Netherlands@GIANT

Small Netherlands, but GIANTs in high-tech

25-26-27 June
Grenoble

Holland High Tech

High Tech Solutions for Global Challenges

Holland

Pioneers in international business

www.bigscience4business.com

On behalf of everybody on the EPN Science Campus and the GIANT Innovation Campus, let me welcome you to the ESRF and to Grenoble.

The GIANT alliance, of which the ESRF is a founding member together with CEA-LETI, CNRS, EMBL, GEM, INP-G, ILL and UJF, fosters the international visibility and attractiveness of Grenoble by supporting programmes in higher education, frontier science and innovation. It thus creates an impressive bulk of opportunities for scientists, engineers and technologists from academia and industry. Members of GIANT strongly benefit from the financial and infrastructure support of the local authorities: the Grenoble Town-hall, the Metro, the Isere Department, and the Rhone-Alps Region. The three days of Netherlands@GIANT will provide numerous opportunities for the representatives of Dutch high-technology businesses and Grenoble-based science and innovation leaders to get to know each other better and to create links for future cooperations, joint activities and contracts.

The Netherlands and NWO have been present in Grenoble for many years, not only as very active and supportive funding bodies of the ESRF and the EMBL but also as partners in initiatives like the international High-Magnetic-Field Laboratory network, and the Partnerships for Structural Biology (PSB) and Soft Condensed Matter (PSCM). The Dutch-Belgian beamline DUBBLE at the ESRF, which contributes significantly to the excellence and international visibility of the ESRF, is another example of NWO presence in Grenoble.

The ESRF has built and now operates this world-class infrastructure for the scientific communities from the partner countries and worldwide. Preeminent research programmes are carried out on the structure of condensed matter, materials and living matter. The ESRF fulfils its core mission by disseminating knowledge, training young scientists and developing state-of-the-art synchrotron radiation instrumentation and related technologies. These activities are very successful thanks to the strong involvement of academic and industrial partners from our member countries, among which we count the Netherlands.

We are therefore very pleased that NWO has taken the initiative to bring such a large number of Dutch companies here to Grenoble to create new opportunities to the mutual benefit of all involved. We have made every effort to facilitate new and good contacts, to provide novel opportunities for exchange and for collecting first-hand information. I wish for Netherlands@GIANT to be a success and wish the participants a pleasant visit to the capital of the French Alps and to its wonderful surroundings!

Francesco Sette

In recent years a new enterprise and innovation policy has taken shape: a modern form of industry policy, aimed at all entrepreneurs, with special attention for nine knowledge intensive top sectors in which the Netherlands has an internationally strong position. Furthermore these nine top sectors have a high R&D-intensity and a strong export orientation

Business enterprise, knowledge institutes and government together build competitive power and take up societal challenges. This public-private partnership is formalised by establishing the so-called top consortia for knowledge and innovation in which the public and private parties programme research in togetherness and commit themselves to it for the long term. SME's have our special attention in the new innovation policy. By signing innovation contracts enterprises and knowledge institutes commit themselves. This development continues to streamline the public/private knowledge landscape.

Focussing on the top sector High Tech Systems and Materials (HTSM) the innovation contract will be the agenda for public-private R&D collaboration for the entire sector. It is underpinned by a set of interlinked roadmaps created in an open consultation process by industry and knowledge institutes, and representatives from NWO, TNO, and NLR, and Ministries directly engaged in HTSM innovation, e.g., Defence, Security & Justice, and Infrastructure & Environment. Under the overall guidance of the top team several HTSM roadmaps have been defined. Big Science is connected to the roadmap Advanced Instrumentation. High-end technology companies are interested in increasing their export turnover, creating new markets for their products, and developing concepts and ideas.

In the HTSM budget for 2012, more than 40% of the industry contribution is in international R&D collaboration, notably Eureka and Joint technology initiatives (JTI). The top team recognizes that access to European technology networks is essential, for both large industry and SMEs. This illustrates that the Dutch HTSM sector is firmly rooted in Europe. The content of the HTSM roadmaps reflect national programme lines, which largely coincide with the themes of Horizon 2020.

The linear innovation model, running from basic research to applied research to development to finally innovation, is outdated. But its components surely are not. They find their place in newly organised and open networks - and these networks are essentially international. Our top sector policy supports this collaboration.

I am sure this event will contribute enormously to reinforcing our international High Tech Systems and Materials network!

Jasper Wesseling
Ministery of Economic Affairs, the Netherlands
Deputy Director General Enterprise and Innovation and member of the Top team HTSM

Fundamental science and high-tech business

The quality and quantity of the technical research institutes and labs in and around Grenoble are inspiring many people. The literal and figurative consolidation of strengths has led to something big: the GIANT Innovation Campus. A qualitatively superb scientific basis provides many opportunities for innovative spin-offs: the campus as a hub and booster for innovation, knowledge exchange and commercialisation.

This can only happen if science and industry meet and exchange ideas. ILO-Net plays an important supporting and encouraging role in this and that is something I am proud of. The ILO network consolidates efforts related to the Dutch government's top sector policy and helps to shape NWO's ambition of strengthening public-private partnerships.

NWO increasingly has a coordinating role within the top sector policy. The Advanced Instrumentation Roadmap is a superb example of that: scientific institutes and companies jointly building instruments for scientific research. More than fifty companies have already expressed an interest in participating in the programmes of the Advanced Instrumentation Roadmap. Public-private partnership is a guiding principle in this.

