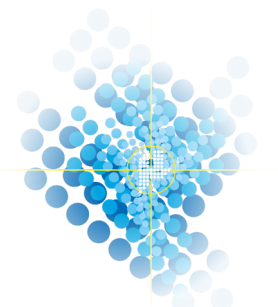


PRECISION
FAIR 2019

13-14 NOVEMBER 2019
NH KONINGSHOF
VELDHOVEN





Precisiebeurs 2019



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 **iLO-net**
INDUSTRIAL LIAISON OFFICERS NETWORK

BIG SCIENCE; VIA WETENSCHAPPELIJKE INSPIRATIE NAAR TECHNOLOGISCHE REALISATIE

Voor u ligt de hernieuwde uitgave van de bedrijvengids van het ILO-net. De jaarlijkse Precisiebeurs is een welkome gelegenheid om deze gids te presenteren. Het laat zien hoeveel bedrijven zich in de afgelopen jaren hebben verbonden met het ILO-net.

Sinds de oprichting van het ILO-net hebben we kunnen constateren dat er een flinke behoefte is aan ondersteuning voor technisch hoog gekwalificeerde bedrijven om zich te kunnen positioneren op de Big Science markt. Deze markt kenmerkt zich door zeer uitdagende opdrachten die wetenschappelijk geïnspireerd zijn. Er moeten voortdurend oplossingen worden bedacht om onze grenzen van kennis telkens opnieuw te verleggen. Dat leidt tot faciliteiten die inmiddels niet meer door één instituut of door één land kunnen worden gerealiseerd. Big Science is dus per definitie een internationale markt. Tegelijkertijd is het geen gemakkelijke markt om te betreden. De investeringen die ervoor nodig zijn vormen, zeker voor relatief kleine bedrijven, vaak een obstakel, terwijl het zeker ook niet altijd duidelijk is of daar, naast spin-off op de langere termijn, ook op korte termijn voldoende verdiensten tegenover staan. Toch zijn er inmiddels vele mooie voorbeelden van samenwerking tussen wetenschap en industrie die tot de verbeelding spreken en laten zien dat Big Science een krachtige drijfveer is voor innovatie, gebaseerd op co-development en technology transfer.

De Precisiebeurs biedt een podium om deze voorbeelden in de schijnwerpers te zetten. Niet zelden hebben de Industrial Liaison Officers (ILO's) van het ILO-net aan de bakermat gestaan van succesvolle trajecten in opdracht van grootschalige onderzoeksfaciliteiten als ESA, ESO, CERN en ITER. De ILO's opereren als intermediair tussen de wetenschappelijke instituten, die fungeren als thuisbasis voor deze faciliteiten, en de industrie. Zij kunnen behulpzaam zijn bij de vertaling van de wetenschappelijke eisen naar de technologische behoeften en daarbij hun internationale netwerk inzetten. Het ILO-net raakt daarmee ook steeds internationaler ingebed, en dat beschouwen we als een belangrijke ontwikkeling.

De inmiddels jarenlange samenwerking met het Mikrocentrum intensiveert eveneens, niet alleen door de jaarlijkse aandacht die er voor Big Science op de Precisiebeurs is, maar zeker ook via de thema-sessies die het ILO-net samen met het Mikrocentrum in Veldhoven mag organiseren. Die themabijeenkomsten, gefocuseerd op specifieke technologieën, leveren de informatie en input waarmee we nog beter de belangen van wetenschap en industrie ten behoeve van samenwerking kunnen behartigen, zowel nationaal als internationaal. De ontwikkeling van noodzakelijke "sleuteltechnologie" en het realiseren van een "level playing field" zijn daarvan enkele voorbeelden.

Wij zijn het Mikrocentrum dan ook zeer dankbaar voor het platform dat ons wordt geboden en nodigen iedereen graag uit om zich, zonder kosten, aan te sluiten op ons netwerk; zie:

WWW.BIGSCIENCE.NL

Wij wensen iedereen een nuttig en plezierig verblijf toe op deze Precisiebeurs 2019!

Gerard Cornet
Coördinator ILO-net



CONTENTS

01 ELECTRICAL, ELECTROMECHANICAL AND RF SYSTEMS 7

Advanced Electromagnetics BV	9
DARE!! Development	10
High Voltage Potting and Coating (HVPC)	11
Linear Technology	12
MTSA Technopower	13
National Instruments	14
Technobis Group	15
Technolution	16
TNO	17
Topic Embedded Products B.V.	18

01.1 Cabling and wiring (power, RF, fiber, super conducting,)	19
CAPABLE BV	21
Romal.com	22
Steered Technology	23

01.2 Power supplies DC, AC, high frequency, high current, high voltage	25
Delta Elektronika BV	27
Industry International	28
Prodrive Technologies	29

01.3 Printed Circuit Boards	31
Megahard	33
Sintecs	34
TBP ELECTRONICS	35
Thales Group	36

02 MECHANICAL 37

02.1 Machining of big parts	37
Bayards Aluminium Constructions	39
Schelde Exotech	40
Van Halteren BV	41

02.2 Precision machining (high speed milling, turning, electro forming, EDM)	43
Bakker Fijnmetaal	45
FMI High Tech Solutions	46

Kusters&Bosch	47
Landes High End Machining BV	48
Mevi Fijnmechanische Industrie	49
Nijdra Group	50
Precision Mechanical Prod.	51
VDL Enabling Technologies Group	52
Vermeulen Metaal B.V.	53

02.3 General machining 55

A.J.B. Instruments BV	57
Betech Group	58
Boessenkool B.V.	59
Bouman Machinefabriek	60
Germefa	61
Geurtsen Machinefabriek	62
IGS GeboJagama	63
KIN Machinebouw	64

02.4 Geometrical measurement 65

Carl Zeiss Industrial Metrology	67
IBS precision Engineering	68
Xpress Precision Engineering BV	69

02.5 Mechatronics 71

Airbus Defence and Space Netherlands	73
Butraco	74
CCM	75
Demcon Advanced Mechatronics	76
Heinmade	77
INDOLES Precision BV	78
PM-Group	79
Q-sys	80

03 BASIC MATERIAL TECHNOLOGIES 81

Benecom	83
Bodycote Vacuum Brazing	84
ECM Technologies BV	85
Etchform BV	86
Futura Composites BV	87
Heat & Surface Treatment	88
Innogrind	89
INNPLATE	90

Kersten plastic coatings	91
Multivalent Plating & Etching BV	92
Ter Hoek Vonkerosie Rijssen B.V.	93
VDL Fibertech	94

03.1 Machining of odd material (Ceramics, OFC, maraging- and duplex steel, Beryllium) 95

Admatec	97
BKB Precision	98
Ceratec Technical Ceramics BV	99
Formatec	100
Louwershanique	101

04 MANUFACTURING AND ASSEMBLY TECHNOLOGIES 103

3D Metal Forming	105
3D Worknet	106
DeValk	107
Mat-tech BV	108
Metrik Fasteners	109
Tebunus Tube Bending	110
Telmastaal	111
Velmon Lastetechniek	112

05 REMOTE HANDLING SYSTEMS (FOR HAZARD AND INACCESSIBLE ENVIRONMENT) 113

Active Space Technologies	115
Heemskerk Innovative Technology	116
Tree C	117

06 DIAGNOSTICS AND METROLOGY 119

DotX Control Solutions BV	121
---------------------------	-----

07 DETECTORS AND SENSORS 123

Amsterdam Scientific Instruments	125
Cosine	126
Delft Neutron Instruments BV	127
Nedinsco	128
Peter Haak Productontwikkeling	129
Single Quantum	130

08 CRYO AND LOW TEMPERATURE 131

Cryoworld BV	133
DeMaCo Holland BV	134
Stirling Cryogenics	135

09 (ULTRA) HIGH VACUUM SYSTEMS AND LEAK DETECTION 137

BOA Nederland BV	139
Hositrade Vacuum Technology	140
Mogema BV	141
Vacutech	142
Vacuüm Specials	143
Vernooy	144
Wiltig	145

10 INSTRUMENTATION & CONTROL 147

ACQ Inducom	149
Actemium E&A	150
AR Benelux BV	151
Hitec Special Measuring Systems	152
INCAA Computers	153
Omics2Image	154
S&T	155

11 ENGINEERING METHODOLOGIES AND TOOLS 157

ACE ingenieurs & adviesbureau	159
Amstel Engineering BV	160
BKL Engineering	161
EKB	162
Entechna	163
Janssen Precision Engineering	164
Lencon	165
MECAL High-tech/Systems	166
MI-Partners	167
Settels Savenije van Amelsvoort	168
Tebulo Engineering BV	169
TechMasters BV	170
VIRO	171

12 SAFETY SYSTEMS, LICENSING AND PROTECTION OF HAZARDOUS INSTALLATIONS, ACCESS CONTROL, FIRE AND GAS DETECTION 173

New Cosmos -BIE	175
-----------------	-----

13 OTHER MAGNETS 177

Goudsmit Magnetics Group	179
Wijdeven Group	180

14 INFORMATION- AND COMMUNICATION TECHNOLOGIES AND CODAC (CONTROL, DATA ACCESS AND COMMUNICATION)	181
4DSP BV	183
Advanced Solutions NL	184
StreamComputing BV	185
Tessella	186
15 PHOTONIC TECHNOLOGIES	187
Diamond Kimberlit B.V.	189
MCAP Cable & Glassfiber assemblies	190
Sumipro	191
16 MATERIALS HANDLING; DELICATE AND/OR HEAVY GOODS, LIQUIDS AND GASES	193
Ecomatters	195
Harveld Apparatenbouw BV	196
Hydro-Carbon Separation Systems BV	197
HQ Pack	198
IPS Technology	199
Lamers High Tech Systems	200
Montair Proces Technology BV	201
NRG	202
PTB Special Equipment	203
Smink Group BV	204
17 MISCELLANEOUS	205
ATG Europe	207
Atkins BV	208
Deerns	209
elQuip	210
Inno4life	211
Thomas Thor Associates	212
INDEX ALPHABETICAL	217
NOTES	221



01

ELECTRICAL, ELECTROMECHANICAL AND RF SYSTEMS

ELECTRICAL, ELECTROMECHANICAL AND RF SYSTEMS	Company size		Speciality (USP)		Area										Service		Test & Measurement		Production / Assembly		Engineering		Development		R&D		Supply		Technical Consultancy		Systems Engineering		Project Management																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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ADVANCED ELECTROMAGNETICS

COMPANY PROFILE

The AE-GROUP has more than 75 years experience with the manufacturing and distribution of electrical motors and actuators, ranging from greenhouses to military, automotive and aerospace applications. We are a technological center with in-house experienced specialists in all relevant domains (from simulation to manufacturing, from electromagnetics to fluid mechanics and from training to auditing and grant proposals) which take advantage of dedicated analysis and design software tools.

PRODUCTS

- **Electrical motors and generators:** a broad range from general to servo-drives or traction applications, from standard frame sizes and models to custom designed electrical machines
- **Test-benches for electrical motors and systems:** computer controlled test-stands for electrical machines and drive systems (features: adjustable mounting platforms, integrated power analyzer, graphical user interface, various types of sensors, programmable load curves)
- **Magnet assemblies and magnetic materials:** design, analysis and/or manufacturing of custom magnet assemblies, permanent magnet rotors/translators for electrical machines
- **Electrical motor components:** off-the-shelf or custom made coils and windings, lamination stacks, permanent magnets, insulation materials, brushes and brush-holders, etc.

SERVICES

- **R&D and technical consultancy:** the in-house know-how and a close cooperation with selected partners enables us to provide expert consultancy concerning the electromagnetic, mechanical, thermal, power conversion and control aspects of complex electromechanical solutions and mechatronic systems.
- **Measurements:** facilities and qualified operators for prototype- or production-level testing of electrical machines and transmission gears covering a broad power range.
- **Manufacturing:** facilities for the manufacturing of electrical machines, electromechanical actuators, precision machined components for both series and prototype production.

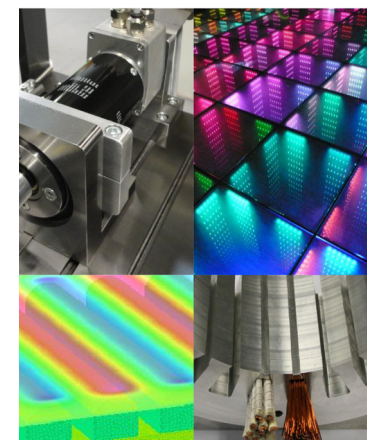
SOFTWARE

- SPEED and Motor-CAD: exclusive distributor the Benelux area

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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.

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DARE!!
Development

H.V.P.C.

H.V.P.C., or High Voltage Potting and Coating, is self-reliant since 2002. We are specialized in winding, assembling, potting, coating and testing of high-tech products. Being experts makes us also the best possible advisors in this field. These products are mainly for the medical- and defense industry, but we also have customers in the aviation industry.

H.V.P.C. is a dynamic production company with few hierarchical lines. These short lines result in quick settlements and a strong workforce. The workforce increased through the years from 8 to 18 enthusiastic employees.

H.V.P.C. sets high demands for its performance. The product quality, service and reliability of the deliveries are among the best in the world. H.V.P.C. logistics uses short channels and therefore purchasing activities are quick, control is good and delivery times are reliable.

Adapting to developments in the market with the help of innovative technologies and shaping an effective organization with flexible processes are characteristic of H.V.P.C. The flexible processes result in the possibilities to produce single pieces or small series.

PRODUCTS

H.V.P.C. is specialized in single production or small series. H.V.P.C. produces a large variety of products (durable types), both existing as new designs, which can be realized in consultation with the client.

H.V.P.C. is a production company for mainly high-tech inductive components, such as (high voltage) transformers, choke-coils and deflection coils. Also high-tech power supplies and high-tech connectors poured into as well as oil and different synthetic materials (silicones and epoxies).

REFERENCES

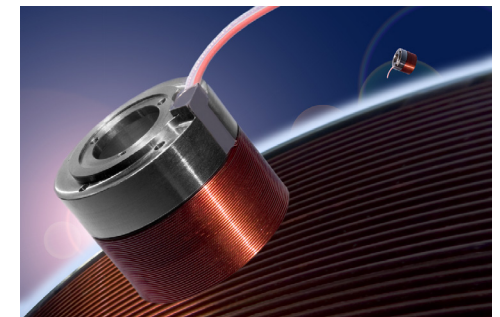
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Turnover: 2,5 M€ | 18 Employees

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LINEAR TECHNOLOGY CORPORATION (LTC) BENELUX

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over 35 years. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems.

PRODUCT INFORMATION

- Linear Technology Corporation produces products covering:
- Power management
- Data conversion
- Signal conditioning
- RF and interface ICs
- μ Module subsystems
- Wireless sensor network

SOLUTIONS

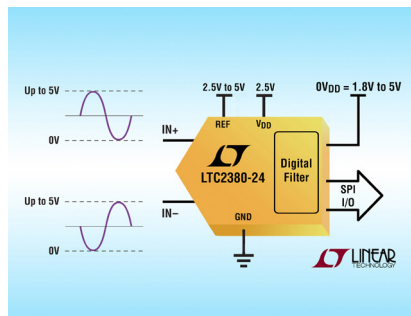
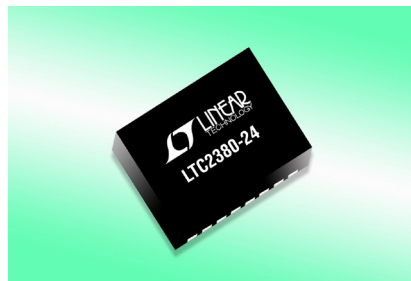
Linear Technology Corporation provides expertise not only on the workings of our parts, but also the larger, often complex problems customers are looking to solve. The Linear Technology Circuit Collection conveniently assembles some of the most popular designs from our data sheets, design notes and application notes. The Linear Technology Blogs offer insights into applications directly from our team of analog gurus – by engineers, for engineers.

For more information, visit www.linear.com

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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

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NATIONAL INSTRUMENTS

COMMITTED TO ENGINEERS AND SCIENTISTS

Since 1976, National Instruments has equipped engineers and scientists with tools that accelerate productivity, innovation, and discovery. NI's graphical system design approach provides an integrated software and hardware platform that simplifies development of any system that needs measurement and control. Engineers and scientists use this platform from design to production in multiple industries, advanced research, and academia.

ACCELERATE DEVELOPMENT

Researchers accelerate their development using highly productive NI LabVIEW software that integrates and abstracts the complexity of systems at multiple levels, including unprecedented visualization of system timing. They can lower total systems cost, increase flexibility, and integrate new technology easily using off-the-shelf customizable hardware that meets system needs from low power to high performance.

INNOVATE FAST

The flexibility and scalability of the platform, supported by a growing eco-system of reusable IP and applications, gives engineers a strong competitive advantage in completing more projects with less time and resources. Thousands of engineers successfully use the NI graphical system design platform today to innovate, discover, and invent their own solutions – fast.



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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

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TECHNOLUTION

TECHNOLUTION; THE RIGHT DEVELOPMENT

Your end result is our passion. Using our knowledge of technology and taking from our vision of your domain, we elicit what your needs and demands are, keeping the dialogue open and encouraging your participation throughout the whole process. With this approach we develop a user friendly and technically smart solution.

CURIOSITY AND INNOVATION

Ever since we started 28 years ago, we are driven by curiosity and innovation. Our 180 colleagues thrive on bringing new technologies to practical applications in your domain. We are always working at the edge of what is technologically possible, but turning novel technology into working practical solutions.

PRODUCTS AND SERVICES

We design and develop high-end electronic products e.g. hardware, software and applications for customer specification and for our own products. Our core markets are Mobility, Energy and Science&Industry. We have designed, built and delivered products and systems for electron microscopes, lithographical machines, medical systems, etc.

UNIQUE SELLING POINTS

- We provide solutions (hardware, software, building block, IP) for high-end equipment.
- We excel at the combination of hardware and software
- We have a track record in extremely high speed data processing and acquisition
- We build and deliver solutions for very demanding environments
- With combine technical and application domain knowledge

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Technolution

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 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.

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Business Development

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Turnover: 494,6 M€ | 4,400 employees

www.tno.nl

TNO innovation for life



TOPIC EMBEDDED PRODUCTS

COMBINABLE AND COMPATIBLE EMBEDDED ACCELERATION SOLUTIONS

Topic Embedded Products provides an innovative and complete ecosystem of embedded hardware and software products to accelerate your development. Our ecosystem guarantees:

- The highest quality for both the hard-and software parts of our solutions
- All products are combinable and compatible
- High quality solutions for today, build with the future in mind



Dyplo (Dynamic process loader) offers a platform development kit (PDK) to develop applications combining FPGAs, embedded processors and standard PCs in a simple and controlled way within the same programming context. Dyplo operates as a bridge between processing platforms of choice, enabling engineers to perform their work using their typical development environment while programming functionality of other platform parts as an integral part of their application. Dyplo delivers:

- Software threading enabled on FPGA logic
- Runtime re-use of FPGA fabric by making intensive use of partial reconfiguration
- Out of the box CPU & FPGA integration, certifiable and reliable infrastructure
- Simplified functional redundancy without compromising performance

The Miami System on Module (SoM) family is based on the Xilinx Zynq SoC and FPGA-only technology. This highly integrated and compact off-the-shelf solution for today's high performance embedded systems runs a state-of-the-art Linux distribution enabling an out-of-the-box design start experience. The SoM boards can be used for prototyping as well as end-product integration. Your prototype developments can start tomorrow when clicking your Miami on our standard Florida Carrier Boards. Dsign Services offer you customization services based on the standard Topic Embedded Products products. This helps you to fast-track your application to the market against manageable costs and solid quality. CERN related project: We have developed in collaboration with NIKHEF a video frame grabbing and processing application based on a Miami SoM and Florida customized carrier board for the large Hadron collider displacement measurement at CERN. The following customizations were part of this project:

- Carrier board development based on Florida PCIe carrier board
- Rapid prototyping and first-time-right board production
- Connects 1980's technology with present day infrastructure
- High-speed A/D converter to capture analog video signal with high resolution
- Custom FPGA functionality to synchronize and capture video
- Uses the Linux Industrial I/O framework for high-speed data acquisition

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01.1 ELECTRICAL, ELECTROMECHANICAL AND RF SYSTEMS

CABLING AND WIRING
(POWER, RF, FIBER, SUPER
CONDUCTING,)

ELECTRICAL, ELECTROMECHANICAL AND RF SYSTEMS	Company size			Speciality (USP)				Area																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										</
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CAPABLE BV

Cables and connections. That is the strength of Capable BV Cable Application Engineers. We develop customer-specific specialty cables and connectors as well as systems for a broad diversity of applications in high-tech environments (e.g. space industry, offshore and medical). Years of experience, a broad knowledge base and expertise in specialty cables are the basis for our solutions. You won't find a catalog at Capable; we develop unique solutions for every individual application. Capable is part of the TKH Group NV, an international group that is specialized in advanced telecommunication, electrical and industrial solutions (www.tkhgroup.com). Capable is an exclusive partner of Axon' within the BENELUX.

PRODUCTS AND SERVICES OF CAPABLE BV

- Innovation support
- Micro-connection
- Micro assembly



Mr. Alex de Wijs

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ROMAL.COM

Romal is a technical wholesaler from Utrecht in the centre of the Netherlands. Our company was founded in 1932 and remains a family owned business even today. Our focus is on the business to business market. With our broad range of products we target the Broadcast, Data/Telecom, Catv/Satellite, Security, Coil winding, Isolation, Industrial and Installation markets.

QUALITY

If there's one thing our wide range of products have in common it's quality. We are constantly looking for the best products to fulfil our customer needs and further complete our product range. Therefore we have a strong product range with excellent products and reliable suppliers who stand behind their products a complete 100%.

STOCK AND VISION

We hold more than 2.000 different products on stock to have a quick and reliable order fulfilment time. With our active stock policy we try to keep our stock as current as possible. This also means that we add new products on a regular basis.

