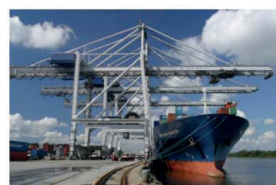
Olof Palmestraat 14  
2616 LR Delft  
T: +31 152 62 98 89  
E: bos@stcorp.nl

Turnover: 6 M€ | 80 employees

[www.stcorp.nl](http://www.stcorp.nl)



**Uptime:  
System Health Management  
of Complex System**



# Schelde Exotech

Schelde Exotech offers her clients design, fabrication and testing of high quality and complicated equipment. Schelde Exotech offers a wide range of products of Exotic materials like: Nickel Alloys, Copper Alloys, Cladded Steel, Aluminium, Titanium, Tantalum, Zirconium, etc.

## Product information

Schelde Exotech has a rich history, based on last century companies: AKF Goes, Schelde Boiler Division and Schelde MT-Products. Schelde Exotech was founded in 1998 and is a member of the VE Group since 2009.

Schelde Exotech is specialized in the design and manufacturing of 'Special Products'.

Special components – Vacuum systems – Heat exchangers – Reactors – Pressure vessels – Airfin coolers – Gasification burners – Super heaters – Repair and maintenance in Exotech facility – Repair and maintenance at client's site/facility

Schelde Exotech has a fully staffed Design Departement and uses modern design tools like: AutoCad (2D design program); Mechanical Desktop (3D design program); Inventor (3D modeling-design program); PV Elite (ASME Code calculations, PD 5500); Scades (RTOD); BabsyWin (EN 13445 Code calculations, AD 2000); Ansys.

Besides special products and services Schelde Exotech is also a reliable partner for repairs and replacement projects. Schelde Exotech has a 24/7 helpdesk when it comes to emergencies. Schelde Exotech will mobilize a repair team at earliest possible convenience, usually available within a few hours.

## References

Scientific experiments – Research Institutes / Universities – Nuclear energy – Oil & Gas – Energy – Defence – Particle physics – Chemical and petrochemical industry

### Arthur Borsboom

Sales Manager

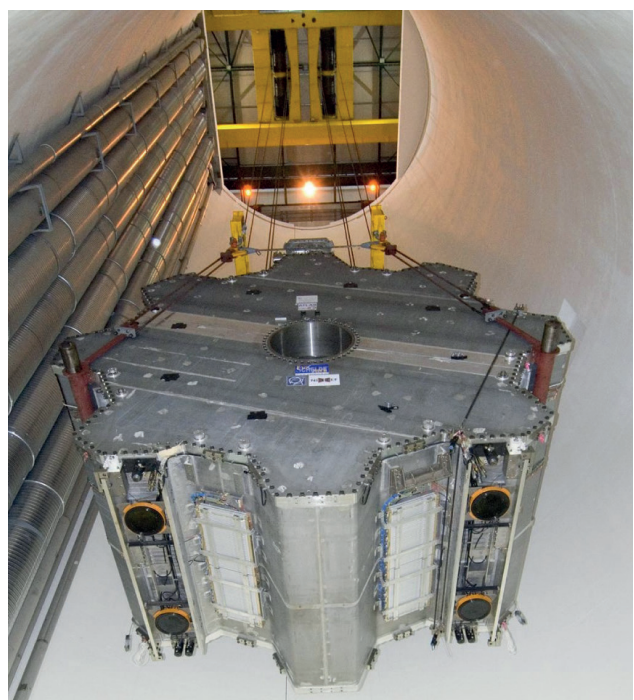
### Jos Mols

Managing Director

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Turnover: € 20.000.000,00 |  
100 employees; total capacity 240,000 man-hours

[www.exotech.nl](http://www.exotech.nl)



# Settels Savenije van Amelsvoort

Research, development and engineering of high tech products and equipment. The core of technology within Settels Savenije van Amelsvoort is mechanical engineering, process modelling and process engineering. Our company has in-depth knowledge of and experience in analyzing, specifying, developing and engineering products, processes and equipment. We are experts in translating the specifications of complex physical processes into working mechanical products. In our Strategic Management consultancy practice, we also audit technology enterprises and/or their departments. We implement and manage (organizational) change to improve their performance.