Big Science is connected to the Advanced Instrumentation Roadmap via NWO and the ILO-Net. The ILOs facilitate and support PPPs and the Calls for Tender from international Big Science institutes. The ultimate aim is to improve the return on investment for Dutch companies, encourage innovation by exchanging technical knowledge, and to enable SMEs to operate internationally in markets that are new to them.

There is still plenty of scope for innovation in this current period of financial crisis, especially in the area of high-tech. The knowledge economy makes an important contribution to the welfare of the Netherlands. An open and dynamic knowledge and innovation system is an important incubator for this. In such a system, public and private R&D, researchers and private enterprises need to be in constant and constructive contact with each other. I hope this event contributes to that contact!

Jos Engelen
Chairman of NWO, the Netherlands Organisation for Scientific Research

Contents

Advanced Solutions Nederland

Advanced Solutions Nederland is a hi-tech design consultancy that specialises in providing custom made DSP (digital signal processing) algorithms and hardware design services for a broad portfolio of sensor measurement applications.

Product information

Our core competence is the development and implementation of advanced signal analysis algorithms for high performance sensor applications. Typical applications include: noise reduction in speech/audio data, automotive radar tracking algorithms (speed cameras, collision avoidance systems), feature extraction, and non-linear system identification.
Whether you require feasibility advice, critical thinking, or a fully integrated product solution, we offer a comprehensive range of managed services at any stage of your product design. Building upon our track record of providing international businesses with working prototypes, we integrate the best technologies and talents in order to convert your concept into reality.

Summary of core competencies

- Real-time DSP algorithms.
- Non-linear signal analysis.
- Simulations.
- Embedded software.
- Low noise, ultra-precise instrumentation and measurement systems.
- Prototypes.
- Proof-of-concept demo systems.

Selected references

Mitsubishi Electric (UK) – Shell (NL) – Etronic (DK) – Hi-tech RF & Microwave solutions (NL) – Gatsometer (NL) – Gnoka (NL) – NeuroRobotics (UK).

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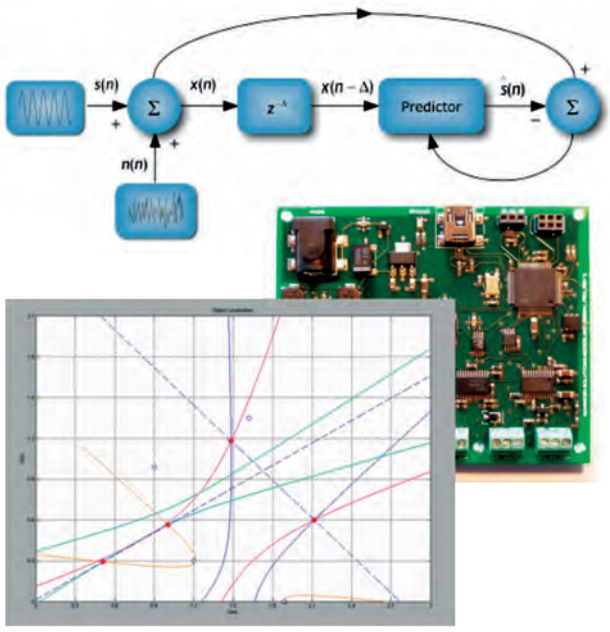

Amsterdam Scientific Instruments

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 or write us an e mail: 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
Stanford (SLAC/LCLS), USA

Dr. H.R. Poolman
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info@amscins.com

10 employees

www.amscins.com

AMSTERDAM SCIENTIFIC INSTRUMENTS

Bayards Aluminium Constructions

Thanks to 50 years of experience in designing and manufacturing high-quality complex Aluminium structures, Bayards has become one of the most ground-breaking construction companies in Europe, establishing itself as an industry leader while gaining international momentum with each project.

Product information

With our innovative approach to design, fabrication and assembly of complex aluminium products, we have the expertise and the capability of working on projects with very specific requirements. The solutions we offer are tailored specially to our customers needs, engineered and built in accordance with the latest international safety regulations and highest quality standards.

Bayards production capabilities

- High speed profile milling machine
- Friction stir welding machine
- Gantry machine
- High speed milling machine

With our state of the art equipment, the possibilities are limitless.

Reference

A remarkable example of our work is manufacturing components for the Cern's newest generation of practical accelerators (LHC) which are used for fundamental scientific research. This project was ordered by the European Organization for Nuclear Research (CERN - Conseil European pour la Recherche Nucleaire).
It involved precision machining, orbital welding, x-ray, vacuum- and helium leak-testing. Like all our projects, this too was completed to the full satisfaction of our very demanding client.
Please visit our website for more information and track records.

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Managing Director

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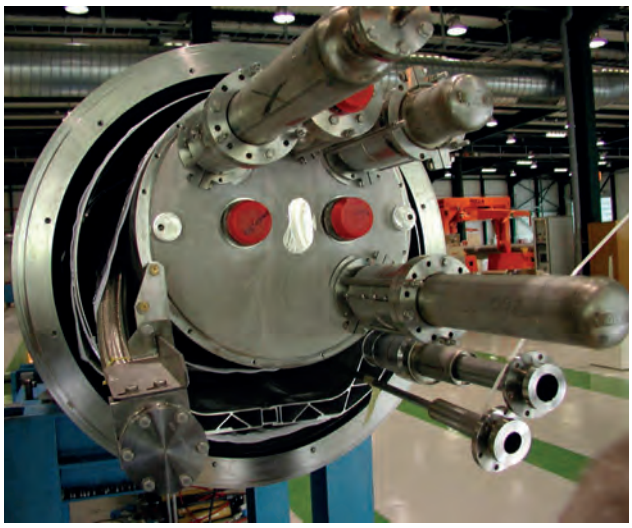
Turnover: 25 M€ | 135 employees