Next to quality we see that lead time is becoming more and more important for our customers. It's part of our company vision to have a large stock position. This may not seem as the most logical thing for a business economist but over last 80 years it proved to be an important trademark for Romal.

Many of our customers thrive to keep their stock positions as low as possible. This is only possible if they have a reliable partner with a good stock position. Romal is that reliable partner. And in case we don't have stock we can guarantee a quick delivery because of our broad range of suppliers.

PRODUCT MANAGEMENT

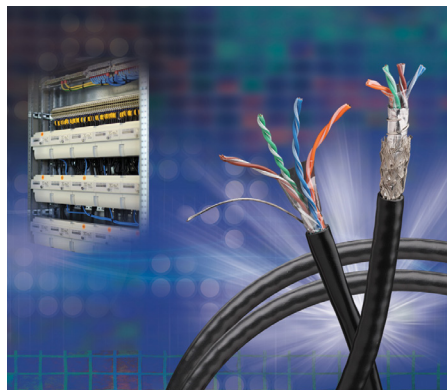
Our product manager continues to look for new products or combinations of existing products. This can be cable assemblies but also customer specific cable, which we can deliver in small batches if needed. We also have a number of product specialists who can advise our customer and handle their specific needs professionally.

Bas Koens

Accountmanager

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ROMAL.COM

STEERED TECHNOLOGY

Connecting the dots to make your system work!

steerED Technology, founded by experienced industry professionals, is an interconnection system development and supply company. We use internal resources as well as the capabilities and resources of our partners to make new developments possible and to maximize productivity for our customers.

OUR TECHNOLOGIES:

- Connectors and other interconnection components.
- Copper cable assemblies
- Foil & Flex based interconnect solutions.
- Fibre Optic cable assemblies and subsystems.
- High Speed copper cable assemblies
- Solutions for verification and characterisation testing.

Our team has over 80 years of experience with developing and selling interconnection systems. In 's-Hertogenbosch we do have our engineering, prototyping and testing capabilities and we also work together with carefully selected partners to have access to those technologies which can make the difference for the value we want to bring to our customers.

Theo Hoof

Business Development

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STEE RED
Technology





01.2

**ELECTRICAL,
ELECTROMECHANICAL
AND RF SYSTEMS**

**POWER SUPPLIES DC, AC,
HIGH FREQUENCY, HIGH CURRENT,
HIGH VOLTAGE**

ELECTRICAL, ELECTROMECHANICAL AND RF SYSTEMS		Company size		Speciality (USP)			Area							Test & Measurement	
POWER SUPPLIES DC, AC, HIGH FREQUENCY, HIGH CURRENT, HIGH VOLTAGE		Discipline (WHAT)		technology-/ skill-/ product centric (HOW)		Metal		Cryo Vac- um		Electronics HW		Software		Production / Assembly	
Delta Elektronika BV		DC power supplies		0305;		custom specific development		power supplies		RF high power		x		x	
Industry International (Ampulz;SPARQassembly)		high power conversion systems;RF		0305;0201		RF; AC and DC tailor made power electronics		power supplies		data processing		x		x	
Prodrive Technologies		powerconversion;motion control;vision		0207;0210; 0305;0405;07		in house production of all components		x		power supplies		x		x	

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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DELTA
ELEKTRONIKA
DC POWER SUPPLIES



INDUSTRY INTERNATIONAL

Ampulz optimizes power conversion systems in a rapidly changing industrial market. Inspired by technological developments, Ampulz is contributing to a sustainable environment. Our solutions find their way into various applications for:

- Industrial processes
- Particle accelerators / synchrotrons
- Nuclear fusion research
- Electricity distribution grids and Renewable energy

As an independent partner, we provide and maintain systems between grid connection and your primary business process. Solutions are based on standard components and existing "building blocks" tailored to specially designed converters or drive systems. Together with you, we realize savings, higher availability and accuracy at system level, by realizing the best-suited solution with knowledge and experience from your process.

We have 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

When the stakes are high and power conversion is key and complex, invest your trust in Ampulz. Our independent solutions and services are unparalleled throughout the world.

Some of our references for scientific institutes: ESRF – 2.4 MW booster power supply, Quadrupole power converters, Forschungszentrum Jülich – Septum Magnet power supply, HFML Nijmegen (NL) – 20 MW DC Converter System Modular Conversion System and 15 kA power supply for super conducting magnets, ASDEX upgrade IPP Garching (D) – Extension of the Pulsed Power Supply Network of ASDEX, Helmholtz Zentrum Berlin (D) – 8 MW 20 kA Power Converter System, Solvin Antwerp (B) – 1 MW PEM fuel cell conversion system

Ampulz | Energizing Ambitions

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PRODRIVE TECHNOLOGIES

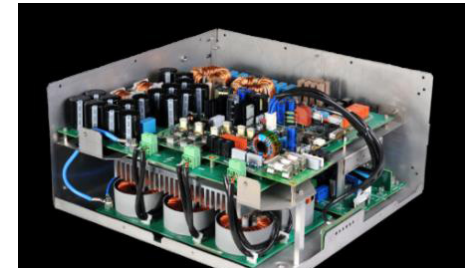
A PASSION FOR TECHNOLOGY

Quite literally everything centers on the customer, our passion for technology, and on constantly improving our business processes. This 'DNA' has been crucial to our company since we began operating in 1993 and it's the foundation of our success as well as that of our clients. Working for – and usually in close partnership with – you, we develop and produce electronic and mechatronic products and systems with an exceptional price-performance ratio. We can do this because we have smart ways of optimizing, integrating and robotizing, and because we produce everything we need in-house. These are just some of the reasons why we've been able to build a competitive edge over all other providers of technical solutions, anywhere in the world.

RELEVANT TECHNOLOGIES

- **High end computing:** We serve various markets with a focus on real-time / lossless data processing where we can provide processing, storage, communication interfaces and complete computing platforms (filled cabinet), including sophisticated software.
- **Power conversion:** Power conversion is at the root of Prodrive Technologies. For over 20 years, we develop and manufacture power solutions for the Industrial, Medical, Automotive and Energy & Infrastructure markets. We provide off-the-shelf power components, power modules and power systems as well as customer specific solutions tailored to your needs.
- **Vision and sensing:** Prodrive Technologies is one of the few vision & sensing solution providers with the capability and know-how to provide you complete opto-electronic solutions. We support different types of sensors, amongst others: visual (area and line, hyperspectral), infrared, x-ray, radar, particles. Furthermore, all types of digital communication interfaces and processing are readily available.
- **Motion & mechatronics:** Our solutions are unmatched in the combination of electronics, motion control, electro magnetics and precision mechanics, and are applied e.g. in the semiconductor industry.

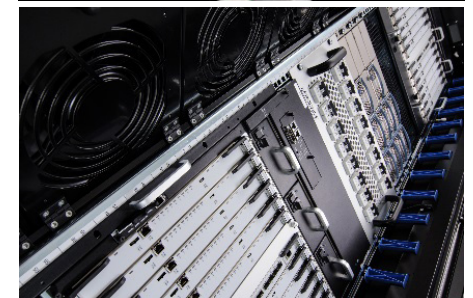
PRODRIVE
TECHNOLOGIES



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A row of orange tulips with green leaves, positioned horizontally across the middle of the page, partially obscured by a white circle.

01.3

**ELECTRICAL,
ELECTROMECHANICAL
AND RF SYSTEMS**

**PRINTED CIRCUIT
BOARDS**

ELECTRICAL, ELECTROMECHANICAL AND RF SYSTEMS PRINTED CIRCUIT BOARDS	Specialty (USP)		Area				Service		Test & Measurement						x
							Supply		Production / Assembly		x	x	x	x	x
									Engineering		x	x	x	x	x
									Development		x	x		x	x
									R&D					x	
Mega hard															
Sintecs															
TBP ELECTRONICS															
Thales Group															

MEGAHARD

TECHNOLOGY DEVELOPMENT SERVICES

Megahard is a high tech electronics design service provider. We have the capability to design in our own lab or we can provide talented trusted engineers to work at your organization.

The design service we provide can range from a PCB to a complete technology development including enclosure design and software development.

RESEARCH INSTITUTES AND UNIVERSITIES

Megahard has strong roots in the scientific research world. Our specialty lies in the development of apparatus for scientific research and application demonstrators of scientific research. Megahard engineering has many years of experience in development of lab and field-ready research tools and demonstrators.

TECHNOLOGY DEVELOPMENT CAPABILITIES

- 3D designs and 3D rendering
- 3D printing/rapid prototyping
- PCB design and production
- Embedded systems programming, FPGA "programming"
- Functional testing
- Environmental testing

TECHNOLOGY SUPPORT CAPABILITIES

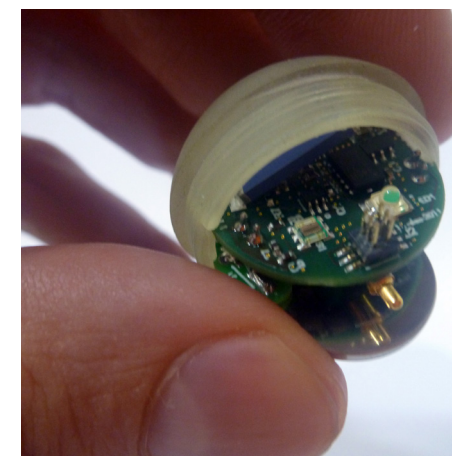
- Technical documentation writing
- Translating technical documentation and software: French, Dutch, English, Spanish, German
- Recruitment of specialized electronics design engineers

Megahard
The design of your imagination.

Georges Meinders

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www.megahard.pro



SINTECS

INTRODUCTION SINTECS

Sintecs was formed in 2000 as an Electronic Design Service company specialized in high-speed board design and analyses. Since that time, Sintecs has been involved in the development of high-end products in several market segments like Industrial, Medical, Telecommunications, Aerospace, Defence, etc. With our projects, we have consistently pushed forward technology boundaries.

Sintecs offers different solutions in the area of System-On-Modules development, Embedded system design and Electronic Design Services. We enable our customers to create better products that increase productivity, improve product quality, improve total cost of ownership (TCO) and provide environmental benefits.

SERVICES

Signal Integrity analysis	DFM/DFA verification
PCB design	MC verification
Thermal analysis	Library development
Power Integrity analysis	EDA design support
Timing analysis	IBIS Resources

ENGINEERING

Product design	FPGA Design
Electronic design	Type Approval
Embedded software design	

PRODUCTS

SES-MX536	SiMC-T20x
SES-MX65/D/Q	SiMC-LS20xx
SiMC-T10xx	SiMC-TCB01

REFERENCES

ASML – Thales – Ten Cate – Bosch

PARTNERS

Mentor Graphics – Freescale/NXP – Samtec – Cadence

Hans Klos
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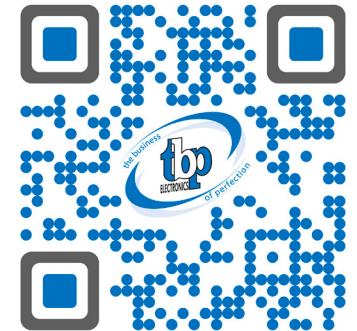
TBP ELECTRONICS

tbp electronics is a leading Dutch integrated Electronics Manufacturing Services (EMS) company providing end-to-end product lifecycle solutions that include early involvement, Design for eXcellence, for Manufacturing and for Test (DfX, DfM & DfT), product development, procurement, pcb assembly and testing, test engineering, inspection, product- and cabinet building, repair, supply chain management and logistic services. The name tbp defines itself as being in 'the business of perfection' and strives to provide its customers with excellence in all key areas: the race for perfection has no finish line.

Since 1976 tbp has been serving customers in the semiconductor, media, entertainment, ICT, telecoms, graphics, industrial, petrochemical, construction, shipping, broadcast, science, medical and defence sectors. With over 130 employees tbp electronics is a privately owned company with its headquarters in Dirksland in the Netherlands. Our company is officially qualified ISO 9001:2008 and AQAP 2120:2009.

For more information, visit tbp's website at www.tbp.eu

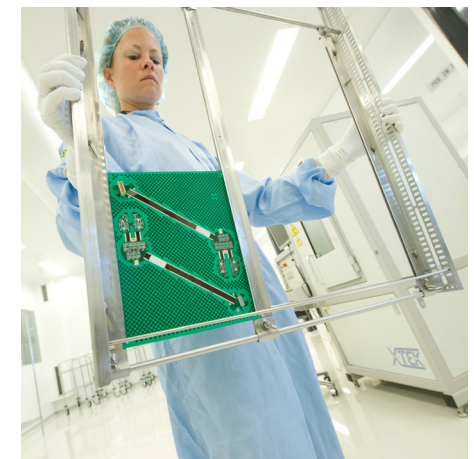
EARLY INVOLVEMENT THAT'S...
ONE SMALL STEP FOR TBP
ONE GIANT LEAP FOR MANUFACTURING



Mr Ir. Frans Geerts
Executive business development

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M: +31 (0)6 50 25 27 08
E: fgeerts@tbp.nl

www.tbp.eu



THALES GROUP COMPETENCE CENTER FOR PRINTED CIRCUIT BOARDS

The Thales Group Competence Center Printed Circuit Boards is a low-volume supplier of high performance and high reliability complex and advanced printed circuit boards for mission critical systems.

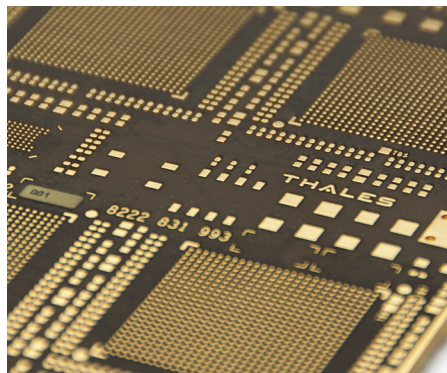
The printed circuit board facility in Hengelo has evolved since 1969 as an internal manufacturing department within Thales Netherlands, supporting prototyping, new product introduction and technology developments for radar frontend systems. In 2012 it was appointed Thales Group Competence Center Printed Circuit Boards (GCC PCB) offering a wide range of capabilities specially tailored to the Thales Group needs with emphasis on advanced and complex RF and mixed signal printed circuit boards. Production is performed primarily for a customer base in:

- Avionics
- Defence
- Space
- High Rel Industrial applications

With respect to quality control and assurance the centre holds MIL 55110 and MIL 31032, ISO 14001 and ISO 9001 certifications and is a member of the IPC. Inspection is performed in compliance with IPC class 2 and 3 requirements. The Thales Group internal acceptance criteria: TRT 16 262 721 for rigid printed circuit boards and TRT 16 261 983 for microwave printed circuit boards are being implemented as part of the GCC activities. In-house reliability testing and environmental stress screening are available. Product categories and application areas include power modules, analogue boards, HDI, high speed digital multi layers, mixed signal boards, stripline flex and rigid structures, and antenna panels.

Rigid panels size up to 24x(36-48) inches and flexible layers up to a length of 10 m can be manufactured. A wide multilayer material experience ranging from FR4, PI, a large variety of RF materials (Rogers and teflons) and their combinations together with metal core materials like aluminium, BeO and AlSi and copper is present. The PCB center exhibits technical capabilities including laser direct imaging, advanced mechanical drilling and routing equipment in order to fulfil demanding registration requirements. The current lithography processes are upgraded towards state-of-the-art-fine-line capabilities. Interconnection techniques include UV/CO2 dual-source micro via laser drilling, via hole filling and over plating. Additional features like cavities, back drilling, embedded resistors and thermal management are also part of the technology portfolio. Advanced AOI, BBT testing and cross section analysis is used. Available surface finishes are HAL (PbSn), ENIG, ENEPIG, selective electrolytic PbSn, selective electrolytic Ni and hard- or soft Au and their possible combinations.

THALES



Robin Lemsom

**Sales Manager Group Competence Center
Printed Circuit Boards**

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www.thalesgroup.com

02 MECHANICAL

02.1 MACHINING OF BIG PARTS

MECHANICAL MACHINING OF BIG PARTS	Company size		M	M	M			
	Discipline (WHAT)		machining,joining	construction/repair of reactors & vessels	systemsupplier;machinery;- structures			
	procurement codes							
	technology / skill-/ product centric (HOW)		complex aluminium constructions	engineering & manufacturing special materials	general precision machining&assembly			
	Metal		Large	Small	Cryo Vacuum	Me- chattr.	Electronics HW	Software
	Specialty (USP)		x	x	x			
	Area		Supply	System Supplier	Technical Consultancy	Systems Engineering	Project Management	Service
Production / Assembly		x	x	x				
Engineering		x	x	x				
Development		x		x				
R&D								
Test & Measurement								

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.

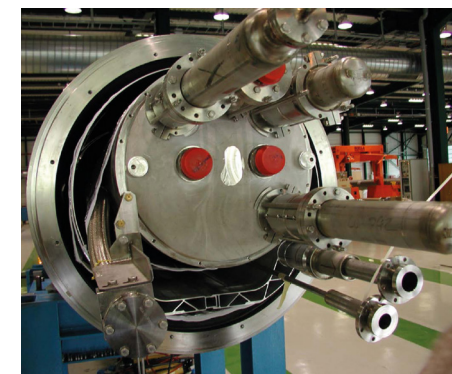
Please visit our website for more information and track records.

Ing. Dies W.S. Mackintosh
Managing Director

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Turnover: 25 M€ | 135 employees

www.bayards.nl

BAYARDS®
solutions in aluminium



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 Department 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

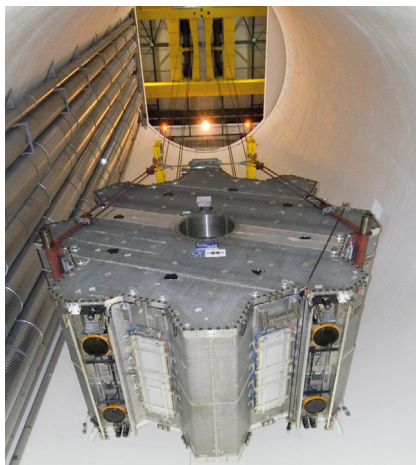
Arthur Borsboom
Sales Manager

Jos Mols
Managing Director

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4381 NA Vlissingen
T: +31 (0)118 48 59 53
T: +31 (0)651 32 76 01
E: arthur.borsboom@exo.schelde.com

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

www.exotech.nl



VAN HALTEREN METAAL BV

Van Halteren Metaal BV is part of the Van Halteren Group, an independent family owned business with various facilities in and outside The Netherlands. We aim for multidisciplinary projects where competences as advanced heavy machining, certified welding, assembly and commissioning are a requirement. Our production facilities comprises 12.000 Sqm., equipped with modern machinery and construction shop. Our staff is motivated, skilled and very experienced.

MARKETS

VHM serves a large variety of markets: Offshore, Big science, Shipbuilding, Defense, Sustainable Energy, Semi-conductors.

COMPETENCES

We manufacture components as well as complete assemblies

- Advanced machining 3-4-5- axis up to 20 meter
- Certified welding, ISO 3834-2, NEN EN 1090-2.
- Project management
- Assembly, Integration & Commissioning
- Engineering & development
- Quality assurance & control
- Electro-mechanical assemblies

EXPERIENCE WITH CERN, HFML, ITER, ESRF, ESA

Magnet housings, MQFxB magnet parts, special tooling, components

PRODUCTS


- Mechanical components
- Mechatronic assemblies
- UHV components
- Simulators systems
- High voltage switches

Jeroen Kleinlugtenbelt
Sales Manager

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www.vanhalteren.com





02.2

MECHANICAL

PRECISION MACHINING
(HIGH SPEED MILLING, TURNING,
ELECTRO FORMING, EDM)

FMI HIGHTECH SOLUTIONS / FMI MACHINING

FMI HighTech Solutions is part of the FMI Group, with 8 companies, located in the South of the Netherlands. FMI HighTech Solutions designs, produces and assembles complete mechanical and mechatronic devices and complex modules.

COMPETENCES

Vacuum Technology, Motion, Optical, Precision Technology, Transport tooling, Material Handling, Production of High-end parts, 3-D printing, Project Management

PRODUCTS

Production of high-end parts (0,003micron), High-end modules, Tooling equipment. Proto-typing and volume production.

QUALITY

- ISO9001 QMS, ISO13485
- Loyd's certificate Of re-marking
- Full traceable product document management
- Compliance & Risk management
- Advanced Product Management

MARKETS

Aerospace – Analytical – Leisure industry – Medical – Food – Oil & Gas – Semi-conductor – Solar.

REFERENCES

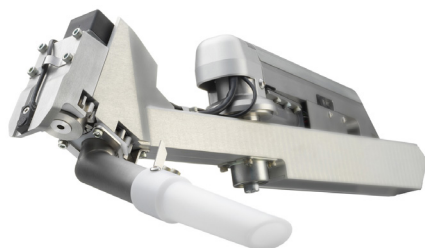
Anteryon – Applikon – ASML – FEI – JenOptik – Thales – Twister – Vekoma

John in 't Groen

Business Development Manager

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E: h.wijnants@fmi.nl

www.fmi.nl



KUSTERS & BOSCH FIJNMECHANISCHE INDUSTRIE BV

We make precision parts and assemblies.

With a small enthusiastic team, a very modern machine park and over 25 years' experience in the making of machined precision parts we aim at a profitable and long lasting relation with our customers.