At Settels Savenije van Amelsvoort group of companies, we believe in continuous learning, communicating and inspiring. We value creativity and accurately describing and understanding things. To achieve this, we create a strong fundamental basis in our expertise: physics, mechanical engineering and control systems engineering. We encourage persistence in explaining the unknown and questioning unfounded decisions. Based on these fundamentals, we develop innovative technology, transforming ideas into functional products. We help people and organizations in their continuous improvement, enabling what was perhaps presumed to be impossible.

## John Settels

Director

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TECHNOLOGY - INNOVATION - INSPIRATION



# Sumipro

For over 15 years Sumipro supplies high precision optics for customers all over the world. Sumipro advises medical, aerospace and defense industries and designs and produces optical products and systems for them.

## Product information

Sumipro realizes custom made solutions for your optical challenges: human contact lenses, optics for night vision systems or reflectors for all kinds of light sources, etc.

**Consultancy and design** – Sumipro offers innovative solutions in design, engineering and rapid prototyping, choosing the right optical components and creating superior optical systems. Our engineers are specialized in designing aspherical and non rotational-symmetric optic components to achieve systems with high performance and less components.

**Quality optics** – Sumipro develops and manufactures optical components and systems with competitive prices and a very high degree of accuracy. Our inserts have tolerances in focus lengths within 0.1% instead of the typical 1 till 5%.

**Mirror optics** – Sumipro specializes in aspherical and diffrax surfaces for mirrors. Max. diameter 300 mm, Material: various aluminium alloys, copper, Arcap, or other machinable materials. Applications: Space, Imaging optics and Laser applications.

**Specifications for mirrors** – Geometries realized: Spherical and aspherical surfaces – Fresnel and diffrax patterns – Off axis mirrors – Parabolas and ellipses.

Form accuracies in general reach PV-values smaller than 350 nm with irregularity beneath 1 fringe (633 nm), depending on material and size.

**Coatings** – gold, silver, aluminium enhanced or protective (non oxidizing) coatings.

**Infra red optics** – Sumipro specializes in aspherical and diffrax surfaces for lenses, max. diameters 240 mm, most often realized in germanium, silicon and high purity float zone silicon (HPFZ): Applications:

Night vision – Thermal imaging optics – Space applications

**Specifications for IR lenses** – Spherical and aspherical surfaces; Fresnel and diffrax patterns; Off axis; Parabolas and ellipses. Form accuracies in general reach PV-values smaller than 350 nm with irregularity beneath 1 fringe (633 nm), depending on material type and size. Roughness values (Ra) typically reach values of 5 nm or less.

**Coatings** – Lenses are commonly supplied with AR coatings, ranging from 3-5  $\mu\text{m}$  or 8-12  $\mu\text{m}$  or variations. Reflectivity  $R < 0.5\%$  or even smaller upon request. All IR coatings are compliant with most MIL-specifications. Besides AR we can supply front sides with DLCs

## Ben Lubberman

CEO

Bedrijvenpark Twente 323

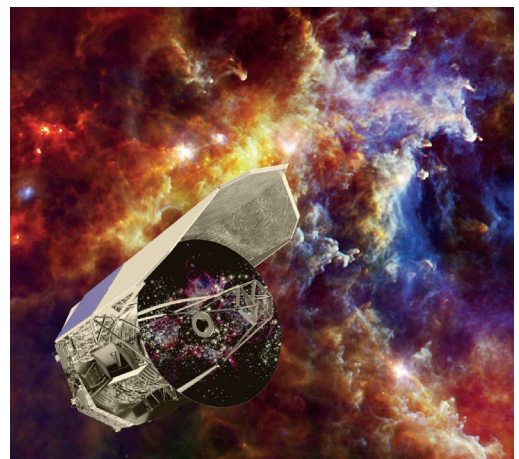
7602 KL Almelo

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E: [info@sumipro.nl](mailto:info@sumipro.nl)

Turnover: 1.5 M€ | 9 employees

**[www.sumipro.nl](http://www.sumipro.nl)**





# Technobis Group

**Technobis Group is a developer and supplier of high-tech instruments and modules for the most dedicated national and international OEM companies.**

**Core competencies:** photonics, mechatronics, assembly and testing

**Technobis Mechatronics:** Technobis Mechatronics specializes in complete product development projects, from the initial idea to a successful turnkey product, prototype or series product.