www.bayards.nl

BAYARDS®
solutions in aluminium



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
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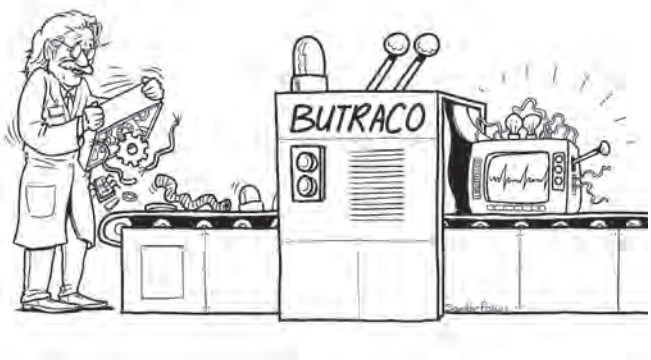
www.butraco.nl

BUTRACO
expierenced in machinebuilding



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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www.ceratec.nl

ceratec® Technical Ceramics BV

Dutch Space

Dutch Space is the largest space company in The Netherlands. It develops complex systems for space, civil & defence applications and is a System Integrator for multidisciplinary, multinational programmes. Subsidiary of EADS Astrium N.V.

Product information

Building on over 40 years of heritage, Dutch Space has acquired considerable expertise in the areas of both organizational/programmatic skills and in-depth engineering supported by advanced in-house tools and facilities, which can readily be applied to complex large research infrastructures. Typical space applications primed by Dutch Space are:

- the European Robotic Arm for the International Space Station, providing valuable heritage for ITER Remote Handling
- the main engine frame of the Ariane 5 launcher, a complex and technically demanding structural element
- various space instruments and subsystems for earth observation & astronomy, providing heritage for ITER diagnostics

Specific expertise includes

- Management of international multidisciplinary development projects
- Engineering for vacuum, cryogenic and other complex/hostile environments: thermo-mechanical & thermo-dynamic analysis; coolers, hot structures & thermal protection systems; advanced materials & processes; complex mechanisms.
- Control & robotic systems
- Real-time simulation and data-processing s/w environments

References

Customers include ESA, ESO, NASA and large European space contractors. Next to many ESA projects, Dutch Space has contributed to LOFAR, VLTI, E-ELT and is preparing for ITER contributions. Dutch Space is a key player in the high-tech industrial and institutional networks in the Netherlands.

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Turnover: 75 M€ | 230 employees

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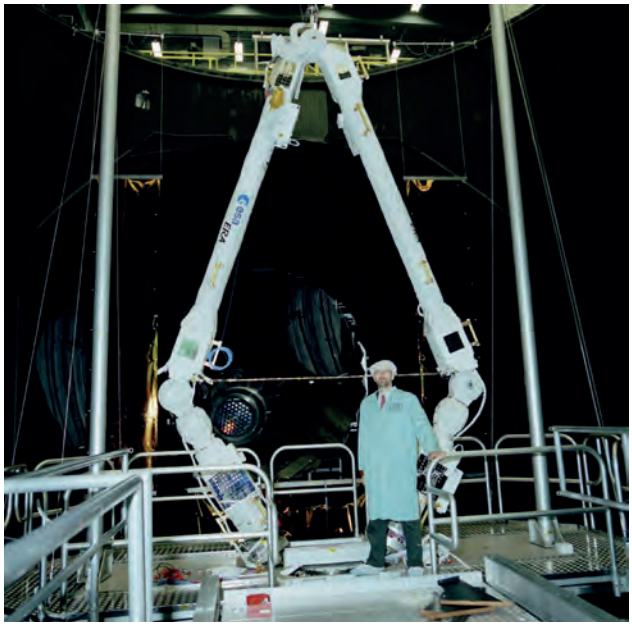
Dutch Space
an EADS Astrium company



Hositrad Holland BV

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 <1x10-10 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 <4K to 1000K 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), Helmholz 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.

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Turnover: 4 M€ | 10 employees

www.hositrad.nl

VACUUM TECHNOLOGY
Hositrad

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

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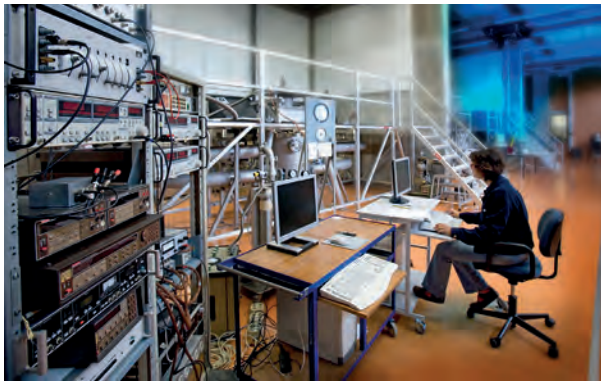