SPECIALTIES

- Precision (micron area) parts in all sorts of materials and (sub-) assemblies.
- Parts for vacuum applications.
- Series production

CAPABILITIES

- Modern precision 5-axis milling up to 2000x 800x750 mm milling.
- Acclimatised measuring facilities with table size 1200x2000x1000.
- Experienced & enthusiastic team of 35 people.
- Used to work for large organisations.



kusters & bosch



Mr. T. Kusters

Director

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E: tkusters@kusters-bosch.nl

www.kusters-bosch.nl

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

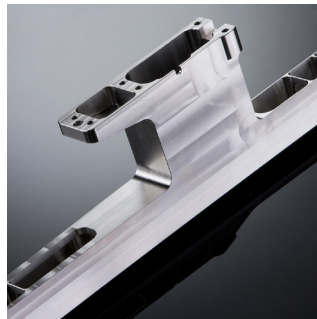
ISO-9001, AS-9100C

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www.landes.nl

Landes
HIGH END MACHINING



MEVI

MEVI MEANS PRECISION WITHOUT COMPROMISE

Accuracy is Mevi's strength. Accuracy in everything from engineering to system supply, module construction, machining and test equipment. We can measure up to an accuracy of 0.6µm, and drill holes measuring just 0.02mm. That's Mevi for you. Our expertise is evident in every part of our company, from our extensive range of machinery to our over 100 specifically trained FTE's. It's thanks to all of these resources that Mevi has become a medium-sized partner with the capacity, knowledge and experience of a major player. But also one with the adaptability, determination and personal involvement of a small-scale organization. What this means in practice is that Mevi works extremely accurately, flexibly, and without compromising on quality. What's more, we like to taking on any challenge, regardless of its complexity. Whatever the challenge, we will build it.

MEVI SPECIALISES IN:

- Engineering
- Production
- System supply
- Test equipment
- Automation of 3-R pallet system (in combination with FEHLMANN P95)
- 5-axis range Ø 160 x 160mm
- Speed of 50,000 rpm

THREE MACHINES; COUNTLESS SOLUTIONS

We will be happy to show you three of the machines that we're most proud of. However, these are only a few examples of all the machinery and technology at our disposal.

FEHLMANN VERSA 825

- 5-axis milling within 5µm
- Range Ø 500 H = 430mm
- EROWA automation system with 6 pallets of 400 x 400mm
- Speed of 20,000 rpm

KERN PYRAMID NANO

- Hydrostatic
- Mills to 1 µm, with repeat accuracy of 0.3µm
- Surface roughness of up to Ra 0.05µm achievable

LEITZ PMM-C

- Calibrated to 0,6µm
- Range 800 x 1000 x 600mm
- Programmable with PC-DMIS

Interested in finding out how we can help you?

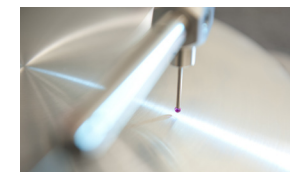
Please contact us to discuss your requirements.

Anthony van Zeeland

Engineering Account Manager

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T: +31 (0)6 52 58 43 07
E: avanzeeland@mevi.com

www.mevi.com



NIJDRA GROUP

PRECISION IS OUR PROFESSION, SERVICE IS OUR PASSION!

Nijdra Group is a professional supplier specialized in high-tech precision components, complex (sub)modules and complete systems for the high-tech industry.

Nijdra Group cares for its clients' needs, from engineering, manufacturing, assembly and testing to supply chain management. Thanks to our extensive experience (since 1974) in the high-tech industry, we are capable of providing added value in any phase – from development to production, assembled and tested modules and machines. Furthermore, we provide our clients with support with their designing, guiding and producing a prototype as well as with the development from a prototype to serial production and assembly. We draw on our wide expertise in the field of manufacturability, scope of tolerance, use of materials, surface treatment, cost reduction, excellent quality and efficient assembly to achieve the optimum results for our clients.

OUR RANGE

- (Co)engineering
- Value engineering
- Production
- Supply chain management
- System integration
- Assembly
- Testing
- Our Quality:
- ISO 9001
- ISO 14001
- ISO 13485
- Testing facilities



Robbin van Zanten
Accountmanager

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www.nijdra.com



PRECISION MECHANICAL PRODUCTION

Precision Mechanical Production is a flexible and innovative supplier, specialized in manufacturing of ultra-precision mechanical components for the High Tech industry.

COMPETENCES

- Since its foundation in 1998, PMP works proactively with customers in both the product development and the product realization process.
- Knowledge and Skills at the highest level of;
 - developing product- and process strategy
 - tool design and development
 - CAD/CAM
 - CNC machining
 - Aukom coordinate measuring technology (3D)
- An installed base of the latest machine tools at the forefront of technology;
 - 3-axis (max.2000x800mm) CNC machines
 - 5-axis (max. cube 600mm) CNC machines with loading robot
 - 3D measuring facility.
 - technical climatized production.
- Producing accurate, complex ultra-precision parts, with tolerances in the μM range.
- From prototype, single pieces to small and medium size series.
- Materials; aluminium, titanium and super alloys.
- The active quality assurance policy together with our safeguarded processes and procedures ensure our high quality to be continuously secured.

MARKETS

Semicon – Analytical – Optical – Medical – Defense and Aerospace.

PMP: your "Partner in Precision"



Eric Sens
COO

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E: eric@pmp-nl.com

www.pmp-nl.com



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

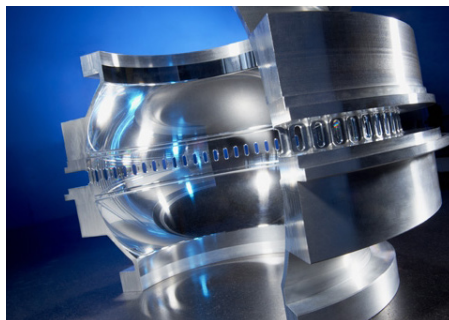
Cees Coolen

Business Manager Science & Technology

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T: +31 (0)40 263 88 88
E: cees.coolen@vdlletg.com
E: hans.priem@vdlletg.com

Turnover 2011 E500M | 1750 employees

www.vdlletg.com



VERMEULEN METAAL B.V.

Vermeulen Metaal B.V. is your One stop shop for specials

ENGINEERING

- Solid works
- Inventor

MANUFACTURING

- Sheetmetal (all materials)
- CNC milling
- CNC turning
- CNC boring
- Piping (water, gas and chemical)
- Skidbuilding
- Certified welding

ASSEMBLY

- machine building
- machine parts
- on-site installation

REFERENCES

OMT solutions – Cosign – Permobil France – Perfetti van Melle
benelux – Solvay chemicals – Viro – Alstom – WML

CERTIFIED

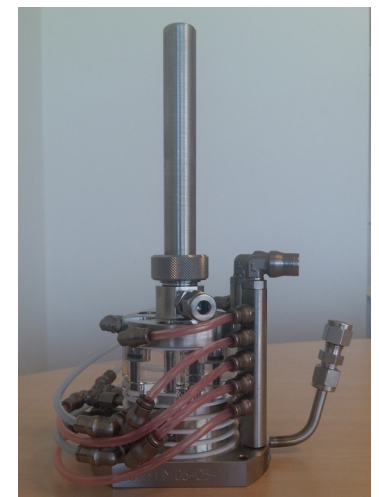
- ISO 3834-2
- ISO 1090-1
- ISO 9001 (under construction)


Peter Vermeulen

Director

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02.3

MECHANICAL

GENERAL MACHINING

MECHANICAL	GENERAL MACHINING	Company size	Specialty (USP)			Area						Service	Project Management	Systems Engineering	Technical Consultancy	Supply	R&D	Development	Engineering	Production / Assembly	Test & Measurement																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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A.J.B. INSTRUMENT B.V.

Over the past several years AJB has developed itself as a specialised supplier of high precision components and small assemblies to many high tech industries.

Technical and commercial support combined with advanced production facilities allow us to satisfy almost every customer's demand. In our facility we have everything from conventional lathes to 5 axis CNC milling machines with automation and 13 axis CNC lathes. We also offer additional process capabilities of grinding, wire erosion, honing, lapping and a cleanroom assembly facility. An environmentally controlled measuring room with 2 CNC measuring machines ensures the highest accuracy and reproducibility of your product.

AJB



IJsbrand Dijkshoorn

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E: sales@ajb.nl

www.ajb.nl

BETECH MASS TURNING

The strength of Betech Mass Turning lies in the production of large series of turned goods. Complex micro turning and high precision parts, all in great quantities.

AN EVOLUTION IN INTELLIGENT PRODUCTION!

Located in the Netherlands, Betech is a leading European producer of large series of turned and mill-turned goods. Annually we produce tens of millions of custom made parts in all metals, for all kinds of customers worldwide. As the fully automated and innovative machining expert Betech supplies multiple industries, varying from automotive industry to high tech industry.

- Great Production Capacity
- Short Delivery Times
- Mass Production Expert
- Quality Documentation
- Surface Treatments
- Strategic Partnership

UNMANNED SERIAL PRODUCTION

Betech operates 24/7 of which 80% is unmanned with fully automated and especially intelligent production techniques. The machinery consists of over 100 CNC-, mechanical-, and hydraulically controlled lathes, multi-spindles and transfer machines for turning and mill-turning. Our innovative manner of production results in a labor added value of 15 to 20% per product and therefore a highly competitive price level. We are specialists in a specific Ø-range of 0,8 to 69 mm from bars and tubes.

Arjan Schuinder
Sales & Marketing

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www.betech.nl/en



- ▶ MASS TURNING
- ▶ MICRO TURNING
- ▶ PLASTIC TURNING- AND MILLING
- ▶ PLASTIC MOLDING

WWW.BETECH.NL/EN

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

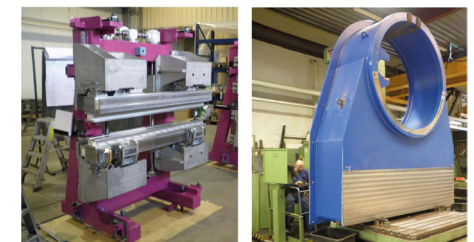
Product	Description	Customer
Beampipe Bake Out Shell	Beampipe for electrons, matter research	CERN (CH)
Revolver Mobile Undulator Carriage	Electron fibration tool, matter research	E.S.R.F. (FR)
Galacsi Structure + Graal Tools	Alu structure to mount mirrors for space research	E.S.O. (D)
Product & Utility 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

Ing. Eelco M. Osse
CEO

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Turnover: 5 M€ | 40 employees

www.boessenkool.com

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!

BOUMAN MACHINEFABRIEK BV

Our well thought-out working methods are recognizable in everything we do.

Machine fabriek Bouman B.V. is supported by its own Engineering Department, to manufacture complex projects and products. Excellent planning and Project Management through one contact point makes it possible that our cooperation is perfect and trouble free. Pick up the phone and contact Machine fabriek Bouman B.V.

POSSIBILITIES

- Engineering
- CNC turning and milling
- Welding and sheet metal working (Carbon steel and Stainless steel)
- Assembly special machines and modules

UNISIGN UNIPORT 6000

- 4-5 axis CNC milling + drilling machine
- x-axis: 8000 mm
- y-axis: 2500 mm
- z-axis: 1000 mm
- table: 8000x2170 mm
- CNC table: Ø 2000 mm
- Free space portal 2500(y) x 1200(z)

THE MATTER IN HAND



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Account Manager

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GERMEFA

Greater precision provides countless new opportunities, whether noticeable or not. A good example of this is insect robots. For over a decade, scientists have worked on these minuscule robots, and now these robots, which weigh less than a gram, are ready to take to the skies. The applications are numerous; think of, for example, their possible use in disaster areas. That the production of these minuscule robots became possible, is due to recent breakthroughs in the fields of manufacture, design and materials. Manufacturing precision played an essential role in this development, needless to say.

The greater the precision and the higher the quality demands, the more we like the challenge at Germefa. We are continually striving to guarantee and further improve this accuracy and quality. This cannot be achieved overnight; we have been working on this process for decades.

Our precision and quality make us the perfect partner for companies in demanding markets, such as the medical/optical industry, aviation and aerospace as well as measurement and control.

As part of the stock market listed Aalberts Industries, we can also take over the entire production process for components, by integrally outsourcing other types of processing to our sister companies, for example, heat and surface treatments, deep hole drilling, engineering, casting processes, punching and vacuum brazing. This way, you retain one point of contact, but you benefit from all the processing options and expertise available within Aalberts Industries.

Germefa is also part of the Micro Machining Group, a group of suppliers of complex precision mechanical components and assemblies. See www.micromachininggroup.nl/en/
How can we contribute to your next great advance?

MARKETS

Medical/Optical – Aviation and Aerospace – Oil & Gas, Science –
Defence – Automotive – Measurement and Control

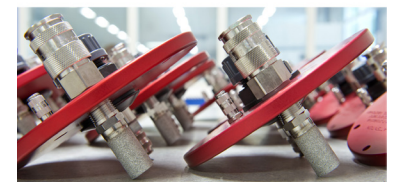
CERTIFICATION

ISO-9001-2008, ISO 13485

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MACHINEFABRIEK GEURTSSEN B.V.

Combined expertise: At Geurtsen we know better than anyone that complex technical issues call for targeted solutions. That is why we put the concept of 'combined expertise' into practice in every possible way.

SPECIALISTS IN MACHINE CONSTRUCTION

With its own design department, extensive and modern production facilities, and about 100 skilled employees, Geurtsen is able to develop and produce solutions for many technical problems. Our technical service department has about 30 service technicians to provide servicing, maintenance and repair at our customers' locations.

COMPETENCES

- Engineering
- CNC-milling (5-axis)
- CNC-turning
- Construction piping and skids
- Machine building
- Turnkey installation on location
- Service and maintenance
- Industrial supply
- Prototyping
- 3D Metal printing
- ISO 3834-2 certified welding MIG, TIG, Orbital
- NEN-EN 1090 certified constructions
- VCA (SCC) certification
- Organisation: ISO 9001:2015 certificate

MARKETS

- Industry process
- industrial supply
- food, pharma
- industrial services

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IGS GEBOJAGEMA

IGS GeboJagama, for over 65 years, we have been delivering high precision. Parts and moulds for some of the most successful products and industries. Many of the key players in the industry bring their toughest product challenges to IGS GeboJagama. That's because we provide the solutions they need to help them innovate new products.

Our problem-solving mindset, proven track record in high precision machining experience and meticulously methodical way of working ensures you the highest quality, process control and traceability needed for your products.

WHAT MAKES US DIFFERENT

- Proven track record and know-how to help you push the boundaries on high precision parts and create new innovations
- Engineering power that helps you make seemingly impossible components, quickly and cost-effectively
 - Design for Manufacturing support to improve the Manufacture ability of your products
 - Meticulous process control of quality, validation and traceability to meet the strict standards for high precision parts
 - High volume capabilities to produce small series multiple parts at once to meet high volume requirements and leverage economies of scale
 - Financial stability as part of a large and solid group, that guarantees secure support during the entire lifetime of your product
 - After sales support to offer a full warranty on all our products to guarantee a long productive lifetime.



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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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02.4

MECHANICAL

GEOMETRICAL
MEASUREMENT

MECHANICAL GEOMETRICAL MEASUREMENT	Company size	Area	Speciality (USP)		technology-/ skill-/ product centric (HOW)	Metal		Cryo Vacu- um	Electronics HW	Software	x	x	x	x			
			Discipline (WHAT)			Large	Small										
			procurement codes														
			measuring machines and services			050306;0590									CMM		x
			broad systems supplier			05;050306;03;08									motion control, metrology		
			ultra precision metrology & engineering			0207;03;05;090303;09									CMM probes; nano CMMs; nano engineering service		x

CARL ZEISS INDUSTRIAL METROLOGY

A CNC coordinate measuring machine (CMM) is only as good as the information it provides. Information that can save time by improving processes, save money by reducing scrap, and help in the production of high quality parts. Carl Zeiss is a leader in CMMs and complete solutions for multidimensional metrology in the metrology lab and production. The company is a recognized partner to the high-tech industry and its suppliers.

The offering encompasses bridge-type, horizontal-arm and inline measuring machines, as well as form, contour and surface measuring machines. All relevant modules, such as controllers, software, measuring systems and sensors are developed and manufactured in-house. This total system design results in precision of your metrology equipment and accurate results.

Recent new developments include a system to measure extremely small parts and a computer tomograph for industrial quality assurance. With its optical and tactile measuring systems, Carl Zeiss has added image processing to the application spectrum of coordinate measuring technology. Synergies have been used to create optical sensors and optimized software. The extensive CALYPSO software library enables users of ZEISS measuring technology to perform almost any measuring task.

The offering is rounded off with extensive customer services, contract measurements, part inspection using computer tomography and services to ensure optimum machine uptimes.

PRODUCTS

Systems: Precision metrology products, including CMMs, surface & form, CT, optical, and more.

Software: Measuring, evaluation and management software to increase the performance of your measuring operations.

Sensors: Contact and optical sensors, even for the most sensitive surfaces. From VAST active scanning to laser to RDS articulating.

Accessories: Fixturing, styli & accessories, and system-specific options.

SERVICES

Software/Hardware Services: Services for your CMM to ensure highest reliability and performance.

Training: Trainings for measuring software, statistic and reporting software and more.

Measuring Services: Contract measurements, calibration and contract programming in our Benelux Measuring House in Best.

METROLOGY SOLUTIONS

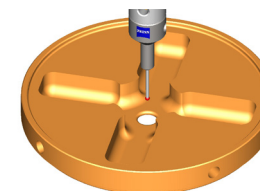
Automotive – Machinery – Aerospace – Medical – Energy – Plastics

Albert Drenth

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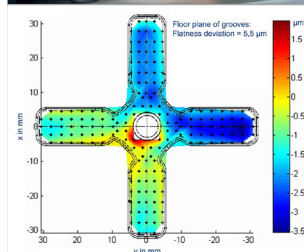
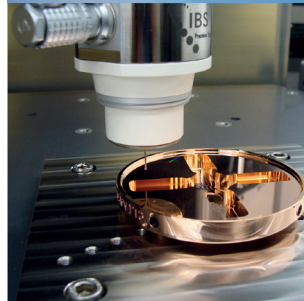
IBS PRECISION ENGINEERING BV

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.



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XPRESS PRECISION ENGINEERING BV

Xpress Precision Engineering develops and commercializes ultra-precision metrology solutions. Our core business consists of two product lines.

First, we develop and sell products for precision coordinate metrology. This includes 3D tactile probes, controllers and nano CMMs. Secondly, we offer ultra-precision engineering services where we develop solutions for a wide range of customers, e.g. (metrology) institutes, universities, high-tech industry and manufacturers of metrology equipment. Projects usually are a combination of precision engineering and metrology / sensors / measurements.

ULTRA PRECISION METROLOGY SOLUTIONS

A good example of our capabilities is our TriNano coordinate measuring machine (CMM). The N100 model achieves a repeatability of 2,4 nm and a volumetric 3D uncertainty of 100 nm, making it one of the most accurate 3D metrology tools available. The innovative design results in a cost-efficient and highly stable machine that is capable of high speed scanning measurements. This makes TriNano the first nano CMM that is ready for industrial applications.

Furthermore, we offer various 3D scanning tactile probes. Our flagship probe, the Gannen-XP, has a 2 nm repeatability in any direction and a combined 3D uncertainty of 50nm, which makes it the most accurate 3D probe on the market. Additionally, Gannen probes can measure with spheres as small as 50 micrometer in diameter and can achieve micro Newton probing forces. The latter enables a user to measure even soft materials in true 3D without damaging them. All our probes are compatible with various CMM brands.

ULTRA PRECISION ENGINEERING SERVICES

Xpress provides advanced design and engineering services related to metrology and high-precision positioning for our customers. Customers range from global companies to start-ups and small businesses. We solve your challenge, from initial concept to prototyping, calibration and turn-key delivery.

We are specialized in: metrological design, precision mechatronics, kinematic design, opto-mechanical design and controller design.


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*ultra precision
metrology solutions
&
engineering services*



02.5

MECHANICAL

MECHATRONICS

MECHANICAL	MECHATRONICS	Company size	Specialty (USP)		Area				Service	Test & Measurement	Production / Assembly	Engineering	Development	R&D	Supply	System Supplier	Technical Consultancy	Systems Engineering	Project Management	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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
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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 .

BUTRACO
experienced in machinebuilding

Mr. P. (Pim) Buters
Director

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SIoux CCM

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.



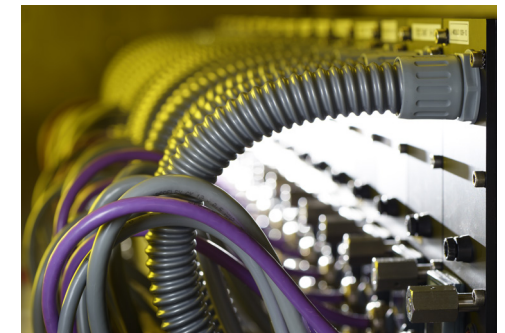
SOURCE OF YOUR TECHNOLOGY

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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

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Turnover: 20 M€ | 140 employees

www.demcon.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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Turnover: 1.0 M€ | 7 employees

www.heinmade.com

HEINMADE
supplier piezo ceramic solutions



INDOLES PRECISION BV

ABOUT US

Indoles Precision is a platform for precision-positioning applications. Users and suppliers of products where accurate positioning is crucial, meet in an environment where a targeted and effective exchange about issues and solutions are enabled, under the motto How can we help each other?

For every business transaction a provider and a customer of a service or product are involved. The role of I-P in this process is to help this exchange, this communication to run efficiently and clearly, as the lubricating oil between a spindle screw and nut. I-P believes in sustainable relationships and that win-win situations form the fundamental basis for this: a solution is only successful if it works for everyone. People are always at the center of attention here, because even though high-tech solutions are concerned, it is ultimately determined at the human level whether the long-term cooperation is a success.

EXAMPLES OF PARTNERS

NanoFaktur from Villingen-Schwenningen (DE) is a manufacturer of piëzo actuators and piëzo based stages for 1D, 2D or 3D motions. It has more than 50 years combined expertise in the area of accurate positioning in the nanometer range. The technical advantage of the NanoFaktur solutions lie among others in the large sensitivity of the piëzo material, in combination with stiff and compact mechanics.

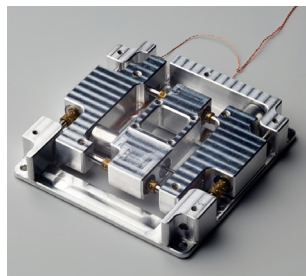
Mechanics from Munich /Paderborn (DE) develops compact stages with piëzo stick-slip propulsion. The advantages of this technology is self braking, 'long' stoke (up to 15mm) and step-positioning in the sub-micrometer range (both open and closed loop). Applications in UHV or 4K are possible as well.