The main scope for which we use our technologies and competences are amongst others the complete turnkey delivery of:

- Inspection / measuring systems
  - Probe manipulators
  - Optical inspection systems
- Handling systems
  - Servo driven manipulators
  - Gripper units suitable for harsh environments, remotely operated
- Vacuum chuck units suitable for harsh environments, remotely operated
- Design and engineering of graphite, carbon reinforced carbon and other ceramic parts used for the handling of products in a harsh environment.
- Life science instruments
  - Crystallization research
  - Confocal fluorescence microscopy

## Technobis Fibre Technologies

Technobis Fibre Technologies specializes in the development and supply of total solutions in high-speed, high-resolution and multi-sensor fibre interrogators and sensors.

Optical fibre sensors find widespread use in a multitude of applications due to their small size, light weight, inertness to chemical substances, ability to withstand high temperatures (~900°C) and immunity to electromagnetic interference. As a result, optical fibre sensors are frequently used for applications such as structural health monitoring, condition based maintenance and other specific sensing applications. Technobis Fibre Technologies current interrogator systems allow resolution levels ranging from 1 picometer down to 2 femtometer wavelength shifts, allowing the user to detect nano strains at speeds up to 80 kHz or higher. This is of great benefit in a large number of highly demanding applications. In order to meet growing demand from the market, Technobis Fibre Technologies has initiated a trajectory to develop Photonic Integrated Circuits for the new generation of interrogators capable of meeting at least the same specifications.

## References

ASML – Fei – Airbus – Boeing – NLR – Tata Steel – Vistec – Polytec – IHC – RGS development

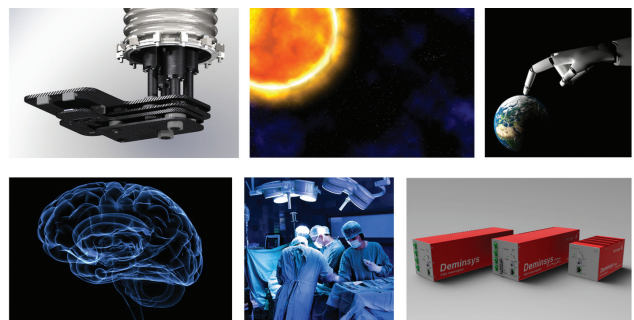
## Pim L. Kat

CEO

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25 employees

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# Tessella

Tessella is the international provider of science powered software technology and consulting services. World leading organizations choose our unique blend of science, software engineering and sector expertise to deliver innovative and cost-effective solutions to complex real-world commercial and technical challenges. Our people are high achievers from leading universities and are passionate about delivering value to clients; more than 50% hold PhD qualifications. We are proud that our work makes the world a better place to live in: developing smarter drug trials; preserving the digital heritage of nations across the globe; minimizing risk in oil and gas exploration; controlling the orbit and attitude of satellites; researching fusion energy.

## Services

**IT Consulting** Tessella IT consulting services advise businesses on how best to use information technology to meet their business objectives. We provide a broad range of IT consulting skills that include: business analysis, IT strategy, supplier selection and IT architecture.

**Technical Consulting** With over 100 PhDs in the company, and a broad experience in academic and industrial research across a wide range of sectors, Tessella constitutes a world class problem solving engine able to bring novel ideas and innovation to your business.

**Science Powered Software Development & Systems Integration** has been at the heart of what we do for over 25 years. In that time we have designed, built and deployed thousands of successful software systems and IT projects, for hundreds of clients.