Imtech Industry International is part of the Imtech NV Group | 400 employees.
Turnover: Imtech NV 5.1 Billion € | 29.000 employees (2011)

www.imtechindustryinternational.nl

Imtech

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

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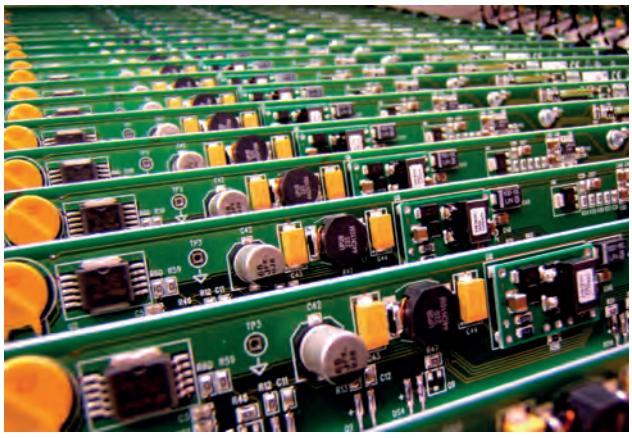


Janssen Precision Engineering

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

Company profile

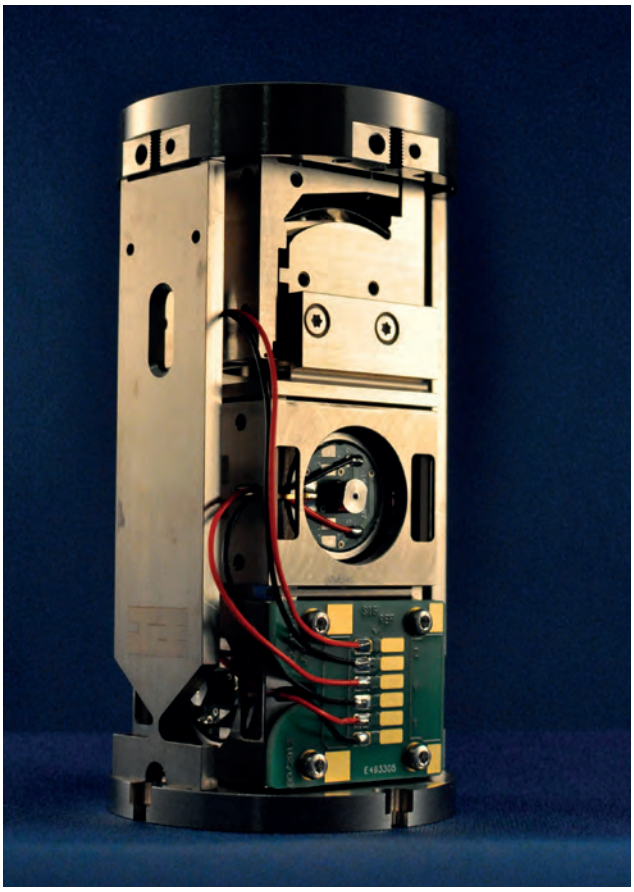
JPE is an independent engineering group for development and realization of high-tech machinery and instruments. Especially where accurate and stable performance is involved in the sub-micron area.
The company was founded by Huub Janssen in 1991 after several years of experience in the high-tech industry 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:market like:

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

Competences

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



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Founder & CEO

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20 employees

www.jpe.nl

Kin Machinebouw

System supplier to the industry. Long lasting experience combined with craftmenship. 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, Nucleair, off-shore, food and aviation industry. Supplier of pressure vessels, lifting and towing equipment and amusement rides.

Pim Buters
Sales

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www.kin-machinebouw.com

KIN machinebouw

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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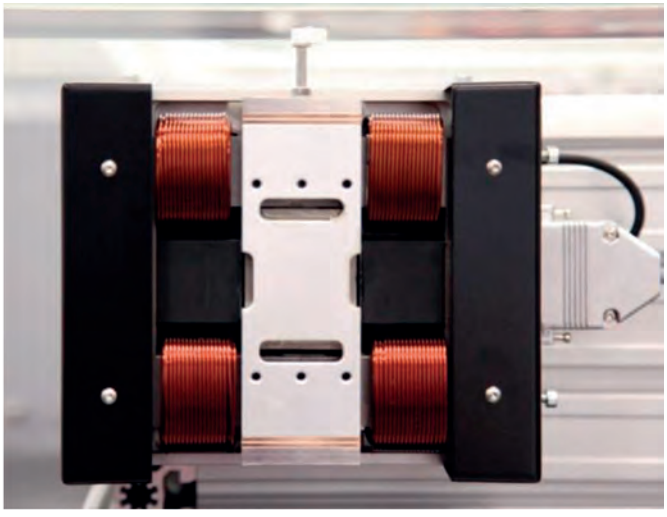
MI PARTNERS
PARTNERS IN MECHATRONIC INNOVATION



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.

Michel Kurstjens
Managing Director Sales

Industrieweg 9
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info@mogema.nl

www.mogema.nl

mogema3.0

an Aalberts Industries company

Programme Net

Wednesday 26th June

Theme: Grenoble Innovation Campus

08:00	Pick up Exhibitors from ***meeting point*** city center
09:00	Visit of institutes Grenoble innovation campus
10:30	Registration and coffee Auditorium
11:00	Official opening ceremony (Auditorium ESRF)
11:45	Visit of the exhibition by official VIP-delegation
12:00 - 14:00	**Visitors lunch buffet at the exhibition with the companies**
13:00	**Matchmaking B2B at the exhibition area**
16:00	Talks Purchase Departments Science park Institutes
	*****15 minutes break with refreshments*****
	Talks future plans Science park Institutes
18:00	Buses to city center

Cocktails at the CENTRE de CULTURES CIENTIFIQUE TECHNIQUE et INDUSTRIELLE

herlands@GIANT

Thursday 27th June

Theme: CERN

08:00	Pick up Exhibitors from ***meeting point*** city center
09:00	Talks CERN (auditorium ESRF) with coffee break
11:00 - 14:00	**Matchmaking B2B at the exhibition area**
12:00 - 14:00	**Lunch buffet at the exhibition**
14:00	Exhibition shutdown
15:00	Buses back to Geneva airport

Omics2Image

We offer you the benefits of cutting edge technology developed by the Biomolecular Imaging Mass Spectrometry group of Prof. dr. Ron Heeren at Amolf.
Our customer-focused team consists of scientists and engineers with a vast global experience. We close the gap between innovation at the frontier of science and ready-to-use products for science and industry.