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INDLES
Precision Positioning



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, Nimonic, 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 (>1000m2) – Vacuum cleaning – (U)HV and UCV knowledge– Surface Treatment

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Q-SYS

"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.

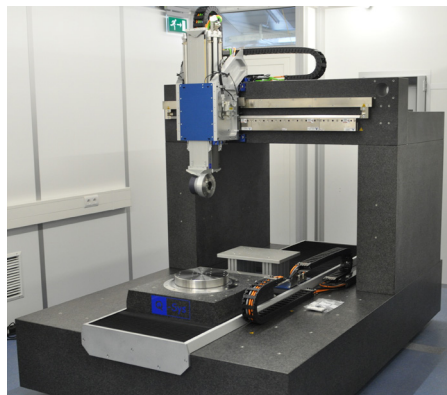
Finally, Q-Sys offers a comprehensive technical support service for many types of motion systems, ranging from telephone support, through system service and repair, to scheduled preventative maintenance contracts for production systems where availability and reliability are paramount."



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03 BASIC MATERIAL TECHNOLOGIES

BASIC MATERIAL TECHNOLOGIES	Company size	Speciality (USP)			Area							Service	
												Systems Engineering	
		Discipline (WHAT)		technology-/skill-/product centric (HOW)	Metal		Cryo Vacuum	Electronics HW	Software	Project Management			
		any material combination	procurement codes		Large	Small				Me- chatr.			
Benecom	S	rubber to metal; any material combination	0502;060110;06020307	customized gaskets;molded parts;Oirngs;PTFE;Vulcolan			x						
Bodycote Vacuum Brazing	M	joining of metal parts	0504;050304;06	vacuum brazing;heat treatment	x		x						
ECM Technologies BV	S	non-conventional precision machining	050404;	high precision Electro Chemical Machining	x								
Etchform BV	S	non-conventional precision machining	050404;	high precision etching & electroforming	x								
Futura Composites BV	M	production of composites	050204;05040502	taylor made composites			x						
Heat & Surface Treatment		non-conventional part treatment	05040406/09/10	heat treatment;surface CVD/ PVD;brazing									
Innogrind		grinding technology and analysis	05040410;05900307;0590	grinding; grinding burn analysis techniques;training	x						x	x	
INNPLATE		electrochemical surface technology	050404;	electro plating/forming;etch- ing;polishing;etc.							x	x	
Kersten plastic coatings	S	high-value, high-quality coatings to metals	05040410	thermal/fluid bed/electrostatic/ powder/rotomoulding								x	
Multivalent Plating & Etching BV	S	electro plating & chemical treatment	050404;	etching; plating; cleaning; passivation; packaging			x					x	
Ter Hoek Vonkerosie Rijsen B.V.	S	certified supplier of high precision parts	050404;	EDM and laser microjet machining	x						x	x	
VDL Fibertech	M	composites for high demanding solutions	050204;05040502	engineering; large series; small/ large sizes								x	

BENECOM

We introduce our company, which is already more than 50 years active in supplying, among others, the high demanding markets like Aerospace, Energy and medical also more general industry like Sanitary, Pumps, Hvac, and so on.

OUR PRODUCTS

Of course O-rings and Molded parts are within our scope of working, but also we realise, in cooperation, new designs. We have a lot of experience in rubber to metal or other base material combinations.

PRODUCED IN ALL KIND OF MATERIALS,

Rubber compounds – SBR, NBR, EPDM, SILICONE ,FPM (VITON), KALREZ

Synthetic – POLYPROPYLENE, POLYAMIDE, HYTREL, POLYETHYLENE

Gaskets – HD300, KLINGERSIL, FIBRE, NOVAPRESS

Various – PTFE (TEFLON), FOAM MATERIAL, VULKOLAN

Proven quality compounds with DVGW, KTW, WRAS, FDA, NSF Certificates.

We have our own KIWA and KOMO compounds with certificates.

International working is standard for us in buying possibilities. Exporting our goods is common business and with our experienced staff we always find a workable solution for your demands.

Mr. R.O.F. Klapwijk

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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

Henkjan Buursen

Plant Manager

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50 employees

www.bodycote.com

Bodycote



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

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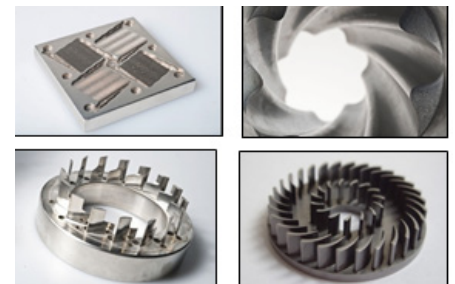
Turnover: 1.0-1.2 M€ | 10 employees

www.electrochemicalmachining.com



ECM Technologies

Innovative Electrochemical Machining Solutions



ETCHFORM BV

Etchform stands for "ETCHing & electroFORMing" of metal precision parts especially for high-tech applications.

With our know-how, our network and our enthusiasm we offer innovative (total) solutions with an optimal TCO (Total Cost of Ownership) during the entire lifecycle of your products.

FULL SERVICE

Etched and electroformed parts often require one or more additional processing treatments in order to fulfil their end function. These specialized treatments are outsourced, placing the requisite burden on your organization.

Etchform offers a full service option for this. With Supply Chain Management, we take over management of the supply chain as well as responsibility for the final result, thus increasing the added value and taking as much off your hands as possible.

Etchform has chosen to anchor these additional services in a strong network. Our network partners pool their resources within this network in order to realize concrete added value in the field of engineering, production and logistics. This network comprises professionals who have been successfully collaborating for years.

ADDITIONAL PROCESSING OPTIONS INCLUDE:

- assembly;
- bending;
- precision mechanical treatments;
- laser cutting;
- surface treatments;
- heat treatments.

If YOU CAN SKETCH IT WE CAN ETCH IT

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Manager

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www.etchform.com

etchform
Wickeder Group



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

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Managing Director

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Futura
Specialists in fibre reinforced composites

S2 Glass and Carbon fiber Suspension Straps
Obtained Structural Efficiency > 95 %*

GRE Carrier Tubes
Up to 1,8 meter bore size

Design
Engineering
Manufacturing
Machining
Testing

HEAT & SURFACE TREATMENT B.V.

INTRODUCTION

Heat & Surface Treatment B.V. (H&ST) is a high-tech supplier of heat treatments, vacuum brazing and PVD or CVD surface treatments. Because of a high diversity in product-market applications combined with over 50 years of experience, H&ST is a reliable partner which is active in high tech industries like the aerospace, automobile, medical and semiconductor industry. H&ST distinguishes itself in the industry by: its clean rooms, wide diversity in equipment as well as processing materials, specific processes required by client and optimum care for the product.

H&ST is one of the most modern heat treatment companies in Europe, is located in The Netherlands in the city of Eindhoven and operates in high demanding markets. H&ST is part of Aalberts Industries N.V., a Dutch stock listed company and market leader in various market segments.

Most important values of H&ST are Quality, Technical solutions and Customer Care. No matter how large, complex, unique and innovative it may be the customers demands are, H&ST's co engineers are capable to deal and perform with any requests.

H&ST HAS THREE MAIN ACTIVITIES:

- Heat Treatment
- Surface Treatment (CVD and PVD coatings)
- Vacuum Brazing

Heat treatment is H&ST's main business and is specialized in Vacuum Heat Treatments and the special diffusion process Stainihard (to harden the surface of Stainless Steel). Next to standard processes H&ST also provides very specialized treatments, geared to material, application, geometry and use.

PRESENT QUALITY SYSTEMS ARE:

- NADCAP
- ISO9001
- ISO14001

REFERENCES

ASML – Philips – VDL Enabling Technologies Group – Océ – Rolls Royce – GE – Snecma – Fokker

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INNOGRIND

Innogrind applies more than 35 years of grinding technology know-how to solving the challenging problem of grinding burn. Using high-end measurement and analysis techniques such as Barkhausen Noise Analysis and X-ray diffraction, we are able to investigate and understand the dynamics of specific grinding processes. This in turn enables us to improve and optimize these processes. Furthermore, we have also developed in-house the unique 3D-printed INNOZL™ titanium coolant nozzle. Since its introduction, this nozzle has brought about a worldwide revolution in the reduction and prevention of grinding burn by means of efficient coolant delivery to grinding processes.

For more information on INNOZL™, please visit www.innozl.com

The detection and subsequent prevention of grinding burn: this is the mission of Innogrind, and it has been our driving force since 2009. A force that has brought us to today's service offering for the analysis and optimization of grinding processes. Our success in this field is due in part to our cooperation with strong partners in the industry, such as Stresstech and Hirt-Line, and we also offer solutions based on Barkhausen analysis and X-ray diffraction. In addition, we also provide training for grinding operators. Innogrind also offers a concrete solution for the prevention of grinding burn, with our self-developed INNOZL™ coolant nozzle. Combine the INNOZL™ with a Hirt-Line pipework system, and you have a complete and highly stable 50 bar coolant delivery system for burn-free grinding.

SERVICES

• Process analysis in grinding

When it comes to the analysis, detection and solution of grinding burn, there is no partner more competent than Innogrind BV. Grinding is an industrial process that generates considerable heat. If this heat is not quickly removed by a suitable cooling process, it can have an adverse effect on the service life of the product. Grinding burn is a common cause of machine or engine component failure. Innogrind offers a total solution to this problem, from detection of the cause, through to specific measures aimed at prevention of thermal damage. For the assessment and optimization of your grinding processes, we offer Barkhausen Noise Analysis and X-ray Diffraction. Moreover, we can provide significant added value to the cooling of your grinding process with the Innogrind-developed INNOZL™ coolant nozzle.

• Training

Innogrind provides practice-based grinding training on your premises. Giving simple tools to your staff to improve the ability to solve grinding burn problems. Don't ask your employees to seek the limits; instead, give them the tools they need to go beyond the limits.

• Stress technologies

X-Ray Diffraction (XRD) – Barkhausen Noise Analysis (BNA)

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INNPLATE

INNOVATIVE AND CREATIVE

We are the specialists in (electro)chemical surface technology: electroplating, etching, electrolytic and chemical polishing, electroforming, anodizing, colouring, chemical treatment, coating and cleaning.

IN OUR 2000 M² OF DEVELOPMENT LABORATORY WE OFFER:

- Contract R & D
- Analysis and tests
- Consultancy & engineering
- Laboratory production and pilot shop

MARKETS

High Tech Industry – Aerospace – Defence – Solar – Medical – Additive manufacturing – Science

QUALITY

ISO 9001 – AS9100



Robbert de Greef
Fred Arendsen

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www.innplate.com

KERSTEN KUNSTSTOF(F)COATING

We have been applying high-value, high-quality plastic coatings to metals since 1967. We use thermal processes to apply these coatings at our production locations in Brummen (NL) and Kahla (D). We apply coatings using fluidized beds, electrostatic powder coating and rotomoulding.

SOLUTIONS

A plastic coating is much more than just a protective layer. The specific properties of a coating determine where applying it is desirable or required. This summary shows you the solutions offered by our various coatings:

- Corrosion protection
- Non-stick properties
- Insulating and conducting coatings
- Flexible coatings
- UV-resistant coatings
- Certified coatings

A VARIETY OF APPLICATIONS AND SECTORS

Kersten Kunststof(f)coating provides solutions in many sectors. Our customers are largely in the drinking water production, process and chemicals, semiconductor, mechanical engineering and pharmaceuticals sectors.

WHAT CAN WE DO FOR YOU?

Every plastic coating has properties that makes it suitable for specific applications. Here is an overview of the coatings that we use:

- Rilsan®
- Halar®
- Xylan®
- PTFE, FEP, PFA and ETFE
- Resicoat®
- Abcite®

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MULTIVALENT PLATING & ETCHING

PRECISION ELECTROPLATING AND CHEMICAL TREATMENT

- Fast delivery
- Prototypes and series
- High quality electroplating techniques

NO STANDARD JOB COATER

- We offer high-grade electroplating and chemical treatment for your product or application, according to specs or customised processes:
- (ultrasonic)cleaning, masking, cleanroom packing
- pickling and passivation (AMS-2700, AMS-QQ-P-35, DIN-EN2516)
- electropolishing and chemical polishing (ASTM-B912)
- nickel plating: matte (AMS-2424), bright
- electroless nickel (low-mid-high phosphor; AMS-2404, MIL-C-26074); nickel-PTFE
- copper plating: matte, bright, electroless
- tin plating: matte, bright tin (ASTM-B545; MIL-T-10727)
- zinc-nickel electroplating (DIN-50962)
- precious metal plating: silver, gold (AMS-2422, ASTM-B488-95, ISO-4523), gold-cobalt, palladium, ruthenium, ENIG, PPF
- blackening of copper (UN-D452) and stainless steel (MIL-DTL-13924)
- etching of aluminium, tungsten, molybdenum

MARKETS

High Tech Industry – Aerospace – Medical – Defence – Science

QUALITY

ISO 9001 – AS9100

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www.multivalent.nl



TER HOEK VONKEROSIE

TER HOEK VONKEROSIE – CO-ENGINEERS WITH PRACTICAL KNOW-HOW

Completing orders for the construction and machining of tools and components whose complexity demands leading-edge solutions bordering onto the impossible is a challenge that Ter Hoek thrives on. With a high level of technical know-how and high-tech machinery, Ter Hoek has become the European market leader at the very highest level. Through co-engineering, Ter Hoek solves issues in which extreme dimensions, accuracy (to 1 µm) and materials play a major role.

The most important markets are the semiconductor industry, aerospace, medical industry, energy and offshore. For these high-tech industries Ter Hoek has distinguished itself as a 'problem solver' because it is able to translate a client's request into a technically practical solution. Using fully-acclimatised rooms.

LASER MICROJET TECHNOLOGY

Ter Hoek has invested in a new technique, the Laser Microjet technology from Synova enables it to machine non-conductive materials to within microns. This laser cutting technology is completely different from conventional lasers. As the laser is surrounded by a 30-µm water jet, no focus point is required and square edges are possible. This new technology substantially reduces the lead times for certain products.

INVESTMENTS

Ter Hoek has also invested in three new EDM machines. The Form 400, Form 30 and the Cut 1000 from AgieCharmilles. The Form 400 is the largest die-sinking electrical discharge machine produced by AgieCharmilles and has a working range of X-900, Y-700, Z-500 mm; the weight of a workpiece can be up to 4,000 kg. Thanks to the special hole in the machine's clamping bed, which is Ø 650 mm and 750 mm deep, it is possible for workpieces to be machined vertically. The Cut 1000 is a special thin-wire machine for wire diameters of between Ø 0.02 and Ø 0.03 mm. Because traceability is becoming increasingly important for Ter Hoek, it has also invested in a laser engraving machine, which ensures optimum product traceability.

HIGHER LEVEL

In order to take the company to an even higher level Ter Hoek is currently undergoing AS9100 (aerospace) certification and is aiming to be granted its certificate in its 25th anniversary year (2015).

Gerrit ter Hoek
Director

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VDL FIBERTECH INDUSTRIES

"VDL Fibertech industries is your partner in providing large series of state-of-the-art composites for high tech demanding solutions. Our fully equipped engineering team builds on decades of experience combined with efficient and the latest composite production technologies."

VDL Fibertech Industries is one of the oldest composite companies in the Netherlands. Through cooperation with the customer we look at countless of possibilities that composites offer to create a product that offers a substantial added value to a variety of products.

Our production facilities make it possible to produce both very small and very large sizes (3 x 5 m), combined with a typical series size from a few dozens per year to ongoing large series. The end result is a product that we are proud of and from which you can achieve enormous benefits in your application. ISO14000, ISO13485 and UL certificates guarantee our high and constant quality of work.

As part of VDL Group and building on 40 years of experience we have a lot of experience within our walls. Combine this experience with our state-of-the-art production facilities and team of experienced engineers and the outcome will be a composite that we can be proud of. A composite product that will bring you added value.

ENGINEERING

- >90 jaar cumulative experience
- Pro-E
- Abaqus FEM
- VAR RTM up to 3x5 meter
- Continue Sandwich Panel production (Acrosoma®)
- RIM
- 5-axis CNC + Robotized contouring
- Robotized Assembly

PRODUCTION

- 12.400 m2 Production surface including cleanroom
- 2D Fiber Cutter
- Gelcoat/Paint Cabins
- Robotized pre forming
- Hot pressing
- RTM up to 2x4 meter

QUALITY

- ISO13485, ISO14001
- 3D CMM
- X-Ray/NDT
- Pullbench
- 3D Laser radar

Michiel Wassink
Managing Director

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03.1 BASIC MATERIAL TECHNOLOGIES

**MACHINING OF ODD MATERIAL
(CERAMICS, OFC, MARAGING- AND
DUPLEX STEEL, BERYLLIUM)**

BASIC MATERIAL TECHNOLOGIES	MACHINING OF ODD MATERIAL (CERAMICS, OFC, MARAGING- AND DUPLEX STEEL, BERYLLIUM)	Company size	Speciality (USP)				Area						Service		Systems Engineering		Technical Consultancy		System Supplier		Supply	R&D		Development		Engineering		Production / Assembly		Test & Measurement																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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ADMATEC

Additive Manufactured Technical Ceramics

PROPOSITION

Admatec is producing highly accurate parts (resolution as of 15 micrometer) in technical ceramics by 3D printing.

Based on in-house development ADMATEC has managed to gain control over recipes, additive manufacturing machines, debinding- and sintering procedures, and validation methods. This enables them to be the first to supply finished highly accurate additive manufactured ceramic parts on a commercial base.

The ADMAFLEX method now opens the way to apply all benefits of ceramics, combined with the design freedom of layered manufacturing techniques. (Internal channel's, integrated functionality, no moulds needed, design not limited to conventional production methods like milling and drilling).

- Factsheet (medio 2015, rapidly increasing)
- Standard resolution: 15 to 50 µm
- Building Z layer thickness: 15 to 50 µm
- Z building speed: 8 mm / hour, independent on complexity of geometry
- Max. part size: 130 x 70 x Z 400 mm
- Materials (expandable): Alumina oxide / Zircon oxide
- Density: >98%

The ADMAFLEX technology provides the designfreedom of additive manufacturing, and delivers complete dense microstructures with low surface roughness's. Material properties similar to ceramic products shaped by traditional technologies.

CAPACITY

Current capacity is setup for both jobbing as well as feasibility studies for high-tech components. Duplicating capacity, in 2016 an extra new separated line will be installed for medical productions due to a H2020 grant. Because all is inhouse developed, ADMATEC can upscale capacity in a matter of weeks by building more printers. Current setup (medio 2015) is: Laboratory for making base pastes Sealed production area with:

- 4 ADMAFLEX production printers
- 1 ADMAFLEX prototype printer
- 1 Lithoz machine
- 3 Cleaning and finishing stations
- Two debinding and sintering streets (ovens)
- 1 QC, validation and packaging room

Challenge us with your 3D file or feasibility question!

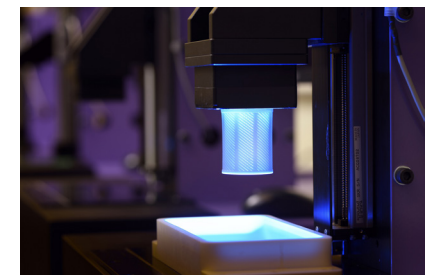
Bart Kooijmans

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ADMATEC
Additive Manufacturing Technologies



BKB PRECISION

BKB Precision is well known for her accurate and innovative way of processing high performance plastics and the production of critical and complex parts. BKB is a trustworthy partner for design engineers and (technical) buyers. We enable our customers to gain a competitive advantage by sharing our knowledge, which leads to creative solutions with high performance plastics like PEEK, PEI and glasfiber composites. We outperform on accuracy up to 3 μ , using a state of art machine park for milling and turning up to 5 axis. BKB does prototyping and series as well. If needed, we are happy to take care for (cleanroom) assembly or sub-assembly. NEN-ISO 9001:2008 certified.

BKB PRECISION'S CORE COMPETENCES

• Specialists in high performance plastics machining

Producing high complex and/or very accurate parts on customer specification is our core business. 'Making the (near) impossible, possible' is our slogan. We are specialized in manufacturing of PEEK, PEI, Torlon, Glasfiber composites, etc. As well as Foam materials like Rohacell and Airex products. To produce these materials on the requested spec's our complete production area is acclimatized on temperature and humidity.

• Turning

Our turning and milling machines are up to 3 μ accurate. Dimensions from Ø10mm tot Ø100mm.

• Milling

We have 'state of the art' milling centers. From our 5-axe machines (Hermle) with automated robot loading docks to our portal milling machines (6.500 x 2.500 mm) with an accuracy of 0,02mm on 6.500mm.

• Assembly

Assy's can be assembled at BKB Precision. If necessary in clean room conditions. Of course is delivery in cleanroom packaging in most cases standardized.

MARKETS

Semicon – Defence – Medical – Optical – Food – Chemical

REFERENCES

CERN – ASML – PSI – Storz Medical – Philips – Thales – VDL-ETG



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CERATEC TECHNICAL CERAMICS BV

"THE ADDED VALUE OF CERAMICS"

Ceratec Technical Ceramics develops and designs customer applications where components of technical ceramics have added value.

We help our customers to add value to their products and processes by applying our extensive knowledge of ceramics. Innovation and customer focus are the base of what we do. With more than 35 years of experience, we've built unique knowledge base in how to apply ceramics, and are impartial in choice of ceramic material to best suit the customers application.

YOUR SOLUTIONS: CERAMIC ON THE RIGHT SPOT!

- UHV components with unprecedented stiffness.
- Dry and vacuum running bearing systems and linear guides.
- High temperature resistant components.
- Active or passive radiation influencing components.
- Extremely high heat conducting while electrically insulating.