## References

Tessella customers include: JET fusion research laboratory – ITER – TNO – Deltares – European Space Agency – Dutch Space – Rutherford Appleton Laboratory – Diamond Light Source – AkzoNobel – Unilever – Shell – Koninklijke Bibliotheek

### Dr. Eric Arends

Operations Manager

President Kennedylaan 19

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Turnover: €23M | 240 employees

[www.tessella.com](http://www.tessella.com)

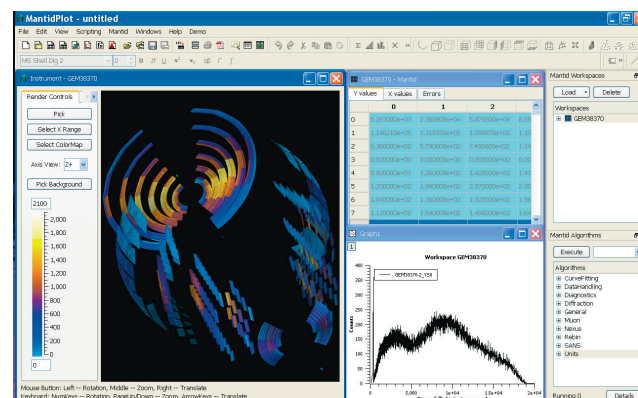


*"Tessella's background in science and their professional approach to system design and development means we have been able to significantly increase our overall capacity, efficiency and quality."*

— Aart Wismeijer, Senior Researcher, High Throughput Experimentation. AkzoNobel

*"...Tessella really understands R&D users and processes. This translates into responsive levels of support, and a real appreciation for how each application can be enhanced going forward."*

— Pete Keeley, Innov8 Programme Manager, Unilever



# Thomas Thor Associates

## A brief description of our business and main areas of expertise

Thomas Thor Associates provide Recruitment and Executive Search services to the global nuclear industry. Our clients include governments, regulators, utilities, operators, equipment manufacturers and supply chain organisations across the nuclear industry. With offices in Europe and the Middle East, we are set up to recruit nuclear professionals for our clients on an international scale. Our staff is multinational and multilingual and we have a live network of over 23,000 nuclear professionals globally.

## What makes us different to our competitors?

- We are completely focused in the recruitment of professionals for the nuclear industry, both temporary and permanent staff.
- We have a successful track record in recruiting nuclear specialists for international clients and consortia.
- We are specialists in the international relocation of nuclear professionals.
- We represent multinational and multilingual experts in the nuclear industry.

## Our network of candidates includes internationally mobile project and engineering specialists in new build, commissioning, operation and decommissioning in the following disciplines:

- Executive and Board Level Positions
- Project and Programme Management (design, construction and commissioning)
- Project Support and Control (Planning, Contract, Cost, Time Schedule)
- Safety (deterministic and probabilistic)
- Quality, Human Factors, Human Performance and Risk Management
- Licensing and Regulatory
- Process and Design Engineering
- Procurement, Supply Chain and Supplier Management
- Senior technical specialists – areas including I&C, HVAC, Thermo hydraulics, Reactor Physics
- Plant Operations and Maintenance
- Waste management and decommissioning strategy

## The services that we offer

- Provision of interim/temporary consultants
- Recruitment of permanent staff (contingency, retained search, executive search and campaign management)
- Industry information and survey results

### Kaoutar Belarbi

Marketing and Sales Intern

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E: K.Belarbi@thomas-thor.com

[www.thomas-thor.com](http://www.thomas-thor.com)



It is TNO's mission to help the advanced Dutch industry in innovating. One of the focus areas of TNO is Big Science with activities in ground based astronomy, nuclear fusion, CERN/CLIC as well as in space instrumentation and other projects.

## Product information

TNO provides system architecture, multi-disciplinary (pre)design, alignment plans and execution, calibration plans and execution, and control of high-end opto-mechanical instruments and mechanisms. Realization and delivery of these systems is preferable done with industrial partners, certainly for larger instruments and for series production. Thus, TNO hopes to open new markets for these industries.