Product Information

With the IonPix camera molecular images are not constructed in a conventional manner point-by-point, but directly detected in the microscope mode.
Inside a mass spectrometer in a 100-200 micrometer area, molecules are isolated, ionized and accelerated with a particle beam or a laser. The new system leaves the spatial distribution of ions intact while they fly through the mass spectrometer. These ionized molecules are detected at the end of the flight tube, where arrival time and location are recorded. With the conventional detectors, this was quite complicated or it simply proved impossible. The camera is based on a chip detector (Timepix) that has been developed for high-energy physics at CERN, for more information see the Medipix Collaboration. This technology produces all molecular images with a single laser flash. Each pixel in such a molecular picture compares to 500 nanometers of tissue, and in one experiment more than 250,000 spectra are simultaneously collected. This is a major improvement in resolution and measurement speed.

The AMOLF group has deployed this new form of molecular photography among others for breast cancer research.

References

Nikhef, NL
AMOLF, NL
Netherlands Proteomics Centre (NPC), NL
Korean Research Institute of Standards and Science (KRISS), South Korea

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3 Employees

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Peter Haak Produktontwikkeling

High Performance Sensors and Instrumentation

Product information

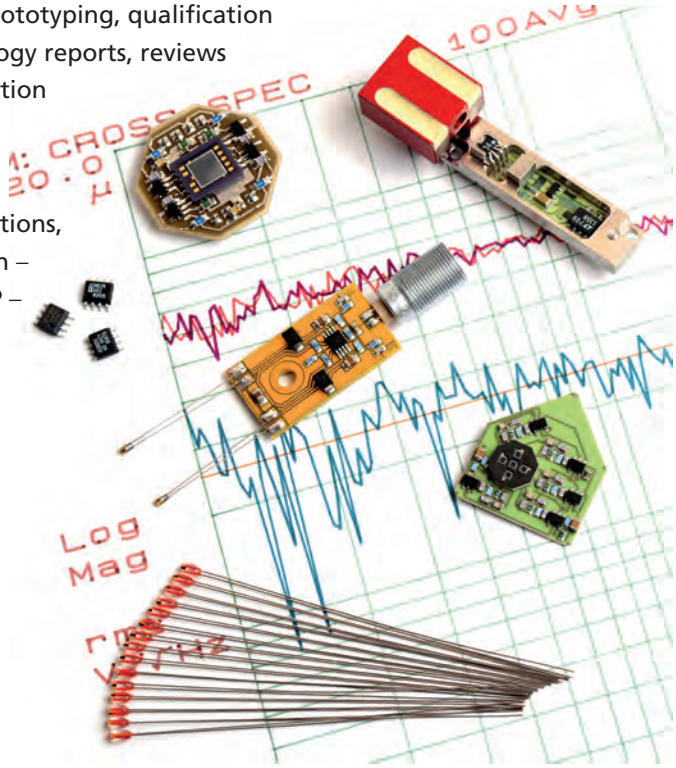
Our core business is the development of high performance sensors and instrumentation for scientific and industrial applications, with over 20 years experience in this field. Our expertise is primarily based in the analog electronics domain, with an emphasis on low frequency and low power. For projects that may require any external expertise, we work with a broad network of specialists, e.g. in the field of physics, data processing algorithms or ASIC design, in order to provide you with an optimal solution.
We spend substantial resources on evaluating new technologies and constantly engage with professionals from neighbouring fields to be prepared for future inquiries. Regular participation in product definition and testing of "early samples" for leading component manufacturers and exchanging the test results and insights, enables us to go "far beyond the datasheet" and push the limits with confidence.
Due to our efficient way of working we can respond quickly to customer requests, and as such we can offer rapid prototyping and notable flexibility when it comes to last minute changes.
Our solutions are used in the semiconductor industry, in scientific research (ultra-precision current measurement, cryogenic reference thermometry), healthcare (EEG, in-vivo measurements) and other sectors. Typical examples include: thermal sensors with µK stability, magnetic and capacitive sensors for sub-µm positioning, highly sensitive hybrid optical detectors, sensors for mHz range noise cancellation.

Core expertise

- high resolution and low noise circuit design: discrete, IC-based or "composite" designs and hybrid circuits
- solutions for signal integrity in a real life environment: think of 1/f noise, popcorn noise, thermal EMF
- extensive knowledge of electronic components, materials and processing, circuits and systems

Services offered

- product development: concepts, analysis, design, prototyping, qualification
- consultancy: component and circuit advice, technology reports, reviews
- training and support with emphasis on implementation



References

From small enterprises to large companies and institutions, including: ASML – CERN – Vistec (Leica) – SKF Research – Philips Healthcare – TNO – Nedap – Heidenhain – NXP – ABB – Shell

Peter Haak
director

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peter haak produktontwikkeling

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 Stelliet) – 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^2)
– Vacuum cleaning – (U)HV and UCV knowledge
– Surface Treatment

Jos Oldereuver
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Stirling Cryogenics

Stirling Cryogenics specializes in standalone cryogenerators and closed-loop cooling systems. Research centers, businesses, and industries all over the world rely on our expertise to provide them with a reliable, on site, supply of gases or cooling systems for all kinds of applications.