OUR COMPETENCES:

- Development & engineering
 - Customer specific
 - Independent material selection
 - Highly skilled and experienced engineers
- High precision components
 - Up to 1 micron accurate
 - Complex component shapes
 - Large ceramic parts
 - Surface roughness up to Ra 0.01
- Joining techniques and assembly
 - Ceramic to metal assemblies
 - Ceramic to Ceramic connections

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Director

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ceratec[®]
TECHNICAL CERAMICS BV



FORMATEC TECHNICAL CERAMICS BV

Formatec Ceramics specializes in the development and manufacturing of technical ceramic products and components. With technical ceramics it is possible to produce highly wear-resistant, temperature-resistant, biological- and chemical-resistant products. Products which are used in (high-tech) industry as well as in exclusive consumer goods.

For example, Formatec Ceramics produces ceramic products used in pumps for the chemical industry, where there is a high demand on wear-, temperature- and chemical resistance. We also make components for medical devices with very small dimensions, here technical ceramics can perform as either an electrical and thermal insulator, or as a conductive material. We also make exclusive design products such as watches, telephones, pens and jewellery – all these use ceramic parts made by Formatec Ceramics.

Formatec Ceramics has already spent many years researching innovative applications of technical ceramics and constantly improves the Ceramic Injection Moulding process. With injection moulding, products can be made that would simply not have been possible using machining techniques. This is one of the unique characteristics of technical ceramics.

FORMATEC

- Can support the redesign of your product in close cooperation with you. We can develop the required moulds, jigs and fixtures.
- Is researching new materials, bonding systems, colours and processes.
- Uses existing geometries from which prototypes can be made by machining. Also available is additive manufacturing (3D printing) for which we use DLP technology. With this method we can produce one off or small series.
- Has a range of advanced high-precision machining tools. We can grind flat surfaces, as well as complex geometries with our 5-axis machine. Essential finishing processes are located in a cleanroom environment to ensure the highest of industry standards.
- Offers several surface finishes. From a high-gloss up to a frosted look. For laser engraving or surface decorations we work with a specialized laser company.
- Offers the service of assembly if the ceramic product requires assembly with other components.

Quality is assured at Formatec by our QC team. With the at most care our people conducting measurements with support of advanced measuring devices and/or visual inspection to ensure the required quality is delivered to the customer. Formatec respects the ISO 9001 protocols which supports our quality goals.

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Sales Manager

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FORMATEC CERAMICS
Shaping technology and design



LOUWERSHANIQUE BV

LouwersHanique is a leading specialist in the development and manufacturing of high-end solutions in the field of the thermal and mechanical processing of technical glass and ceramic materials. The company activities also include the bonding and [clean room] assembly of unique material combinations based on an extensive range of bonding and integration technologies. The main company focus and strength lies with low volume – high mix niche solutions for high-end applications and leading edge industries and customers driving today's and tomorrow's technological progression.

ONE OF THE MAIN ACTIVITIES IS THE DEVELOPMENT AND MANUFACTURING OF ELECTRICAL AND OPTICAL FEED-THROUGHS.

Our electrical and optical feedthroughs offer hermetic and electrical isolation in Ultra-High Vacuum (UHV) and High Pressure applications with a lifetime leak-free performance from Cryogenic temperatures up to 500 degrees C. We apply proprietary glass-to-metal binding technologies to directly seal pins and other components into the metal flange without laser welding or other sealing technologies. No local thermal stress will occur and virtual leaks are absent. With our technology we can make use of standard flanges as well as custom designed parts and assemblies, exceeding the limitations of existing technologies.

Based on a modular concept we can integrate low noise Coaxial, High Power/High Voltage optical and other feedthroughs in Flanges and modules without the need of laser welding with extremely high integration levels. In-house cleanroom assembly, process control and state-of-the-art surface finishing and cleaning equipment guarantee flawless surface texture and topography for the most demanding applications. To ensure that all products are leak tight LouwersHanique has the newest testing facilities available as Helium testing equipment, RGA detection equipment, ultrasonic cleaning and 3D measurement systems (CMM) including white light interferometry for nm accurate surface inspection.

The company implemented World Class Manufacturing, JIT and 5 S best practises resulting in 100% process and quality control thus leading the highest possible QLTC reliability and overall product value for the lowest integral costs. This, combined with our highly skilled and motivated workforce of over 110 technicians enables us to produce components and solutions of consistent and high quality on time, every time.

LouwersHanique is located in the High Tech Brainport Region of the Netherlands and is ISO 9001:2008 certified by TÜV.

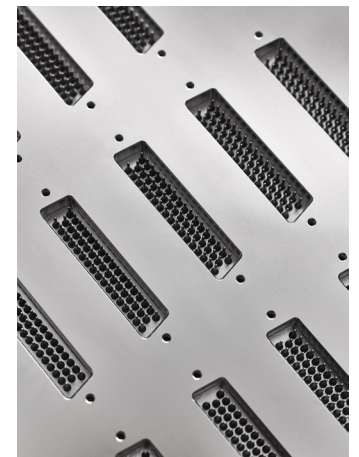
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LouwersHanique



A decorative border of orange tulips with green leaves runs horizontally across the middle of the page, partially obscured by a white circle.

04

**MANUFACTURING
AND ASSEMBLY
TECHNOLOGIES**

MANUFACTURING AND ASSEMBLY TECHNOLOGIES	Company size	Speciality (USP)				Area																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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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

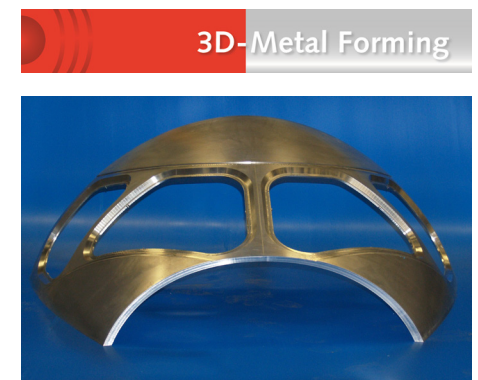
RES (Cadarache): explosive formed panels of the water basin – ITER (F4E): explosive bonded CuCrZr-stainless steel tube transitions – ITER (RFX): explosive bonded molybdenum to copper, machined and warm formed – MAST (Culham, UK): explosive formed cans for poloidal field coils

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3D WORKNET

3D- Worknet – The 3D mass customization printing company.

PRODUCT INFORMATION

3D Worknet manufactures parts using the latest additive manufacturing technologies (also known as 3D printing). 3D printed parts are often only used as prototypes, but in an increasing number of applications 3D Worknet supplies fully functional end products. Our very efficient production facility is suited for cost effectively manufacturing small to medium sized series of high quality parts.

The 3D Worknet online portal gives our customers a user friendly method to upload 3D CAD data for quoting and ordering. Please visit www.3dworknet.com all call one of our sales engineers for further information.

REFERENCES

Philips Consumer Lifestyle – Philips Lighting – KLPD – Robert Bosch Packaging – VUmc FMT – UMC Utrecht – ESA / ESTEC – Plasticum Group and many more



Big Science 106

Sander Smit
CEO

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DEVALK

WELCOME TO DE VALK MACHINE FACTORY

The De Valk machine factory is a dynamic organisation established on 1948 in Valkenswaard, close to Eindhoven, the Netherlands. We are specialised in the production of mechanical components in all common steel types, non-ferrous metals and plastics, as well as the full production and assembly of modules and machines.

Furthermore, the de Valk machine factory has the capacity and the expertise to offer a broad range of additional services such as hardening, anodising, nickel plating, sheet metal work and engineering.

3D PRINTING TECHNOLOGY METALS:

De Valk offers engineering and 3D metal printing services and supports its customers in the technical and commercial trade-off between the unique 3D printing feasibilities and the established machining technologies.

3D PRINTING UNIQUE FEATURES ARE:

- Weight reduction by creating hollow stiff structures (internal hollow structures)
- Design of complex and free form internal cooling channels (cooling optimization)

OUR SERVICES INCLUDE:

- Topology optimization and engineering services
- Prototyping both 3D printing (Additive Manufacturing) and machining
- Business case validation

Our machine factory has a fully equipped cleanroom facility that complies with ISO class 7.

This website should give you an impression of our company's possibilities and versatility.

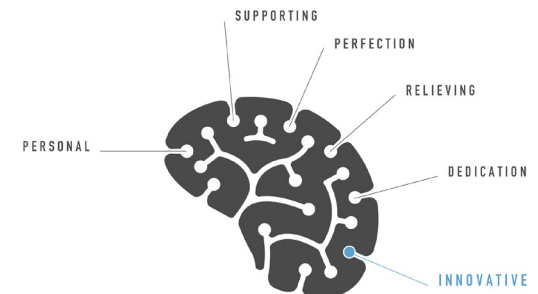
Interested in finding out what our company can do for you?
Please feel free to get in touch with us.



John Hagelaars

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www.machinefabriekdevalk.nl



THINK IN TERMS OF SOLUTIONS

Big Science 107

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.

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Technical Commercial Director

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mat-tech
innovative soldering & brazing



Big Science 108

METRIK FASTENERS BV

PASSION FOR FASTENERS; DISTRIBUTOR AND AGENT

Metrik Fasteners is a new player in the field of fastening technology and -distribution. Started as a distributor of standard fasteners, Metrik Fasteners has recently acquired, as part of the expansion of our strategic focus, three agencies of European producers in special fasteners and studbolts. This enables Metrik Fasteners to focus on three main product groups: Standard Fasteners, Special Fasteners and Studbolts.

STANDARD FASTENERS

In close cooperation with the West-European market leader (Germany), Metrik Fasteners offers a wide range of industrial fasteners. Our stock includes 80.000 items, available in all dimensions and surfaces, both Metric as ANSI!

SPECIAL FASTENERS (AGENCIES)

TS-Verbindungssteile GmbH is a state of the art production plant in special fasteners!

More than 300 different steel sorts are held in stock (Hastelloy, Inconel, Nimonic, 254SMO, Titanium, etc). These products come in more than 100.000 different shapes and sizes: produced according to DIN/EN/ISO/ANSI/BS/AS standards, or manufactured according to customer drawings or samples. TS products are approved and certified by all recognized testing agencies (TÜV, ABS, BV, DB, DNV, GL, KWL LRS AND NV). Vial Freres is a manufacturer of bolts and nuts in carbon- and stainless steel. Vial's specialism is hot-forging, anchor rods and heat-exchanger plugs.

STUDBOLTS (AGENCY)

Zobel is a solid partner in the production and distribution of studbolts and jackscrews. We can guarantee short lead-times because our 400 tons of semi-finished and finished products: (A193, A194, A320, A453, etc).

REFERENCES

Siemens – Alstom – SNCF – GEA – Edilon – Bronswerk – Cofely – Heerema – Mokveld Valves – Enecogen – GDF-Suez – Airpack

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Director

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Big Science 109

TEBUNUS TUBE BENDING

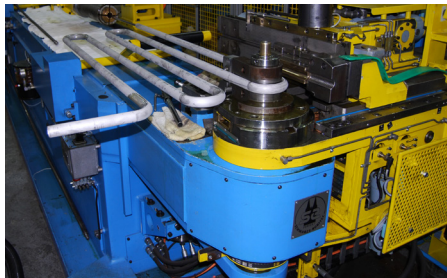
Tebunus stands for Flexible With Metal.

Tebunus Tube Bending can handle all bendable materials, such as carbon, stainless steel, grinded/polished steels, copper, aluminium and other exotic grades. Tebunus is a powerful business partner. The number of industries in The Netherlands and abroad that call upon our expertise in bending technology and related operations, is still increasing.

Tebunus Tube Trading provides heat exchanger and condenser tubes with an outside diameter of 9.53 up to 50.8 mm. We deliver lengths up to 22 meters of both welded and seamless steel types, such as carbon alloy, nickel alloy, titanium, stainless steel and copper alloys. The chemical and petrochemical industries apply custom made U-tubes (or hairpins) in heat exchangers and condensers, pressure vessels and reaction vessels.

Tebunus Tube Trading has many years of experience and offers the requested craftsmanship. Our fully automated CNC (computer numerical control) controlled bending machines guarantee excellent accuracy and optimum durability. We bend according to VGB quality standards; wall thickness and ovality are standardized. Because of our short and efficient communication lines, we deliver high quality on very short notice.

Tebunus Tube Bending BV & Tebunus Tube Trading BV



Mieke Genefaas
Managing Director

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www.tebunus.nl

TELMASTAAL TELMASTAINLESS

The strength of Telmastaal and Telmastainless lies in the fact that they complement each other in the way they offer total solutions to each demand concerning steel and metal components.

- Telmastaal provides their customers with high quality steel, precious metals, copper, special alloys. Furthermore Telmastaal provides her clients with professional advice and expertise.
- Telmastainless is the specialist in custom products of high quality stainless steel and nickel based alloys.

We offer a total solution for your application and have lots of experience in material handling thanks to the experienced staff and a large network of producers. Our daily business is to take care of and provide the best possible handling of your assignment. We supply material to various industries including:

- Automotive
- Energy
- Medical
- Aerospace
- Offshore

For further information please refer to our website for an overview of our complete product range.

TELMASTAAL TELMASTAINLESS



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Bedrijfs Manager TTL Group

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VELMON LASTECHNIEK

Velmon Lastechniek BV is a company for all kind of stainless steel tubes solutions. Many years of experience with cryogen-, food- and pharmacy industries. Assembly and welding in workshop and on site!

PRODUCT INFORMATION

Manufacturing and orbital welding of stainless steel pipe sections and pipe joints. Orbital welding with closed chamber and open weld head, range from $\varnothing 6\text{mm}$ until $\varnothing 168.3\text{mm}$. Series from 1 – 1000+, X-rayed, pressure test, helium leak-tests (max. $1 \times 10^{-9} \text{ Pa m}^3\text{s}^{-1}$) and oxygen clean treatment. ISO 9001 and ISO EN3834 (under construction) MIG-welding (GMAW), TIG (GTAW) certificated EN287-1 and EN1418.

REFERENCES

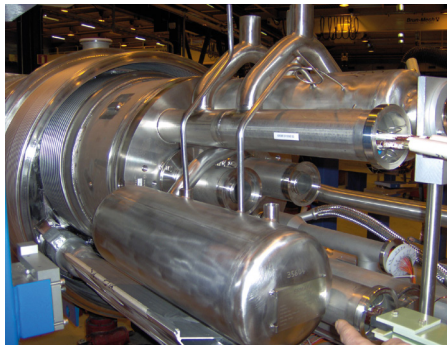
CERN – Corus steel – TEVA Pharmachemie – Trelleborg – Klinger-Picoff – Kenz-Figee – Tekoma – Cofely

Bert van der Velden
Managing director

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Turnover:
Velmon Lastechniek BV 1,3 M€ | 10 employees
Turnover:
Velmon Group 4,5 M€ | 38 employees

www.velmon.nl



05

REMOTE HANDLING
SYSTEMS (FOR HAZARD
AND INACCESSIBLE
ENVIRONMENT)

REMOTE HANDLING SYSTEMS (FOR HAZARD AND INACCESSIBLE ENVIRONMENT)	Company size		Speciality (USP)		Area					Service		Systems Engineering		Technical Consultancy		System Supplier		R&D		Development		Engineering		Production / Assembly		Test & Measurement				
	Discipline (WHAT)		procurement codes		technology-/ skill-/ product centric (HOW)		Metal		Cryo Vacuum		Electronics HW		Software		Large Small		Me- chatr.		x		x		x		x		x		x	
	automation,telemetry,space		03/0207/06		remote handling,thermal insulation				x		radiation hard		x				x				x									
	remote handling and robots		110308;1104; 0207;1001		simulation;systems engineering;- consultancy				x		x		x				x				x									
	virtual reality for robots; remote handling		1104;110308; 0207;1001		virtual reality, 3D simulation;								Simulation																	
	Active Space Technologies	S	s																											
	Heemskerk Innovative Technology																													
	Tree C																													

ACTIVE SPACE TECHNOLOGIES

Active Space Technologies is an SME incorporated in The Netherlands since 2004. We have been engaged in high added-value projects in two main areas:

- automated infrastructures;
- telemetry systems.

Our customers include the European Space Agency, TNO, and ITER.

PRODUCT INFORMATION

Infrastructure

Active Space Technologies specializes in automation and control, in particular for remote handling manipulation, automated operations, and logistics. We have sound experience in the use of Automated Control Vehicles (AGVs), robotic arms, electro-mechanical systems, complex operations, and programming (FPGA, PLC, wireless communications).

Telemetry

Whether it's in space or on firm ground, Active Space Technologies deals with harsh environments (temperature, radiation, high pressure, among other critical conditions). In order to meet this market need, we use and install smart sensors capable of measuring flow, temperatures, strain, and pressure while withstanding the most adverse conditions. These self-sufficient smart sensors are capable of harvesting energy and encrypting data, and can communicate both via wired cable and wireless.

Insulation

Active Space Technologies further commercializes Aerogels – Aeroflex® – which was originally designed for super insulation applications in space. Aeroflex® can be used both for thermal insulation (cryogenics and pipelines) and absorption (oil & spill and organic contaminants from wastewater). Its proprieties are the following:

- Thermal conductivity: $35 \text{ mW m}^{-1} \text{ K}^{-1}$
- Highly hydrophobic
- Porosity: 93 - 97%
- Low density - $< 80 \text{ kg m}^{-3}$
- Operating temperature: -200 to 350°C

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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

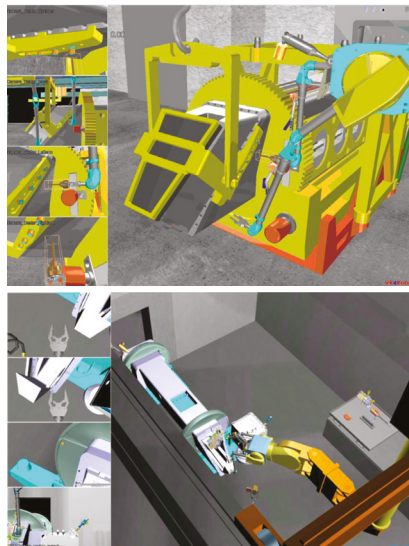
Innovation Management: Heemskerk Innovative Technology (HIT) blends innovation management, systems engineering, and people management to support research projects and to develop spin-offs into proof of concept and market readiness, working in close cooperation with Institutes, Universities, and industrial 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 Institute DIFFER – FlexGen –
TNO – Oxford Technologies – VDL APTS



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Turnover: 400.000 € | 7 employees

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TREE C

Tree C Technology B.V. develops 3D simulation technology and builds advanced simulators for training, procedure design- and validation, remote handling and research. We serve a wide range of international clients in the maritime, offshore construction, oil & gas, heavy lifting, dredging, nuclear and related industries as well as a large number of universities.

PRODUCT INFORMATION

The success of REMOTE HANDLING will be a key factor in the safe exploitation of fusion energy. VR4Robots® offers the best combination of interactive visualization and remote handling technology to prepare and execute the demanding RH-tasks in ITER.

VR4Robots® enables you to define, visualize, animate, simulate and interact with robots and manipulators in a virtual world. The environment may include digital mockup's based on 3D CAD data. Complex 'behaviours' of robots, cameras, animations, movement constraints and collision properties can be added to the environment to improve realism. VR4Robots® is capable of handling the largest full scale mock-up facilities with the aim to prepare, demonstrate and execute remote maintenance, and to develop the remote maintenance operating procedures to facilitate development of components.

REFERENCES

- DIFFER (Dutch Institute For Fundamental Energy Research), NL
- JET (Joint European Torus), UK
- Oxford Technologies, Ltd., UK
- (image Remote Handling Control Room, courtesy of Oxford Technologies, Ltd.)



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VR4Robots

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06

DIAGNOSTICS
AND METROLOGY

DIAGNOSTICS AND METROLOGY	Test & Measurement		
	Production / Assembly		
	Engineering		x
	Development		x
	R&D		
	Supply	System Supplier	
	Technical Consultancy		
	Systems Engineering		
	Service	Project Management	
	Area	Software	x
		Electronics HW	x
		Vacu-um	
		Cryo	
		Me- chatr.	
		Large	
		Metal	
	technology / skill- / product centric (HOW)		simulation, measuring and control
	Specialty (USP)		
	Discipline (WHAT)	procurement codes	020701;03
			electronic controls
	Company size		V
	DotX Control Solutions BV		

DOTX CONTROL SOLUTIONS BV

DotX Control Solutions specialises in high performance control system development and the realisation thereof. It develops control solutions for complex industrial challenges and scientific research projects.

PRODUCT INFORMATION

One of the DotX main products is the DotX Nonlinear Predictive Controller (DNPC); this controller allows extremely accurate control, due to its ability to simulate and optimise complex nonlinear dynamical systems on-line in a stable and fast manner. This controller has applications in various processes (furnace control, temperature control) and mechanical systems (wind turbines).

SPECIFIC EXPERTISE INCLUDES

- Development of high performance control solutions including NMPC, H_{∞} and ILC
- Control-oriented modelling of complex systems
- Observer design for high performance controllers
- Development of advanced model based fault detection
- Integration of commercial control software systems in real-time environments and simulation environments

REFERENCES

ECN – Tata Steel – ISPT – 2B Energy – EWT – STX –
DSM – VDL Weweler – Mitsubishi



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Turnover: 0.2 M€ | 3 employees

www.dotxcontrol.com

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07

DETECTORS
AND SENSORS

DETECTORS AND SENSORS	Company size	Speciality (USP)				Area						
		Discipline (WHAT)		technology-/ skill-/ product centric (HOW)	Metal		Cryo Vacuum	Me- chatr.	Electronics HW	Software		
		procurement codes	Large		Small							
	Amsterdam Scientific Instruments	S	Particle and photon detectors	070103;0301	Hybrid pixel detectors				X		X	
			measurement	08;07;03	cameras,optics,sensors,X-ray				sensor networks			
		S	neutron instruments	07;	components for polarized neutrons							
	Delft Neutron Instruments BV											
		M	photonic system design and production	08;05;03	optics; mechanics; electronics; sensors			X		X	X	
	Nedinsco											
Peter Haak Productontwikkeling	V	high performance sensors&instruments	0250;0290;0350;0450	sensor design & development, training, service			X		analogue	X		
Single Quantum	S	single infra red photon detector systems	0704;	superconducting nanowire single photon detectors			X		X	X		

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 email: 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



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10 employees

www.amscins.com



COSINE MEASUREMENT SYSTEMS

ABOUT COSINE

Cosine develops and builds optical and distributed measurement systems for its customers.