The instruments that TNO develops are characterized by picometer stability and sub-nanometer positioning accuracy; often operating in extremely hostile environments with long life time; and where necessary with intelligent image interpretation.

TNO's expertise in (adaptive) optics, mechanical engineering, control, image processing and contamination control enables the development of a wide range of complex instruments and mechanisms. Our flexure or magnetic bearing-based mechanisms have low friction and zero hysteresis. We produce quality optics with low wave-front error from a variety of materials including Aluminium, Fused Silica, Silicon Carbide and Molybdenum. We know how to prevent, monitor and remove contaminants, ensuring long life times. And our abilities to process and interpret images are worldwide unrivalled.

## References

For nuclear fusion, TNO developed endoscopes (CXRS, Lidar), a control system for the plasma, contamination control tools and image processing for *in-situ* repair. For ground based astronomy, TNO has been playing important roles in the ESO programmes VLT and E-ELT on delay lines, mirror actuation and laser launchers. TNO has developed tools for extreme precise measurements and control on aspherical optical parts and for rapidly finding particles on wafers. TNO's experience in space is applied in HIFI for Herschel, metrology for Gaia, OMI and soon also TROP-OMI and delay lines for Darwin. Important commercial customers of TNO in the field of high-end optomechanics are ASML and Carl Zeiss.

## Bart Snijders

Business Development

Stieltjesweg 1  
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Turnover: 494,6 M€ | 4,400 employees

[www.tno.nl](http://www.tno.nl)

**TNO** innovation  
for life



# Van Halteren BV

## Company profile

Van Halteren Special Projects (VHSP) is part of the Van Halteren Group which has the following business activities: High Voltage Products, Defence and Industrial Services. The group is an independent family owned business with production facilities in The Netherlands, Poland and India.

VHSP aims for multidisciplinary projects where competences as advanced heavy machining, certified welding, assembly and commissioning are a requirement. Our production facilities in Bunschoten comprises 12.000 Sqm. equipped with state-of-the-art machinery, a modern construction shop and conditioned measuring facilities. Our staff is motivated, skilled and very experienced.

## Markets

- Offshore
- Oil, gas and mining
- Applied science
- Shipbuilding
- Defence
- Sustainable Energy

## Competences

- Advanced heavy machining
- Certified welding
- Project management
- Assembly, Integration & Commissioning
- Engineering
- Measuring up to 6 meter

## Products

- Road wheels
- Simulators
- High voltage switches

## Marco Klitsie

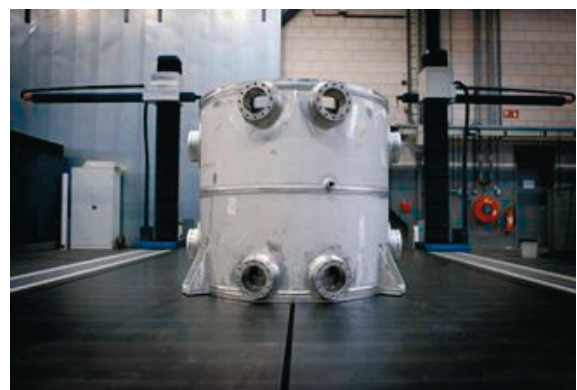
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# VDL Enabling Technologies Group

VDL Enabling Technologies Group is a globally operating tier one contract manufacturer of parts, mechatronic modules and systems. VDL ETG focuses on long term / strategic partnerships with its customers.

## Product information

VDL ETG provides solutions based on its core competences: Precision Technology, Vacuum, Material Handling, Material Positioning, and Industrialization. This throughout the entire product life cycle: basic research, proto typing, ramp-up, volume, and end-of life.

## Products

Mono parts, complex high-end modules, complete (mechatronic) systems.

## Markets

VDL ETG serves a number of OEM industry key segments: Semiconductor Equipment, Analytical, Medical, Solar, LED, and Science & Technology.