Product information

Stirling Cryogenics operates at the cutting edge of cryogenic technology.

A recent achievement was the designing and building of a cooling system for the ICARUS project, which is being carried out by the INFN in Italy. This fully selfcontrolled system of ten 4kW cryogenerators was built to cool 400 liters of liquid Argon to exactly 94K with an uptime of 100% for at least 10 years. Stirling Cryogenics is also involved in innovative superconductivity projects such as the European Hydrogenie project, and in several national initiatives in China, South Korea, Russia, and the Netherlands.

References

ICARUS (INFN), Gran Sasso, Italy – 40 kW controlled temperature liquid Argon cooling system for large scale neutrino – Detector SNLS, Grenoble, France – 20K cooling system for packing of nuclear material R&D Power Engineering – Moscow, Russia – Controlled temperature liquid nitrogen cooling system for HTS pilot plant

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STIRLING
CRYOGENICS

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 per-formance 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, alumimium 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 µm or 8-12 µm 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

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Turnover: 1.5 M€ | 9 employees

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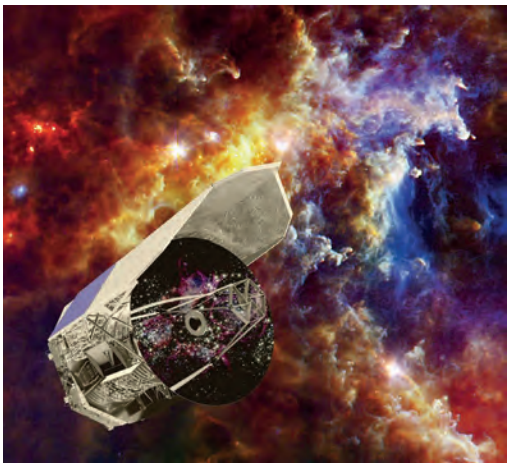
SUMIPRO bv
Submicron lathing



TNO

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 VLTI 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.

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Turnover: 494,6 M€ | 4,400 employees

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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 and 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

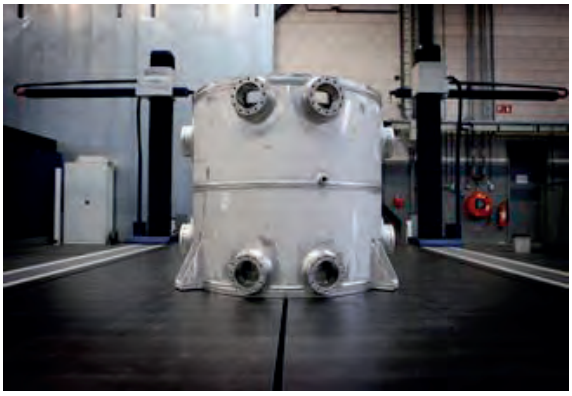
- Offshore
- Oil, gas and mining
- Applied science
- Shipbuilding
- Defence
- Sustainable Energy

Competences

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

Products

- Road wheels
- Simulators
- High voltage switches



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VAN HALTEREN

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, CymerAnalytical: 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

Hans Priem

Business Manager Science & Technology

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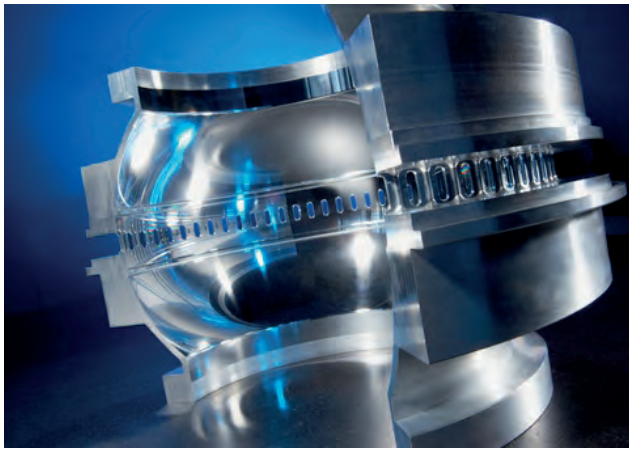

Veenstra Glazenborg

Manufacturer of high precision mechanical equipment. Experience in milling and turning of high grade alloys and pure materials.

Product information

- Sampling probes for natural gas composition measurements (underground application)
- Die cutters for hygiene industry (HSS powder + Tungsten carbide)
- High pressure valves 10000PSI for upstream applications Highlights
- Engineering rotating equipment and production tooling
- 5 axis milling max weight 1200 kg, Machining off solid CAD/CAM
- Milling and turning max weight 5 ton, dimensions 1.00x2.50m
- 4 axis wire eroding and High speed milling max 45000-1 min
- Grinding dept. for moulds and cutting dies
- Certificates: ISO9001:2008 ; G0304 RtoD ; NEN3834