COSINE HAS EXTENSIVE EXPERIENCE IN

- multi-sensor hyperspectral, infrared and 3D imaging measurement systems
- X-ray optics
- distributed sensor networks

The systems of cosine are used in space, on aircraft, on drones, in the field and in the factory. The cosine team develops transparently in close collaboration with the customer.

APPLICATIONS

Space & Aerospace: Miniaturized instruments for remote sensing, precision agriculture, water and air quality

Agri, Food & Pharma: Inline non-destructive quality and safety inspection

Safety & Security: Detection of features not visible to the human eye

OUR CUSTOMERS

Cosine customers range from small high-tech companies to large industries and organizations.

SOLUTIONS READY TO ADOPT

- CONDI® Continuous optical non-destructive inspection systems for inline inspection
- SPO® High-energy optics for space, beam lines and material analysis
- 3D-One® camera systems for multi-camera hyperspectral imaging in the visible and infrared
- a complete product line of miniaturized remote sensing systems for space and aerospace

For more information about our products and services visit our website cosine.nl

cosine | measurement systems



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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:

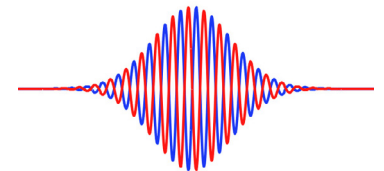
- High-frequency magnetic flippers and our in-house developed HF-generators
- Foil-based flippers (like in SESANS at the TU Delft)
- Coils for adiabatic spin rotation
- General purpose custom build DC coils and guide field configurations
- Complete add-ons for polarized neutron and Larmor labelling applications (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.

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CEO

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www.delftneutroninstruments.com



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

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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

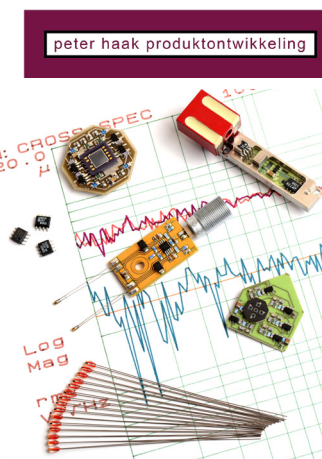
REFERENCES

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

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Director

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SINGLE QUANTUM

Single Quantum provides single photon detector systems for the most demanding scientific and industrial applications in the near and mid infrared. We offer reliable and easy to use complete detection systems, based on superconducting nanowire single photon detectors (SNSPD).

ABOUT US

Early 2012, Single Quantum was established as a spinoff from the Delft Technological University and scientific research funded by FOM and NWO. For wavelengths in the near and mid infrared, Single Quantum offers the best single photon detectors in terms of detection efficiency, noise levels, time resolution and reliability. We are the first company offering a complete SNSPD system with a built-in cryogenic cooler, which has the advantage of not requiring any external liquid helium supply.

PRODUCT SPECIFICATIONS

Timing jitter: 50 ps – Dead time: <10ns – Spectral response range: 0.2-2 μm – No afterpulsing, no gating necessary

QUANTUM EFFICIENCY

Wavelength (nm)	Dark count rate (/s)	Quantum Efficiency (%)
800	<100	18
1310	<100	28
1550	<100	10

APPLICATIONS

- Single quantum dot spectroscopy
- Photon correlation measurements
- CMOS defect analysis
- Optical quantum computing
- LIDAR
- Free space communication
- Time-resolved fluorescence measurements
- Quantum key distribution
- Optical coherence tomography

REFERENCES

Heriot-Watt University – Hokkaido University – Stockholm University – Bristol University

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6 employees

www.singlequantum.com



SINGLE QUANTUM



Big Science 130

08
**CRYO AND
LOW TEMPERATURE**

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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100 employees

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Big Science **134**

STIRLING CRYOGENICS BV.

Stirling Cryogenics specializes in the design and production of Stirling 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 cryogenic liquids or cryogenic cooling systems for all kinds of applications.

Our two product brands, Stirling Cryogenics and CryoZone, have earned a solid reputation in their respective field of expertise.

Stirling Cryogenics is the world's leading specialist in stand-alone cryogenic cooling systems. More than 3.000 systems are in operation across the globe, often in extremely demanding conditions. The reliability of our different versions of the Stirling Cryogenerator has earned Stirling Cryogenics an unbeatable reputation.

Stirling Cryogenics developed the Stirling-cycle cryogenerator almost 60 years ago and it has been the cornerstone of our cooling systems ever since. The Stirling cryogenerator makes it possible for our systems to produce temperatures ranging from -75°C to -250°C. A Stirling Cryogenics cooling system is an indispensable piece of equipment in those situations where constant cryogenic cooling is crucial, independent of bulk liquid logistics.

CryoZone offers an extensive choice of cryogenic gas circulation fans called CryoFans, cryogenic pumps and heat exchangers for third-party cryocoolers. These products are customized to create cryogenic systems specifically designed for clients who operate with a unique process design and IP.

CryoZone's expertise extends to everything that involves the control and circulation of cryogenic fluids and gases, such as LN2 and GHe, to cool and heat an application. We handle every aspect of the cryogenic process related to coding, cryogenics, pressure, heat and physical flow.

Examples of cryogenic cooling systems involving Stirling Cryogenerators and CryoFans are the liquid argon cooling system for Icarus, INFN Italy; cooling of neutron moderators at IFE Kjeller Norway and ISIS Chilton Didcot UK; several HTS cooling systems at 20 or 67K in USA, Europe, Russia, China, Korea and Japan; re-liquefaction of boil-off of methane in the LNG logistic chain.

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Big Science **135**

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09

(ULTRA) HIGH VACUUM
SYSTEMS AND LEAK
DETECTION

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 <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) – 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.

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Turnover: 4 M€ | 10 employees

www.hositrاد.nl



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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E: info@mogema.nl

www.mogema.nl

mogema3.0

AI an
Aalberts Industries
company



VACUTECH B.V.

For almost 30 years we have been manufacturing and assembling vacuum technology and precision engineering products at the highest level for various industries. For our clients and ourselves only absolute precision and the highest quality are good enough.

CREATIVE PRECISION SOLUTIONS

Another characteristic of Vacutech is that we always focus on solutions. The word 'impossible' is not part of our vocabulary. With passion for our specialism as our basis, we see it as a challenge to come up with inventive solutions for complex assignments. Whether it relates to a single component or a complete composition or sub-composition.

WORKING TOGETHER THE WAY YOU PREFER

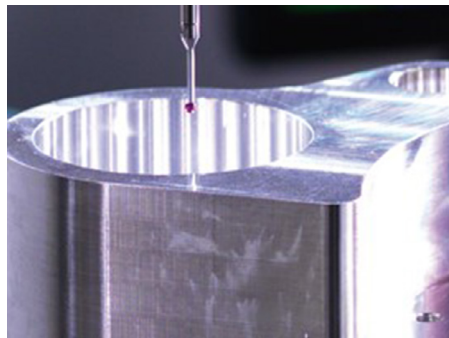
Vacutech has everything it requires to carry out your assignment successfully. From design, purchasing, manufacture and assembly right up to functional testing: we can take care of the whole process for you. But you can also call us in for just one of these specific processes and, if necessary, we will bring in the expertise of third parties. It is up to you to decide how we work together.

Our professional skills make the difference!

We are a reliable and constructive partner for every client due to our know-how and commitment. For manufacture and assembly, we have access to experienced skilled staff and extensive production facilities.

DISTINGUISHING FEATURES OF VACUTECH

- Vacuum technology
- Cryogenic technology
- Manufacture
- Assembly
- Innovative approach
- Solution-oriented help
- Utmost precision
- High quality



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Manager Sales

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www.vacutech.nl

VACUÛM SPECIALS

Vacuüm Specialists B.V. is specialised in the implementation, construction, manufacturing of components and subsystems and the realisation of complex projects on a turnkey bases regarding Vacuum technology and Cryogenic Applications.

Vacuüm Specialists prefers to work in a "Partnership" relation rather than in a strict Customer – Supplier relation. Vacuüm Specialists B.V. originated from the Vacuüm Specialists branch of Leybold B.V. in The Netherlands and obtained independent status from 1 July 1997.

From its establishment in 1975, Vacuüm Specialists has delivered – both in Holland and abroad and to the fullest satisfaction of its customers, a variety of projects, resulting in an expertise in the field of vacuum technology and cryogenics applications.

All company processes take place following fixed procedures in accordance with ISO 9001:2008. After having prepared a tender followed by the acceptance of a purchase order, project progress is set out in consultation with the customer in a project planning. Hereafter engineering takes place, in close cooperation with the customer, using SolidEdge or AutoCAD. Exchange of drawing files and project communication takes place by means of E-mail.

After the drawings have been approved by the customer, production commences where quality monitoring is an ongoing process.

REFERENCES

Nuclear Gas Industry (pump sets, leak testers, production machines, automatic LN2 fillings systems) – ESA/ESTEC and TNO (space simulation chambers, thermal vacuum systems and LN2 filling systems) – ASM (special spool pieces and traps) – Omicron (Liquid Helium Cryostats for low temperature scanning Probe Microscopes) – Oerlikon Leybold Vacuüm (Chambers and special products) – Mapper Lithography (chambers and special products) – Zeiss (special products) – Linde (LHe transfer lines) and DCA Finland (UHV Chambers up to 1000COF).

Jan Bos
Managing Director

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E: janbos@vacuumspecials.nl

Turnover 2.1M€ | 13 employees

www.vacuumspecials.nl



VERNOOY VACUUM ENGINEERING

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.

Freek Kronenberg
Managing director

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

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.

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10

**INSTRUMENTATION
& CONTROL**

INSTRUMENTATION & CONTROL	Speciality (USP)				Area								Test & Measurement					
	Discipline (WHAT)				technology-/ skill-/ product centric (HOW)				Metal		Cryo Vacuum		Electronics HW		Software			
			procurement codes						Large	Small								
Company size				Information technology		030411;0207		electro mechanical automation							x	embedded		
ACO Inducom		S		Information technology		030411;02		electro mechanical;PCB design							x	Digital	x	
Actemium E&A		L		Electronics and radio frequency		0305;0350;0210		test&measurement							x			
AR Benelux BV		S		current measuring		0350;0350105;03500108		AC and DC high current measuring							x		x	
Hitec Special Measuring Systems		s		electronic equipment/turnkey systems/HPC		0207;0305;035002;0210		customised systems; data acquisition; power							automation	embedded	x	
INCAA Computers		V		imaging detectors for analysis		03500405;0902		detectors for mass spectrometry								x		x
Omics2Image		S		data analysis software		0207;0350;04		simulation, monitoring & analysis system health							x	Modelling	x	

ACTEMIUM E&A

Actemium E&A is specialist in controls, Printed Circuit Boards, electronic units, machine and modules for the high tech Industry.

Actemium is a tradename of VINCI Energies and consists of a network of cooperating VINCI Energies companies which delivers their products and services to the industrial market. Actemium advises, supports industrial customers in the construction, optimization and maintenance of their industrial production facilities.

PRODUCT INFORMATION

The core competence of Actemium E&A is the development, engineering, production and testing of high tech electro mechanical systems and PCB (printed circuit boards). Customers of Actemium E&A can be found in Medical, Electronics, Lighting, Optical, Semiconductor, Military, Solar & Energy, Food, Feed, Chemicals, Logistics and Science.

OUR CAPABILITIES SUMMARIZED

- Machine controllers and line
- Mechatronics Measuring and testing systems Module Construction Panel Construction (prototypes and serial) Power control cabinets PCB (printed circuit boards) Prototyping Engineering Embedded software Cleanroom UL Panelshop, CE certification Supply Chain Management QMS After Sales (repair and spare)

PROJECT REFERENCE EFDA

Actemium built four control units for the new high voltage supply units (160.000V, 130A) for the Joint European Torus (JET) project of UKAEA in Culham – United Kingdom. The improved supply units will be used to facilitate a higher energy output of the Torus (50 – 70%).

REFERENCE

Philips – ASML – NXP – Bosch – Océ – Canon – Kema – TNO – Vialis – Moba – ASM – van der Lande – Mars – VDL group, Pon Power – Fuji – PANalytical – UKAEA and EFDA.

Elroy van der Schoot
Projectmanager

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Turnover: (M)€ 56 | 450 Employees

www.actemium.nl



Big Science 150

AR BENELUX

Specialists in test and measurement solutions from DC to RF

AR Benelux offers products from well established industry names including Teledyne LeCroy, Kepco and MITEQ. To compliment our standard of the shelf solutions we also provide custom solutions, a wide variety are offered ranging from AC/DC power supplies to special designed RF solutions.

EUROPEAN PARTNER

AR Benelux is part of the AR Europe group of companies which consists of the European AR offices in the Benelux, Germany, France, United Kingdom and sales associates across Europe.

PRODUCT GROUPS

- AC/DC Power
- Electrical Safety
- Oscilloscopes
- EMC
- RF/Microwave
- General T&M
- Custom Solutions



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Big Science 151

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



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General manager

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Turnover: 5 M€ | 9 employees

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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

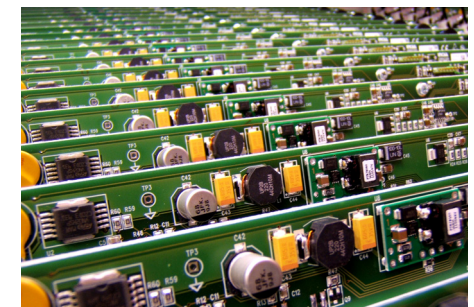
Our client base includes a wide selection of international organisations and companies:
CERN – Sincrotrone Trieste – GSI – UKAEA – MIT – FZ Juelich – Alstom – ASML

Bart Sijbrandij
Project manager

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20 employees

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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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Big Science 154

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

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Turnover: 6 M€ | 80 employees

www.stcorp.nl

s[&t]
dependable solutions



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



Big Science 155

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11

**ENGINEERING
METHODOLOGIES
AND TOOLS**

ENGINEERING METHODOLOGIES AND TOOLS		Company size	Speciality (USP)			Area										Test & Measurement		
																	Production / Assembly	
																		Engineering
R&D																		
	Supply	System Supplier																
			Technical Consultancy															
				Systems Engineering														
Service					Project Management													
	technology-/ skill-/ product centric (HOW)	Metal				Me- chatr.	Cryo vacu- um	Electronics HW	Software									
										Large	Small							
				procurement codes														
Discipline (WHAT)																		
	mechanical engineering service	0590;	R&D;systems;engineering															
					mechanical engineering service	0590;06	system suplier;3d Design & Drafting											
				mechanical engineering service				0590;1102;1104	handling tools;test rigs									
production and process automation										0207;	system integration							
	general engineering service	05;02;0590	R&D;systems;FEM;engineer- ing;production															
					precision mechatronics in vacuum/cryo	0590;0690;0601;0602	Precision Eng.; FEM; simulation; production											
				mechanical engineering				0590;	opto-mechanical FEM and simulation									
precision machines for semicon- ductor factories										0590;	vibration isolation/support frames/ceiling mounted							
	innovative and mechatronic solutions	0590;	simulation;vibration isolation/ optics;modeling															
					supply and R&D of high end systems	0590;0207;1305;1214	engineering, simulation, model- ling, mechatyics											
				multi disciplinary mecha/electric projects				02:0207;03:05;09	engineering; production									
industrial products;tooling,- mechanisation										02:0207	development; engineering; subcontracting							
	multi disciplinary mecha/electric projects	02:0207;03:05;09	systems engineering; FEM analy- sis; projects															

ACE INGENIEURS & ADVIESBUREAU

PASSION FOR TECHNOLOGY AND INNOVATION

ACE is ingenious. That means we work with inspiring, intelligent and passionate craftsmen. Every day our specialists combine their thorough knowledge with the ability to analyse from a different perspective.

Ingenious means analysing, developing, designing and realizing, with our customers' success as a starting point. It's the added value of individual competence, supported by a professional organization with vast expertise and experience. It also means believing and investing in a close collaboration in the chain and co-engineering with future constructing partners.

A completely transparent design process and an organization that connects to the needs and principles of our customers form the foundation of our company. That is why our services enable our customers to increase their competitive edge. Analysis and research, engineering at our premisses but also turn-key projects. We also provide individual specialists or if necessary complete engineering teams in addition to your own resources.

OUR SERVICES ARE GROUPED IN FOUR MARKET ORIENTED BUSINESS UNITS:

- product development
- industrial automation
- hightech systems
- construction technology

The engineers within these units know the market. They are up-to-date as far as technological development is concerned and have a thorough and specific knowledge in their field.

The culture of ACE has its roots in a constant thirst for innovation. However, always pragmatic and without losing sight of important parameters as costs and planning. That force has been recognised already for 35 years. By industry leaders but also by starting innovators and research organizations.

The long lasting relations with our customers confirm our vision on collaboration, creativity, professionalism and effectiveness. Be ingenious!

Gijs Akkermans

Senior accountmanager

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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

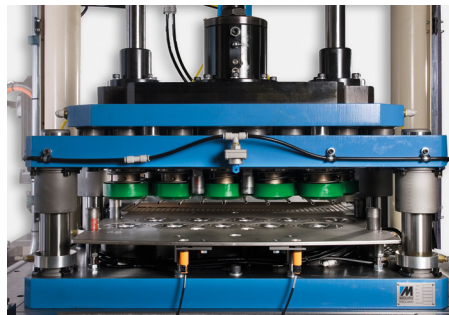
ASML – Nihkef – ECN – Dutch Space – Philips – ASM –
Vanderlande Industries – Stork/Fokker – Multin Hittech – SKF



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BKL ENGINEERING

ABOUT US

BKL Engineering enables its customers to bring their high-tech operations to the next level. For instance, in the case they want to introduce new products or services. To this end we develop specific solutions enabling our customer to work safer and more effectively.

PRODUCTS

As a specialist in mechanics and mechatronics we focus on:

- Handling tooling (a.o. hoisting / lifting tools)
- Special machinery (a.o. test rigs)

SERVICES

Our range of services include:

- Engineering
- Production
- Inspection & Service

SAFETY EXPERT (CE)

We have extensive experience in applying the machine directive. On request of our customers we can be held CE responsible for the tools they use. Furthermore, we are internationally ISO/IEC 17020 accredited to perform safety related inspections on specific hoisting and lifting tools.

REFERENCES

Amongst others: ASML – FEI and Philips

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EKB

EKB is a system integrator for industrial automation projects. EKB provides automation solutions within the process and manufacturing industry with over 200 committed and qualified employees. A high quality system according to CSIA-regulations and thorough project management, makes EKB a reliable partner.

EKB was founded in 1971 and has developed into a nationwide operating and well-reputed industrial automation company located at four places; Beverwijk, Drachten, Bunnik and Someren. EKB is also member of the listed TKH Group, an international operating group of companies in the field of Telecom, Building and Industrial Solutions making an annual turnover of more than 1 billion euro.

EKB is synonymous with product and process automation.

Marcel van Deursen
Commercial Manager

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210 employees

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Big Science 162

ENTECHNA ENGINEERING

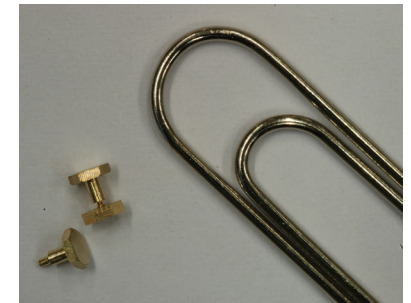
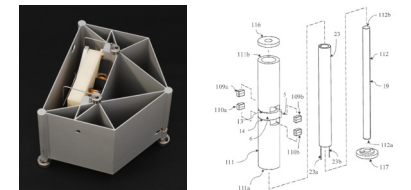
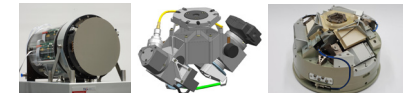
Entechna has been serving the high tech industry and academia with high-quality solutions in the field of mechatronics and mechanical engineering since 2010. Our extensive background in academic level Design Principles and experience with optical and electromagnetic systems allows us to quickly reduce complex problems to their essence. From here on we generate creative and innovative solutions without wasting time on symptom solving or losing sight of practicality and cost.

Our projects range from fast feasibility studies to extensive concept-to-prototype developments and turn-key instruments. A common theme is the large technical complexity which suits our role as lead engineer or system engineer perfectly. Additionally, we have experience with documentation and manufacturing aspects of big-science projects and complex industrial machines.

To summarize: if you need mere manpower, we may not be your best choice. However, if you need brainpower, give us a call!

A SELECTION OF OUR CUSTOMERS:

SRON – TNO (ESO) – Trioptics GmbH – Demcon – VDL (ESO) – Mecon – VSL – Eindhoven University of Technology – Abbott – High Tech Institute and several semicon equipment companies.



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Dr. ir. Chris Werner

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Big Science 163

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

Huub Janssen

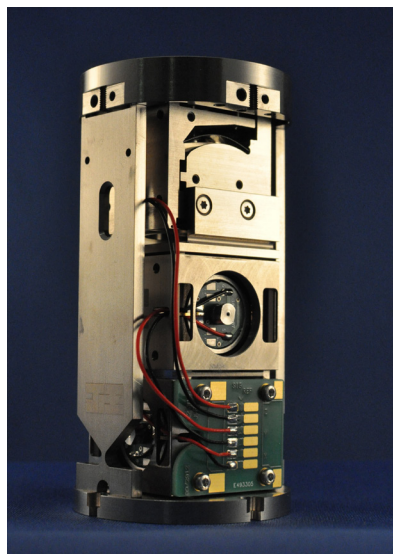
Founder & CEO

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JPE EXPERTS IN
POSITIONING
JANSSEN PRECISION ENGINEERING



LENCON

Lencon provides high end mechanical engineering. Core competencies are the development and optimization of complex products and systems.