## Science & Technology

VDL ETG is specialized in the (co)development and manufacturing of high precision parts, sub-assy's, complex modules. All products require high / ultra precision turning & milling, high-end metrology, bonding, RF testing, and heat & surface treatments. The defined production strategy determines yield, cycle time, and cost of ownership. Our strength is to rapidly translate highly innovative, complex product designs into tangible products ready to enter small series production. Typical key markets within Science & Technology: accelerator, FEL, aerospace, and instruments.

## References

**Semiconductor Equipment:** ASML, AMAT, KLA Tencor, Cymer  
**Analytical:** KLA Tencor, FEI – **Medical:** Philips, Elekta, Waters – **Solar & LED:** AMAT, Veeco – **Mechanization Projects:** P&G, Kellogg's, Bosch – **Science & Technology:** ESO, ESA, ESRF, TNO, PSI, CERN

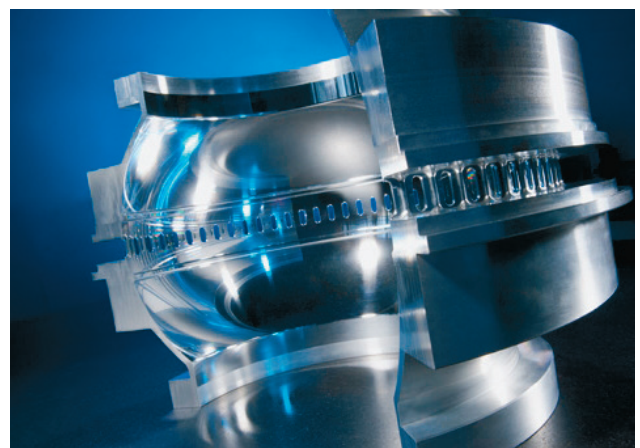
## Cees Coolen

Business Manager Science & Technology

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Turnover 2011 E500M | 1750 employees

[www.vdlletg.com](http://www.vdlletg.com)





# Vernooy

Vernooy is a distinguished specialist in vacuum technology and in developing and manufacturing vacuum parts and equipment.

## Product information

Vernooy is specialized in vacuum engineering - process control, from design to final execution. Products are made according to customer's specifications or according to designs by Vernooy's engineers. For more than 60 years, VERNOOY Vacuum Engineering has developed and fabricated high quality vacuum- and vacuum related components for research, semiconductor, display and solar industry.

Vernooy has a balanced and sophisticated machine shop with CNC lathe and milling machines, in combination with TIG- welding and robotic welding. It offers the following capabilities:

– Milling up to 6000mm × 1600mm × 2000mm – Turning swing of 1500mm × 2000mm length – TIG Welding by hand en robot – Vacuum Leak testing – Clean room packing

All activities are executed by highly trained vacuum engineers. Flexibility and quick response are held in high esteem in the company. As a consequence of the great experience in designing, manufacturing, vacuum testing, clean room building and packaging of various vacuum components, Vernooy can be your valuable partner.

## References

Vernooy realized and completed the delivery of most of the mechanical parts for Magnum-PSI for the FOM-institute DIFFER (the Netherlands). They are completely produced by Vernooy Vacuum Engineering.

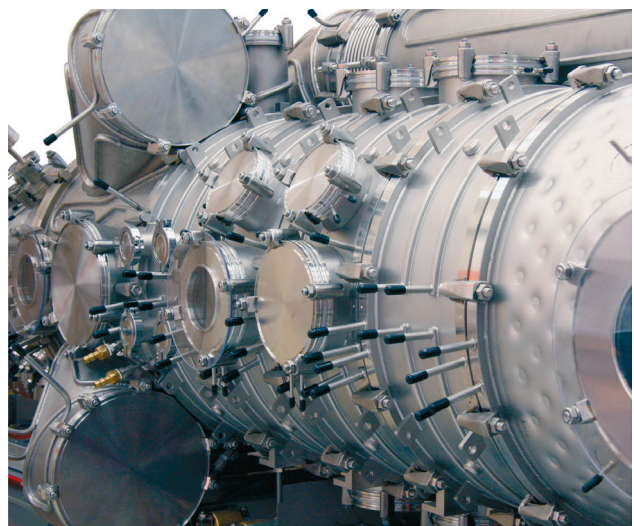
## Fred Verkerk

Managing director

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Turnover Vernooy: 4 M€ | 23 employees  
Turnover Triumph Group: 20 M€ | 120 employees