References

SCA – GasUnie – Draka – Philips – Shell – Kernfysisch Versneller Instituut

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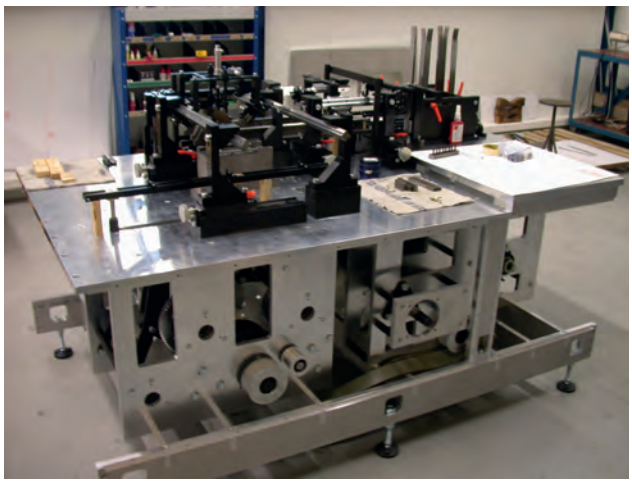
Turnover: 4.6 M€ | 38 employees

www.veenstra-glazenborg.nl

Veenstra-Glazenborg



Epilogue

In November 2010 we organised, after almost 15 years of absence at CERN, an exhibition called *Holland@CERN.* Again the Dutch high-tech industry was present at CERN! This was a real success. It became a strong wish to make it the first of a new series of Dutch exhibitions from industries working for Big Science. After more than two years we now have the successor: *Netherlands@GIANT,* our exhibition here at the *Giant Innovation Campus*. Not just a single event but really the next one of a new series since we now have the Dutch *ILONet* to organise all missions. NWO has created this ILOnetwork. NWO funds nearly all scientific research in the Netherlands and has joined together all Dutch Big Science ILOs. The *ILON*et will improve opportunities for Dutch *highly technological* firms doing business with Big Science to benefit both suppliers and buyers. Trust and communication is crucial as well as stimulating innovation by knowledge and technology transfer. Moreover scientists get better instruments!

In fact *Holland@CERN* in 2010 was the trigger to create the *ILO-Net*. The coming years we hope that many Big Science Institutes will host our exhibitions.

Netherlands@GIANT would not have been possible without sponsors. We would like to thank NWO and ESRF as well as the *Netherlands Business Support Office* in Lyon.

We would also like to thank the ESRF and the GIANT organisation for hosting the event and especially the local organisation team lead by Claus Habfast and Maguy Sicuro and the efforts of all their colleagues from the Science Park.

Another word of acknowledgment goes to all the people who are responsible for the presentations and excursions in a varied programme during *Netherlands@GIANT*. Thank you all so much!

We as initiators were enormously inspired by the enthusiasm we encountered during the months we have been busy organising *Netherlands@GIANT*. We are looking forward to the event itself and most of all to see many of you there.

On behalf of the Dutch ILO-Net:

Robert Klöpping, PA for ESRF and CERN ILO
Toon Verhoeven, ITER ILO
Martin van Breukelen LNCMI ILO
Kirsten Soekhoe Backoffice Manager ILO-Net

The Hague June 2013

ILO's for Big Science

Name ILO / Affiliation	Email	Facility / organisation	Theme
Piet van Otterloo, Former Dutch Scientific Director, Consultant ITER-NL	otterloo@introweb.nl		General Counsel on behalf of businesses (NL hightech SME).
Toon Verhoeven (FOM-DIFFER/ITER NL)	A.G.A.Verhoeven@differ.nl	ITER (F4E) – FR 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 Telescopen	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
Joost Carpay (NSO)	j.carpay@spaceoffice.nl	NSO	Space
Rik Linssen (RID)	r.j.linssen@tudelft.nl	RID TU Delft	Oyster, ionizing radiation related research, nuclear reactor
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
Marck Smit (NIOZ)	Marck.Smit@nioz.nl		Coastal and Marine Research (including deep sea research and technology)