PROJECT BASED ENGINEERING

- Lencon is an inspiring partner for engineering projects. Markets are Semiconductor industry, Defence, Space research and Medical.
- Engineering for smart cost reductions
- Reliability optimization
- Precision and optomechanical engineering

ADD EXPERIENCED ENGINEERS TO YOUR TEAM

For many companies and scientific institutions Lencon is a flexible engineering supplier. Our engineers have acquired a wealth of experience by working on-site at a large variety of customers.

- Highly trained and experienced engineers
- Large support network of professional colleagues
- Added flexibility
- Outsourcing of FEM engineers

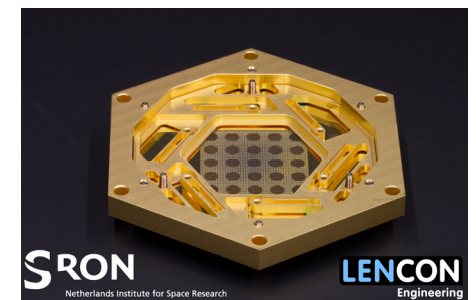
Johannes Backer

Business Developer

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www.lencon.nl

LENCON
Engineering



SRON
Netherlands Institute for Space Research

LENCON
Engineering

MECAL HIGH-TECH / SYSTEMS

MECAL develops and builds process improving and enabling solutions and products for manufacturers of precision machines and factory owners in the semiconductor industry. One of our technologies, Hummingbird™ active vibration isolation, is applied in research applications, microsurgical microscopes, electron microscopes and semiconductor production equipment.

ACTIVE VIBRATION ISOLATION

Hummingbird™ provides extremely low transmission of disturbances at low frequencies. It consists of sensors, a motion controller and actuators and operates as shown in the adjacent schematic. Hummingbird™ starts isolating at a vibration frequency of 0,5 Hz reaching a factor of 10 suppression at 1 Hz in both vertical and horizontal direction. This world class performance at low frequencies is realized by the application of a unique and patented flexure mechanism. These vibration sensitive applications demand our low-noise sensor technology, enabling vibration levels as low as one tenth of VC-G. Hummingbird™ does not require a stiff floor as used for vibration isolation based on piezoelectric technology.

SUPPORT FRAMES

MECAL support frames based on active vibration isolation technology are used for vibration isolation of scanning electron microscopes and other high precision machines. These support frames provide both high vibration isolation at low frequencies and stiffness that is required for precision machines with heavy stages and automatic loading units. MECAL support frames are cleanroom compatible and equipped with shielding to eliminate even the smallest magnetic field variation.

CEILING MOUNTED PLATFORMS

The ceiling-mounted active vibration isolated platform serves as a filter between the ceiling and the microscope and isolates your technology that is connected to the ceiling from all building vibrations, even at the lowest frequencies. MECAL's ceiling-mounted active vibration isolated platform provides microscope users with a stable and clear microscope image in any building and environment.

When you are interested and want to know more about our vibration isolation technologies please contact us via info@mecal.eu.

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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

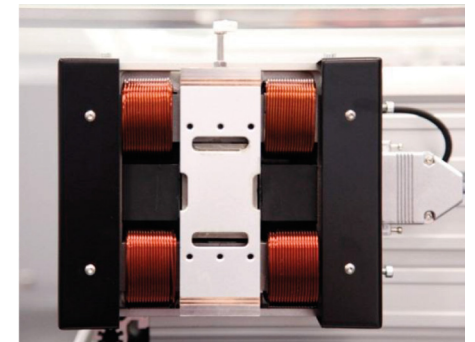
Leo Sanders

Director

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30 Employees

www.mi-partners.nl



SETTELS SAVENIJE GROUP OF COMPANIES

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.



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TEBULO ENGINEERING BV

Engineering is the main activity of the Tebulo organization. Of the many projects which have been realized by Tebulo Engineering each year, approximately 80% is primarily engineering for the industry where innovation, development, improvement and creativity are key words.

With our engineering activities we serve the Steel-industry, Chemical and Petrochemical, Food, Public utilities, Energy companies, Nuclear-, Pharmaceutical- and the Automotive industry.

The projects relate mostly front-end engineering projects. However, parts thereof, such as studies, risk assessments, basic and detail engineering are important activities.

The projects are multi- or single disciplinary, where mechanical – and electrical engineering play a primary role. Obviously, civil and structural, Energy distribution (medium – and low voltage) Control technology, Measurement and control and Instrumentation as well as Installation technology have a share in our activities.

Beside our own control philosophy, programs are written for different manufacturer control systems and robots.

Within our engineering department Turn-Key projects, where complete mechanization is developed and supplied, are of great importance. Our marking -, strapping – and de-strapping machines, which are supplied worldwide, are also part of our engineering activities.

The project-based approach ensures that projects are completed smoothly, with just 'timed' turn to the right disciplines.

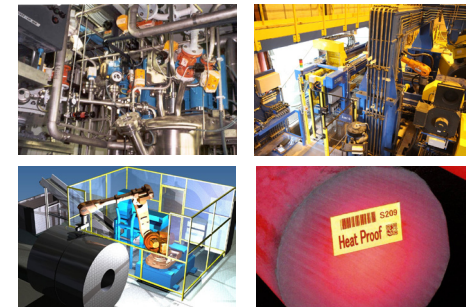
TEBULO ENGINEERING STANDS FOR:

"Technical experts driven by engineering".

John van Stek
Werving & selectie/business development

James Wattstraat 25
1817 DC Alkmaar
T: +31 (0)725 71 80 83
E: John.van.Stek@tebulo.com

www.tebulo.com



TECHMASTERS BV

ABOUT TECHMASTERS B.V.

With many years of experience in the fields of development & engineering of industrial products, test-/ calibration equipment and mechanization/ tooling, TechMasters has been appeared a valueable partner for the industry.

OUR COMPANY

We are pur sang mechanical/ mechatronical developers/ engineers with a broad experience. We can act from idea up to and including delivery but also for assistance/ sub contracting in projects like (re)design, (value)engineering.

CORE COMPETENCES

- Precision technology
- Fine mechanics
- Vacuum & Medical technology
- Robotics & Mechatronics

MARKETS

- Analytical & Medical
- Science & Technology
- Semicon
- Research institutes
- Aerospace

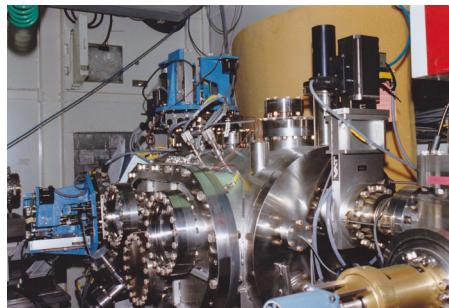
REFERENCES

VSL/Nmi – Shell – MAPPER – KROHNE – ESA/ESTEC – Fokker – TNO

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CEO/dga

Noordkade 64B
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M: +31 (0)6 24 80 78 74
E: avl@Techmasters.nl

www.techmasters.nl



VIRO

VIRO FOR FULL SCALE ENGINEERING SOLUTIONS

VIRO is a Dutch, private owned international engineering company with +600 FTE and offices in the Netherlands, Germany and Austria. We develop complex high-tech machinery and (chemical) plants for major international companies.

SPECIFIC EXPERTISE

- Mechanical engineering
- Engineering analysis
- Multi-disciplinary projects
- Project management
- Systems engineering

Design tools: Catia (V4 and V5), Inventor, Unigraphics NX, Pro/E, AutoCAD, and others

Analysis tools: MSC.Patran & MSC.Nastran, FEMAP, ANSYS, I-Deas, NX advanced Flow and Simulations, and others

Customers include: ASML, NXP, DAF, Airbus, MAPPER, Astron for which we design anything ranging from modules to complete machines including project management.

Quality: NEN-EN-ISO 9001:2008 and VCA++

REFERENCE PROJECTS

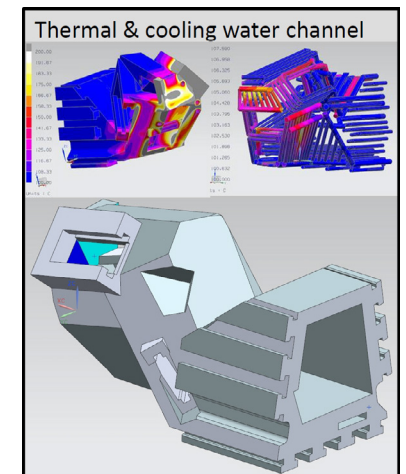
- ITER NL concept design front dynamic shield module (see image)
- Vacuum chamber design (> 2 m3) for a semiconductor company
- Various high precision verification / test / integration machines and tools including procedures for assembly; verification and operation.
- Development of "Glass". This system is used as a laser beacon to correct atmospheric interference on the WHT (William Herschel Telescope)
- Many other high tech and multi-disciplinary projects

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VIRO
the performance of technology



12

**SAFETY SYSTEMS, LICENSING
AND PROTECTION OF
HAZARDOUS INSTALLATIONS,
ACCESS CONTROL, FIRE AND
GAS DETECTION**

SAFETY SYSTEMS, LICENSING AND PROTECTION OF HAZARDOUS INSTALLATIONS, ACCESS CONTROL, FIRE AND GAS DETECTION	Company size		M								
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	Area	Discipline (WHAT)	procurement codes	technology-/ skill-/ product centric (HOW)	Metal	Large	Small	Me- chatr.	Vacu- um	Electronics HW	Software
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NEW COSMOS – BIE

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

Started in Europe over 25 years ago with a range of detectors for the Semiconductor Industry, New Cosmos – BIE is effectively since early 2011 a part of the global New Cosmos organization.

Together with our 60 years old parent company, New Cosmos based in Japan, New Cosmos – BIE serves beside Europe also customers in the Middle East and North Africa.

Our mission is to create a safer global environment with a reduced number of accidents.

Whilst continuing the developments of products and combining the excellent technology from both sides we aim to create a safer world with a reduced number of accidents in the industry and living environment.

OUR STRENGTHS:

- Sensor technology in house
- Over 50 years of experience
- Reliability
- Unique Selectivity
- Long life time
- Extended range of sensors for different gasses

PRODUCT RANGE:

- Fixed gas detectors (diffusion/suction)

- Portable gas detectors
- Alarm systems
- Software supervision systems
- Grease /oil dust meter
- Odor level indicators
- Residential detectors

- Automotive Industry
- Laboratories
- Micro Electronics
- PV Industry

SERVICES:

- Maintenance
- Upkeep
- Repair
- Training
- Survey

SOLUTIONS FOR THE FOLLOWING MARKETS:

- New Energy Markets
- Gas & Oil Exploration
- Chemical & Petrochemical

REFERENCES

Within the Netherlands: University Twente – University Delft – TNO – University Eindhoven – Smitovens – NXP – Shell – Philips – Fanuc – Yaskawa – Dow – DSM – Glaesum – ECN. Outside the Netherlands: ST Crolles – X-fab – Analog Devices – Helmholtz – Fraunhofer – University Sheffield – University Swansea – Toyota – Kawasaki – Zarlink – University Lund – Airliquide – Praxair – L-foundry – University Madrid

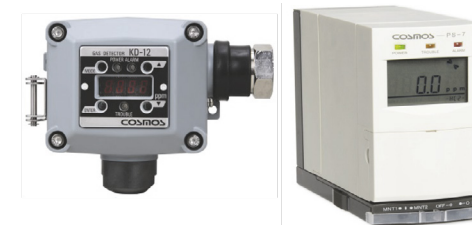
Mrs. Martine Zegers

Sales & Marketing Manager

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 **NEW COSMOS - BIE**



A decorative border of orange tulips with green leaves runs horizontally across the middle of the page, partially obscured by a white circle.

13

OTHER
MAGNETS

OTHER MAGNETS	Company size																				
	Specialty (USP)					Area															
											Discipline (WHAT)		technology-/ skill-/ product centric (HOW)		Metal		Large			Small	
											Magnets and Magnetic Systems		02250105;					0225;			
																			high end magnets for motion and power		
				</																	

GOUDSMIT MAGNETIC SUPPLIES

GOUDSMIT MAGNETIC SUPPLIES – DUTCH QUALITY MAGNETIC COMPONENTS

Goudsmit Magnetic Supplies forms part of the globally operating Goudsmit Magnetics Group, a family business incorporated in 1959 with branches in the Netherlands, France, Germany, the UK, and the Czech Republic. The company is specialized in delivering high quality permanent magnets and magnet systems to the automotive, aerospace, electronics and medical industries.

CERTIFICATIONS

Goudsmit Magnetic Supplies is one of the few European magnet suppliers that is both ISO 9001:2008 and ISO/TS 16949:2009 certified. As such, we are capable of conducting internal process audits in accordance with VDA6.3. This enables us to operate in many market segments, including the automotive, oil & gas, space, medical and even green technology industries. We utilize a globally operating distribution network and offer the support of our skilled R&D and QA engineers, who have the most advanced measuring equipment available.

MAGNETIC MEASUREMENTS & CALCULATIONS

Our most recent test equipment acquisition is an optical 3D scanner which enables us to provide three-dimensional measurement data and analyses for industrial and automotive parts. Rather than just measuring individual points, the complete geometry and basic shape of an object are precisely established in a dense point cloud or polygon mesh. In addition we also are able to perform magnetic calculations in 3D.

SUPPLY CHAIN INTEGRATION

Goudsmit Magnetics role in supply chain integration is to serve as a sounding board for our customers and to be part of the engineering, development and testing process for the component or assembly by utilizing our extensive experience not only in application engineering but also in the sourcing of high quality products. The key to successfully addressing trends such as falling cost prices, increased flexibility and global sourcing is long-term, reliable, predictable relationships between OEMs and the tier1, tier2 and tier3 suppliers. Establishing strong relationships requires excellent collaboration and communication throughout the chain and mapping out the improvement potential of the whole chain so it can compete, or continue to compete, at an international level.

IN A NUTSHELL

Being able to source high quality products, manage logistics, be a sparring partner in design and development, validate component requirements with state-of-the-art equipment and contribute to an optimized supply-chain makes Goudsmit a valuable and serious partner for the high-tech industry.

Marc Teeuwen

Sales Manager

Prunellalaan 14 , 5582 HA Waalre

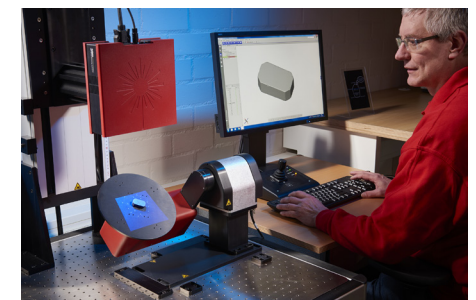
T: +31 (0)40 221 90 15

E: supplies@goudsmitmagnets.com

www.goudsmitmagnets.com



GOUDSMIT
MAGNETICS GROUP



WIJDEVEN INDUCTIVE SOLUTIONS

As a subsidiary of Phoenix Mecano Wijdeven develops and produces transformers, inductors and electromagnetic systems to customer specifications.

More than 50 highly motivated employees are divided into two ISO 9001 certified sites in Oirschot and Ter Apel.

Besides its own production facilities in the Netherlands Wijdeven has partnerships in Eastern Europe and the Far East.

WIJDEVEN IS KNOWN AS

Knowledge partner, short time-to-market, innovative, solution provider and cost efficient.

SECTORS

Customers are located in the most diverse sectors, such as power electronics, healthcare, climate control, machine & equipment construction, measurement & control, mobility, motion and telecom & security.

FEM CALCULATIONS

On customer request FEM calculations, electro-magnetic and thermal simulations can be performed. Also for the calculation c.q. (partial) production of actuators.

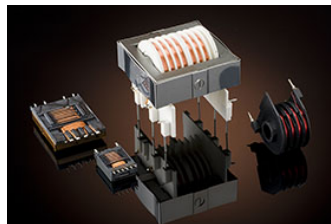
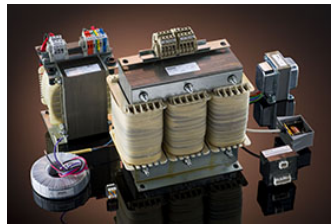
René van den Heuvel
Sales Director

De Scheper 250
5688 HP Oirschot
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E: info@wijdeven.com

www.wijdeven.com



A Phoenix Mecano Company



14
**INFORMATION- AND
COMMUNICATION TECHNOLOGIES
AND CODAC (CONTROL,
DATA ACCESS AND
COMMUNICATION)**

INFORMATION - AND COMMUNICATION TECHNOLOGIES AND CODAC (CONTROL, DATA ACCESS AND COMMUNICATION)	Company size			Speciality (USP)			Area					Service		
	Discipline (WHAT)			technology-/ skill-/ product centric (HOW)		Metal		Cryo Vacu- um	Electronics HW	Software	embedded	x	x	
						Large	Small							
	Information technology			049001;040509;0304	analogue&digital electr.				FPGA,DSP- data acq.					
	Information technology			0405;040509;0350	electronics design;simulation		x		DSP;signal analysis	embedded	x			
	software for GPGPU computing, R&D			0401;0405;040502	code optimisation; low level programming					OpenCL/ MP;CUDA	x			
	science powered software technology			04;	consulting; IT architecture, design and built					x	x			

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.

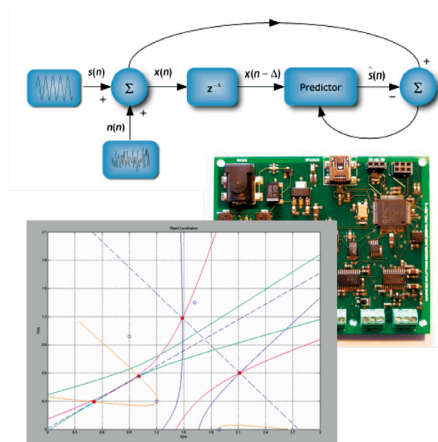
SELECTED REFERENCES

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

Dr. Sanjeev Sarpal
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STREAM HIGH PERFORMANCE COMPUTING BV

HIGH PERFORMANCE SCIENTIFIC SOFTWARE DEVELOPMENT

Both building Scientific Software and HPC Software are an art of engineering. We combine both.

Stream HPC is an international software development company based in the Amsterdam that specializes in building fast software using the power of GPUs and clusters. Our team consists of developers who have years of experience in building complex models into fast software. We have a long track-record of 8 years and many recurring customers.

EXAMPLES OF OUR EXPERIENCE:

- Large collision experiments
- Real-time Big Data processing
- Specialised linear algebra libraries
- Quantum chemistry/physics simulations
- Image and video processing.

OFFERED SERVICES:

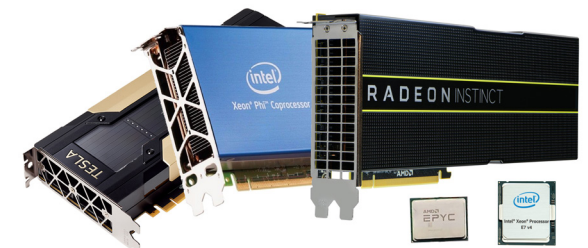
- OpenCL, CUDA, OpenMP and MPI programming.
- Generic super-computer programming.
- Improving existing code.
- Low-level programming.
- Documenting black boxed software

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STREAM
High Performance Computing



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

“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

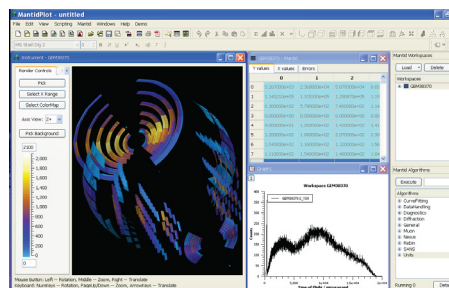
“...Tessella really understands R&D users and processes. This translates into responsive levels of support, and a real appreciation for how each application can be enhanced going forward.” – Pete Keeley, Innov8 Programme Manager, Unilever

Dr. Eric Arends

Operations Manager

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Turnover: €23M | 240 employees

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15
PHOTONIC
TECHNOLOGIES

PHOTONIC TECHNOLOGIES	Company size		Speciality (USP)		Area					Service		Development		Engineering		Production / Assembly		Test & Measurement		
	Diamond Kimberlit B.V.	M	Discipline (WHAT)	procurement codes	technology-/ skill-/ product centric (HOW)	Metal		Cryo Vacuum	Electronics HW	Software	fiber-optics interconnecting parts	design/assembly optical, copper combined with tubes	design & consultancy, precision machining, coating	0801;	high precision optic systems&-components	020505;	Optical fiber Technology	08040403;080201	08040403;080201	
						Large	Small													
																				Me- chatr.
Supply	System Supplier	Technical Consultancy	Systems Engineering	Project Management																
MCAP Cable & Glassfiber assemblies																				
Sumipro	S																			

MCAP CABLE & GLASSFIBER ASSEMBLIES

MCAP is the specialist for designing and assembling high-grade copper cables, fiber optic cables and modules. They are used in various industries and markets. From milking robot to electronic sphygmomanometer and professional video camera to underwater telescope. Always thought out well and reliable.

CABLE ASSEMBLING

The optimum cable assembly, focusing on your specific application. With optical fibers, copper or combined with tubes for air, water or oil. We design for you or build according to your drawing. Whatever you want, we make your connection.

SYSTEM MODULES

From loose components to a sub-assembly, or an end product. MCAP builds modules or devices in small to medium runs where quality and reliability come first and the delivery time will be no discussion. Assemblies you can rely on.

EXTRAORDINARY PROJECT

Nikhef develops a super-telescope that detects neutrino particles from distant astrophysical sources such as supernovae, gamma ray bursters or colliding stars. KM3NeT consists of a network of cables and spheres with detectors and has a size of over one cubic kilometre.

SPECIAL CABLES

For KM3NeT we developed tubes of 40 meters in length with power cables and optical fibers. These tubes are linked together to long cables between glass spheres with sensors, so called Digital Optical Modules. The tubes are filled with oil to withstand high pressure at a depth of 3 to 5 km in the Mediterranean Sea.

These kind of challenges we like to enter, because where others say something is impossible, MCAP continues.