[www.vernooybv.nl](http://www.vernooybv.nl)



# Wilting

Wilting is your international partner for the industrialisation and production of high-quality precision components, assemblies, and assembled components. Wilting has been a supplier in the high-tech industry for over 30 years. Our customers are European OEMs that compete globally, Universities and knowledge institutions.

Based on our vast experience in machining Wilting developed into **“Specialists in Manufacturability”**. Therefore, we want to be involved during the engineering phase of your products. In order to be committed during the industrialisation and production of your high precision complex components and/or modules. This enables our customers to focus on innovation & development, and sales & service.

## Wilting's Core competences

- **Specialists in high-precision components**  
Outsourcing the production of your high-precision components to Wilting means quality assurance during production and competitive prices due to 24-7 low-manned production.
- **Specialists in assembly and supply chain management**  
Have Wilting take care of your assemblies and supply chain management and you will experience flexibility thanks to project-driven or process-driven assembly (if required in a well-equipped cleanroom).
- **Specialists in value chain management**  
Let Wilting take responsibility of your assembled parts (parts that require a series of different production technologies like milling, welding, brazing, cleaning, etc) and you will benefit from unique innovative solutions through cooperation with a strong network of compatible partners. Furthermore Wilting will engineer an optimal production chain due to a multidisciplinary approach in the process design.

## Markets

Semicon Equipment, University and science, Aerospace, Food processing equipment.

## Adwin Kannekens

Sales director

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[www.wiltingcomponents.com/nl/](http://www.wiltingcomponents.com/nl/)



# ILO's for Big Science

Name ILO / Affiliation	Email	Facility / organisation	Theme
Eric W. Boom	ericboom@upcmail.nl		Representing the Dutch Industry
Toon Verhoeven (FOM-DIFFER/ITER NL)	A.G.A.Verhoeven@differ.nl	ITER (F4E) – FR ESS/RID – SE JET (EFDA) – UK Asdex-U – DE Wendelstein-7X – DE IFMIF (IEA)	Fusion facilities
Rob Klöpping (FOM-Nikhef)	klopping@nikhef.nl	CERN – CH ESRF – CH ESS – SE ILL* – FR EMBL – DE DESY* – DE Neutrino Telescopes	Accelerator, neutron and X-ray facilities
Wilfried Boland (NOVA + ESO)	boland@strw.leidenuniv.nl	E-ELT ALMA	Optical telescopes
Emiel van der Graaf (KVI)	vandergraaf@kvi.nl	ZFEL – NL, Groningen XFEL – DE	Free electron laser facilities
Ronald Halfwerk (ASTRON)	Halfwerk@astron.nl	LOFAR – NL SKA	Radio Telescopes
Gerard Cornet (SRON en NSO)	G.Cornet@sron.nl	ESA ruimtemissies	Space observation satellites
Paul Hieltjes	P.J.Hieltjes@sron.nl		
Daniel van Beekhuizen (NSO)	d.vanbeekhuizen@spaceoffice.nl	NSO	Space
Alex Schoenmakers a.i. (NRG)	schoenmakers@nrg.eu	Pallas	Pallas reactor, medical isotope production and energy
Martin van Breukelen (HFML)	M.vanBreukelen@science.ru.nl	HFML – NL, Nijmegen EMFL – NL, FR, DE	Magnets with ultrahigh fields
Walther Lenting (NIOZ)	Walther.Lenting@nioz.nl		Coastal and Marine Research (including deep sea research and technology)
Rob van der Mei (CWI)	R.D.van.der.Mei@cwi.nl		National research institute for mathematics and computer science in the Netherlands

## NOTES

[illegible]