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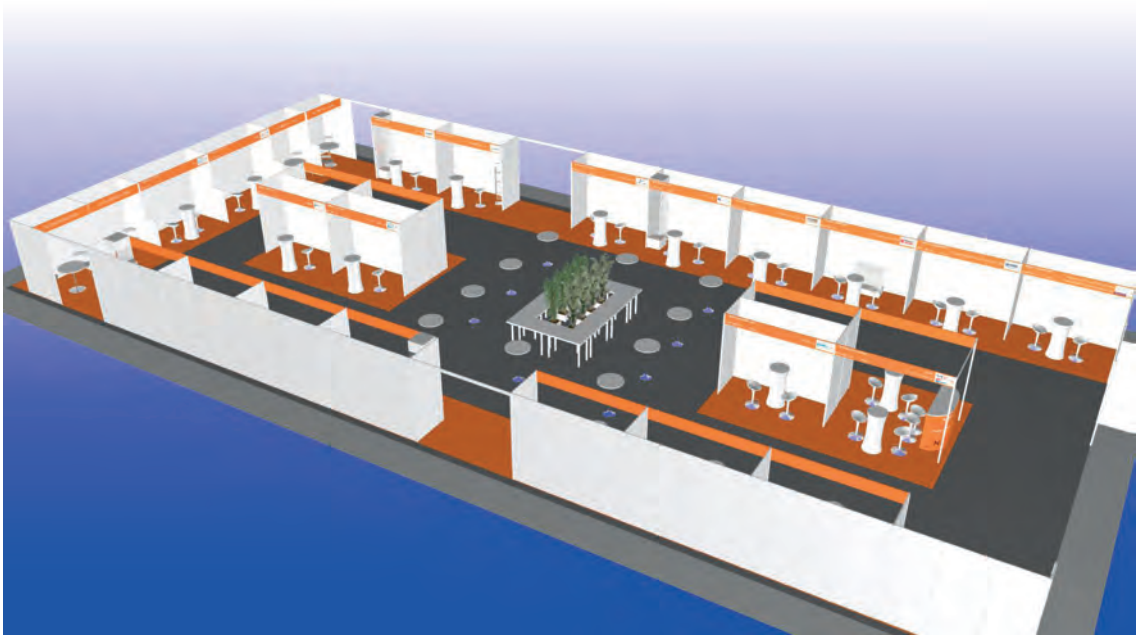
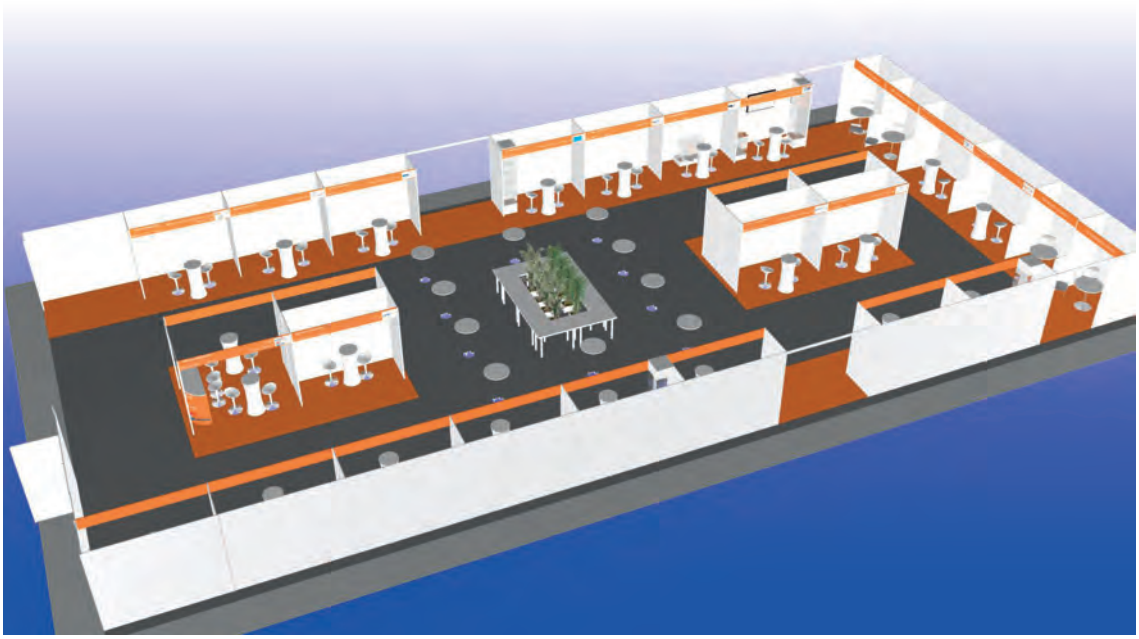
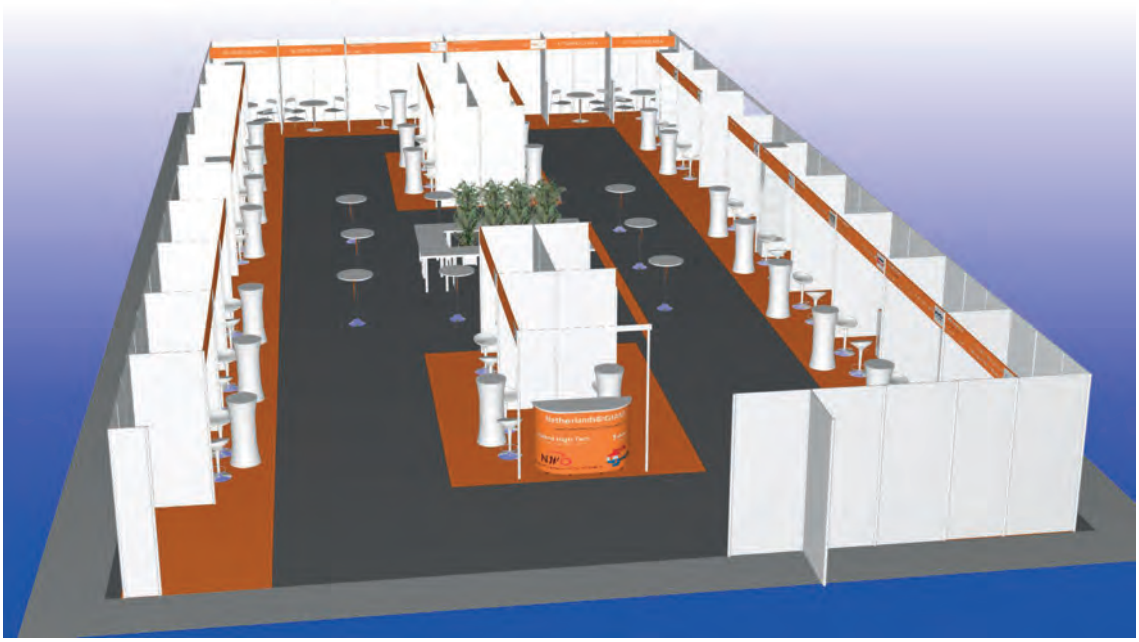
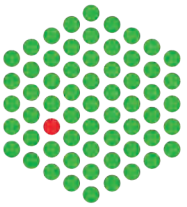






EMBL 

Netherlands Organisation for Scientific Research

where business and science meet

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