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Owner/Director

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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 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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16

**MATERIALS HANDLING;
DELICATE AND/OR
HEAVY GOODS, LIQUIDS
AND GASES**

MATERIALS HANDLING; DELICATE AND/OR HEAVY GOODS, LIQUIDS AND GASES	Company size		Speciality (USP)		Area						
		Discipline (WHAT)	procurement codes	technology-/ skill-/ product centric (HOW)	Metal		Cryo Me- chattr.	Vacu- um	Electronics HW	Software	
					Large	Small					
	</										

ECOMATTERS

Ecomatters provides services, tools and training in the field of sustainability and chemical safety and links these topics where possible. Among our multinational clients are chemical and pharmaceutical companies, manufacturers of cosmetics and cleaning products, companies that provide water and environmental services and retailers. Within each project we are committed to achieve tangible results that are comprehensible and useful within the organization. We focus on customer satisfaction in order to build sustainable business relationships.

SUSTAINABILITY

We offer sustainability strategy consultancy services as well as sustainability assessments based on Life Cycle Thinking, such as environmental footprinting, Life Cycle Assessment (LCA) and Life Cycle Inventory (LCI) data management. We assist organizations in determining their stance on sustainability and setting concrete sustainability goals. Further, we perform quantitative analyses in the area of social, financial and environmental issues and identify any issues within these sustainability aspects for our clients.

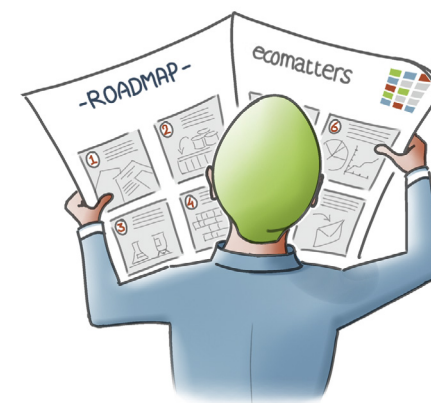
Based on Eco Efficiency Analysis (EEA), Ecomatters has developed the Customer Value Calculator (CVC). The CVC is a user-friendly, interactive model, which quantifies the business case of your sustainable product throughout the value chain. Fully customized to customer-specific products and/or scenarios, the CVC provides an integrated overview of financial and environmental impacts of your product.

CHEMICAL SAFETY

In the field of legislation and regulations, Ecomatters provides advice and guidance on chemical safety, substance management, REACH, EU-GHS/CLP, and product registrations. Depending on our customer's needs we take the full project off their hands or part thereof, such as performing (eco) toxicological risk assessments, authoring MSDSs, creating exposure scenarios or calculating hazard classifications.



ecomatters



Max Sonnen
Partner

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HARVELD 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 – Danielli-Corus – EXXON mobil – Gardner Denver Nash – Linde Gas – Tata steel – e.a.



Rob de Visser

Managing Director

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E: info@harsveld.com

50 employees

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Big Science 196

HYDRO-CARBON SEPARATION SYSTEMS B.V.

Hydro-Carbon Separation Systems B.V. is an engineering and sales organization focussing on filtration and separation solutions in the range of hydrocarbon based products, applications and markets all over the world.

We specialize in the filtration and separation of process streams, such as fuels, (natural) gas, oils, base chemicals and water. We provide engineering, design and supply of customized filtration and separation solutions, based upon years of relevant experience.

We offer a range of products including – but is not limited to – cartridge filters, coalescers, filter/water separators, cyclones, settlers, monitors, degassers (OILML-R117-1 approved), and separators for hydrocarbon liquids and gasses.

New pressure vessels can be designed according to customer's requirements, specifications and international pressure vessel codes including ASME U-stamp and NoBo inspections.

Existing vessels can be retrofitted with high quality filter-, coalescer- or monitor replacement cartridges for improved performance or better economics.

With this specific knowledge we are in the position to offer custom made:

- Filters to remove solids from refined hydrocarbons as diesel, naphtha, gasoil, kerosene, gasoline, transformer oils etc.
- Filter/water separators for removal of water from hydrocarbon liquids and gasses
- Oil separators to remove hydrocarbons (oil) from water.
- Degassers (OIML R117-1) to remove gas from liquids in custody transfer metering systems.
- Tankdewatering systems.
- Unloading systems

We served already several international known companies like BP, Shell, Siemens, Dow Chemical, IMTECH, KROHNE Oil&Gas, URUK Engineering etc., with our filter and separator vessels and internals. We welcome your technical questions or challenges in the field of filtration and separation.

Andy Hein

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The Netherlands
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Big Science 197

HQ PACK

HQ Pack is one of the world's leading companies in the field of high-tech packaging. We design, develop, prototype, produce, clean, manage and distribute packaging for high-quality, precise and/or fragile industrial products. Our customers are leading, renowned companies active in the following market segments:

- Semiconductor industry
- Big science (ao. E-ELT and CERN)
- Optical and photonics industry
- Aerospace industry
- Machine construction and mechanical components

HQ Pack is a full service distribution partner. We develop optimal packaging solutions and distribution processes for high-tech industrial products in close cooperation with the customer. The results are various handling tools and types of packaging which allow products to be transported over long or short distances without any problems. The solutions vary from simple cleanroom packaging to high-end, customized packaging composed of different parts and materials.

HQ Pack's head office is located in Eindhoven, the Netherlands. HQ Pack also has a branch in Johor, Malaysia, Bethel (CT) and Fremont (CA), United States of America, which allows us to offer our services worldwide.



Martijn Kelderman

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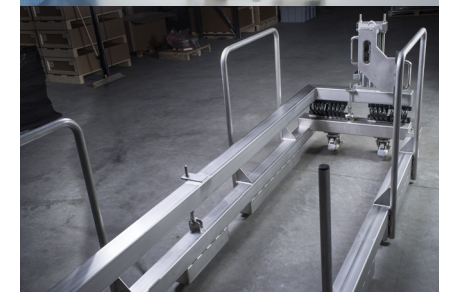
www.hqpack.nl

IPS TECHNOLOGY

IPS Technology is a renowned and independent advice and design bureau in High Tech packaging, tooling and testing.

IPS Technology develops a packaging transport method for industrial products that provides optimum protection. We advise on disassembly, shipping and reassembly of products and product components and have invested substantially in highly advanced test facilities. We test packaged and unpacked products and conduct climate tests, corrosion tests, thermal shock tests, vibration tests and impact tests.

Innovar Cleaning Control, the sister company of IPS Technology, is a specialist company that is capable of providing the entire process of cleaning, qualification, assembly and transport.



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Marketing & Sales Manager

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LAMERS HIGH TECH SYSTEMS B.V.

Lamers High Tech Systems is a leading supplier in the semiconductor, PV solar, aerospace, pharmaceutical, and other technology driven markets for over 25 years.

It is our mission to bring ultra-high purity fluid handling, conditioning, and delivery solutions to our customers that minimize the total cost of ownership while maintaining the highest levels of quality and reliability.

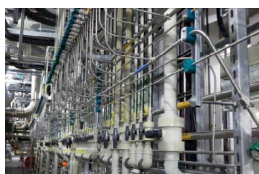
Lamers High Tech Systems B.V. is headquartered in Nijmegen, The Netherlands and has an additional production site in Kerkrade. Both facilities have certified orbital stainless steel welding, plastic welding, and assembly in cleanrooms up to class 10 for high purity manufacturing.

In addition, Lamers High Tech Systems provides R&D, design engineering, and the global installation and commissioning services to ensure our customers systems startup in the most efficient and productive manner.

The installation teams have the capabilities to do turnkey installation of complete infrastructures.

These services include: Gases, Chemical and Power supply systems, Cooling, Demi Or process water systems, gas exhaust and scrubbing systems, drainage and waste water treatment systems.

These installations and piping systems are qualified and validated after installations are tested by our in house team that have dedicated equipment depending on the customer's specifications. The teams have done a number of installations worldwide incl "hot" commissioning at the point of use.



Complex piping set up



IBC Chemical Cabinets



Chemical distribution



DI Water system



Gas bottle and distribution Cabinets



Toxic Piping



Exhaust Piping



Waste water treatment

André Wullings

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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 to ISO 9001, SCC** and ISO 3834-2 (under construction).



René Francken
Managing Director

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50 employees

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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.

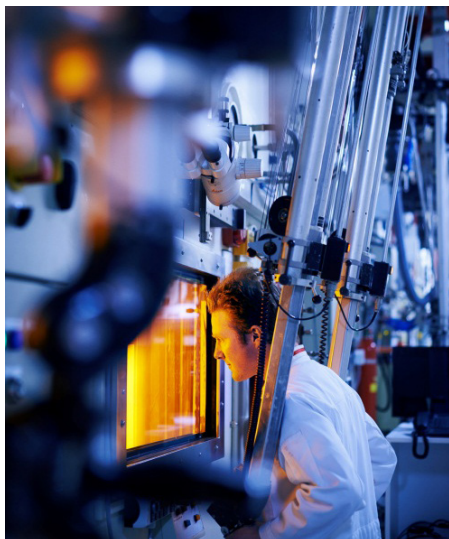
As an independent organization, NRG offers support with confidential processes from product development to material qualification. We provide understanding of material behavior under neutron irradiation through standardized material test programs.



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Project manager Fusion
Irradiation Solutions

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PTB SPECIAL EQUIPMENT

CUSTOM BUILT MATERIAL HANDLING EQUIPMENT

PTB Special Equipment is a manufacturer of non-standard mobile material handling equipment. Pallet trucks, pallet stackers and industrial tow tractors up to 50 tons lifting capacity.

REFERENCES

The company has built special machines for many well-known business partners, including ASML – Mercedes Benz – Philips – NedTrain – APM Terminals – Hitachi and many others.

PTB Special Equipment brings non-existing solutions to reality.

Jelle Zuiderisma
Director

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transportmiddelen@ptb-group-eu

[www.ptbspecial.com /](http://www.ptbspecial.com/)
www.ptbmachinefabriek.nl



SMINK GROUP BV

We (co-) develop, produce, supply and install components, sub-systems and complete installations in the high-purity industry.

Smink Group follows strict quality protocols accurately and supplies its products and services in accordance with the relevant standards including GMP and FDA.

This, combined with the company's flexible no-nonsense approach and high sense of quality, results in end products that are guaranteed to meet your specific requirements.

When you are a manufacturer, engineer, engineering agency or contractor and you have to take care of the construction or modification of a high-purity installation, why not challenge Smink?

Just tell us what you want.

Experience our problem-solving capacity, our personal commitment, and our straightforward solution-oriented approach!

Rene Smink
Director

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www.smink-group.com

Smink GROUP
HIGH PURITY IS OUR **PASSION**



17
MISCELLANEOUS

MISCELLANEOUS	Company size	Specialty (USP)				Area								Supply	System Supplier	Technical Consultancy	Systems Engineering	Service	Project Management	Development	Engineering	Production / Assembly	Test & Measurement																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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ATG EUROPE

ATG is recognized as a leading provider of specialized engineering, scientific and technical services to the Aerospace, High Tech and Offshore industry. With highly educated personnel operating in different branches ATG Europe provides access to the brightest minds. ATG has three main core competencies: Projects, People and Medialab.

ATG PROJECTS

ATG Projects excels at delivering highly demanding engineering projects in the areas of structural, thermal and flow analysis. Our team of in-house engineers is experienced in analyzing and solving complex problems in demanding technical fields and industries. Major customers include the European Space industry, EADS/Airbus, Atlas Copco and Shell. From 2008 onward our focus has broadened to other challenging areas such as Offshore, Energy and High Precision. As an example ATG Projects has worked on structural parts of various Airbus aircraft, it has been responsible for the thermal design of the vegetation instrument on board the Belgian PROBA-V satellite and has given consultancy for the optimization of a supersonic gas separating system for Twister. Next to that it is and has been involved in various R&D projects ranging from investigations in new structural concept using composites to the development of a helicon plasma thruster.

ATG PEOPLE

ATG People is the key player in delivering highly educated personnel for High Tech environments throughout Europe. Our brightest minds are engaged in innovative projects performing to high standards and utilizing the full extent of their professional knowledge. With our 30 years of experience we have access to the brightest minds in for instance structural, electrical, mechanical and automation engineering.

MEDIALAB

ATG Medialab is our high-end 3D visualization studio that has the ability to visualize technical and scientific complex projects is unmatched worldwide. The outstanding reputation among customers is earned by the scientifically and technically sound visuals of complex subjects. Sectors of activities are the Aerospace, Semiconductors, Defense, Offshore and Energy industries.

REFERENCES

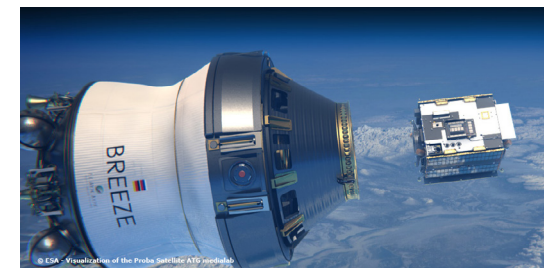
ESA – OHB – Qinetiq – Kongsberg – ASML – TNO – EADS/Airbus – Lockheed Martin – Atlas Copco

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ATKINS B.V.

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.

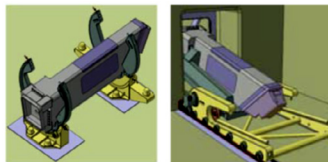
REFERENCES

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

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ATKINS



DEERNS NEDERLAND B.V.

Deerns delivers solutions for facilities where contamination control is paramount. Our experts have decades of expertise and experience in developing, designing and putting into operation contamination controlled research and manufacturing facilities.

We have developed a design methodology that puts our client's processes at the center of the design. This approach is crucial in achieving successful solutions that effectively integrate all aspects of operations, processes and equipment within the corresponding facility, supporting systems and technical infrastructure. Our projects include every type of research and production space, both new and renovated, providing improved efficiencies, flexibility, and people-centered spaces that meet twenty-first century technical standards.

REFERENCES

ASML – AMOLF – Nikhef – IMEC – Danone – Dokuz Eylül University – DSM – MESA+ – Philips – SRON – University Eindhoven – NXP – Bayer – ARCNL

OUR CLEAN TECHNOLOGY SERVICES

- Project Programming
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- Design and Engineering
- Construction Supervision
- Qualification & Validation
- Hook-Up
- Operational Support

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Deerns



ELQUIP

elQuip has been for over 30 years overall designer of workshops in the field of electrical and electronic engineering and assembly. Advice and guidance form the basis for each project, customized solution or delivery of finished products.

PRODUCT INFORMATION

The range (ESD-safe) workshop furniture consists of a variety of workbenches and workbench configurations, work chairs, filing cabinets and trolleys. Additionally elQuip offers a wide range of tools, (ESD) accessories and instruments (including oscilloscopes, spectrum analyzers, generators, power supplies and multimeters of the brand BK Precision).



The workshop furniture brand Flexiline® has been developed by elQuip on the basis of customer requirements. Much attention has been put into ergonomic aspects, flexible applicability and extensibility. As a basis a worktable is used, which can be extended with measuring uprisings, electrification (230/400V), instrument-consoles (for 19" equipment), electrical work height control, lighting, soldering fume, etc. A client can customize the products and extend them to his own needs. The product is mainly used in the fields of R&D, service, maintenance, repair, calibration, small-scale production in the fields of electronics, such as appliances assembly, and in education.

Our customers can be found in the industry, utility companies, government, hospitals and technical/scientific & educational institutes.

REFERENCES

Amolf – TU-Delft – TU-Eindhoven – NXP – Intel – Fugro – Technolution – NUON powergeneration – Roy – NL Navy – Thales – TNO – RTD – Tokheim – DAF Trucks – Heineken – and many more.

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INNO4LIFE

YOUR ENGINEERING –TO-PRE-ORDER PARTNER

Inno4Life specialises in complex customer-specific engineering-to-order projects for the Life Science Industries, namely the Pharmaceuticals (Human and Veterinary), Medical and Food Industries. Requests from other industries will be considered on a case-by-case basis.

Our knowledge is deeply rooted in the automated pharmaceutical packaging industry, we have therefore the in-built expertise, discipline and the very specific know-how to help overcome the evolving challenges constantly faced by our customers in highly regulated markets.

Relying on the combination of many years of experience and skills in managing large-scale international projects, we offer a complete range of solutions in the following areas:

- Equipment & Support
- System Integration
- System Optimization
- Expert Advice

We supply a wide range of equipment and services in the field of automated high-production:

- System & Module Development
- System architecture design
 - engineering
 - prototyping
 - test equipment
- System improvement
 - validation
- Assembly
- Installation
 - service support

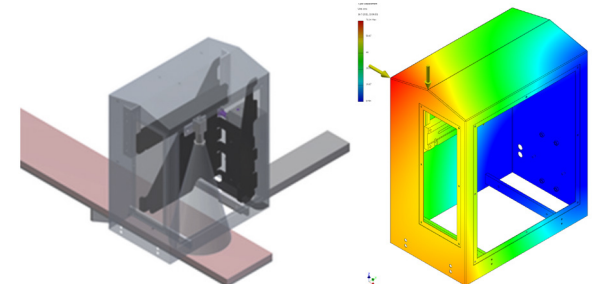
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THOMAS THOR ASSOCIATES

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

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Martin van Breukelen HFML	Martin.vanBreukelen@ru.nl	HFML - NL EMFL - NL, FR, D	Magnets with ultrahigh fields.
Marck Smit NWO-I/NIOZ	Marck.Smit@nioz.nl		Sea and ocean research (including deep sea research and technology)

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INDEX

ALPHABETICAL

INDEX

NUMBERS

3D Metal Forming	105
3D Worknet	106
4DSP BV	183

A

A.J.B. Instruments BV	57
ACE ingenieurs & adviesbureau	159
ACQ Inducom	149
Actemium E&A	150
Active Space Technologies	115
Admatec	97
Advanced Electromagnetics BV	9
Advanced Solutions NL	184
Airbus Defence and Space Netherlands	73
Amstel Engineering BV	160
Amsterdam Scientific Instruments	125
AR Benelux BV	151
ATG Europe	207
Atkins BV	208

B

Bakker Fijnmetaal	45
Bayards Aluminium Constructions	39
Benecom	83
Betech Group	58
BKB Precision	98
BKL Engineering	161
BOA Nederland BV	139
Bodycote Vacuum Brazing	84
Boessenkool B.V.	59
Bouman Machinefabriek	60
Butraco	74

C

CAPABLE BV	21
Carl Zeiss Industrial Metrology	67
CCM	75
Ceratec Technical Ceramics BV	99
Coating (HVPC)	11
Cosine	126
Cryoworld BV	133

D

DARE!! Development	10
Deerns	209
Delft Neutron Instruments BV	127
Delta Elektronika BV	27
DeMaCo Holland BV	134
Demcon Advanced Mechatronics	76
DeValk	107
Diamond Kimberlit B.V.	189
DotX Control Solutions BV	121

E

ECM Technologies BV	85
Ecomatters	195
EKB	162
elQuip	210
Entechna	163
Etchform BV	86

F

FMI High Tech Solutions	46
Formatec	100
Futura Composites BV	87

G

Germefa	61
Geurtsen Machinefabriek	62
Goudsmit Magnetics Group	179

H

Harveld Apparatenbouw BV	196
Heat & Surface Treatment	88
Heemskerk Innovative Technology	116
Heinmade	77
High Voltage Potting and Hitec Special	
Measuring Systems	152
Hositrad Vacuum Technology	140
HQ Pack	198
Hydro-Carbon Separation Systems BV	197

I

IBS precision Engineering	68
IGS GeboJagama	63
INCAA Computers	153
INDOLES Precision BV	78
Industry International	28
Inno4life	211
Innogrind	89
INNPLATE	90
IPS Technology	199

J

Janssen Precision Engineering	164
-------------------------------	-----

K

Kersten plastic coatings	91
KIN Machinebouw	64
Kusters&Bosch	47

L

Lamers High Tech Systems	200
Landes High End Machining BV	48
Lencon	165
Linear Technology	12
Louwershanique	101

M

Mat-tech BV	108
MCAP Cable & Glassfiber assemblies	190
MECAL High-tech/Systems	166
Megahard	33
Metrik Fasteners	109
Mevi Fijnmechanische Industrie	49
MI-Partners	167
Mogema BV	141
Montair Proces Technology BV	201
MTSA Technopower	13
Multivalent Plating & Etching BV	92

N

National Instruments	14
Nedinsco	128
New Cosmos -BIE	175
Nijdra Group	50
NRG	202

O

Omics2Image	154
-------------	-----

P

Peter Haak Productontwikkeling	129
PM-Group	79
Precision Mechanical Prod.	51
Prodrive Technologies	29
PTB Special Equipment	203

Q

Q-sys	80
-------	----

R

Romal.com	22
-----------	----

S

S&T	155
Schelde Exotech	40
Settels Savenije van Amelsvoort	168
Single Quantum	130
Sintecs	34
Smink Group BV	204
Steered Technology	23
Stirling Cryogenics	135
StreamComputing BV	185
Sumipro	191

T

TBP ELECTRONICS	35
Tebulo Engineering BV	169
Tebunus Tube Bending	110
TechMasters BV	170
Technobis Group	15
Technolution	16
Telmastaal	111
Ter Hoek Vonkerosie Rijssen B.V.	93
Tessella	186
Thales Group	36
Thomas Thor Associates	212
TNO	17
Topic Embedded Products B.V.	18
Tree C	117

V

Vacutech	142
Vacuüm Specials	143
Van Halteren BV	41
VDL Enabling Technologies Group	52
VDL Fibertech	94
Velmon Lastetechniek	112
Vermeulen Metaal B.V.	53
Vernooij	144
VIRO	171

W

Wijdeven Group	180
Wilting	145

X

Xpress Precision Engineering BV 69

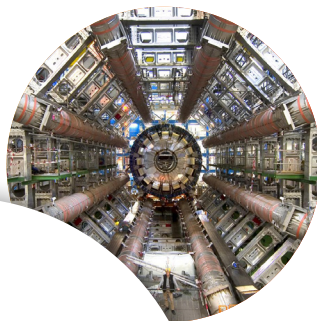
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