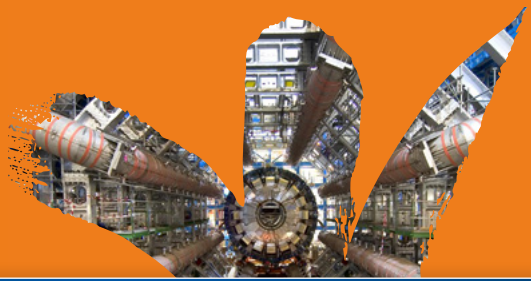
Holland @CERN

4 & 5 June 2019
Geneva, Switzerland



where business and science meet

Foreword

Cooperation and co-development for progress

The interaction between science and enterprises is more important than ever before. Science and technology have been significantly changing our lives the past 50 years. Products and services, once only existing in our wildest dreams, are now amongst the most valued in our daily lives.

Technology development and applications are key drivers for solutions to societal problems and to secure future economic growth. Half of our future economic growth will depend on technological progress, according to our economic advisors at the Netherlands Bureau for Economic Policy Analysis (CPB). That is why the Dutch Government is focusing its research and innovation policy within the nine Top Sectors on missions and key enabling technologies.

The development of new and advanced technologies is necessary on all Technology Readiness Levels and can be mission-oriented as well as science-driven. The latter quest is found in the world of Big Science: without the technical help, co-development, skills, resourcefulness and interaction of our high-tech industries important developments in scientific instrumentation will almost be impossible. And ground breaking science is impossible without those research facilities that push the boundaries of our technical skills.

'Science' needs to work together with 'industry' to make great discoveries possible, to prove theories, to make progress in science. 'Industry' needs to work together with 'science' to exploit the opportunities to increase or improve their existing expertise, to be able to introduce new technologies in existing markets or to penetrate new markets.

In short, scientists and industry professionals should work together to achieve both societal and economic progress. That's why the Netherlands is investing in Big Science and R&D via subsidies or tax credits. Collaborations between the public and private sector are (among other programmes) supported by the Partners-In-Business programme, which has a special initiative called 'Science4Business'.

In the context of this cooperation we should not forget about the valuable work of the ILO-network of NWO: Industrial Liaison Officers are essential links between Big Science Organisations, the Dutch knowledge institutes and Dutch industry. The ILO-net organises many events where science can meet business, either in the Netherlands or at the (foreign) home base of the Big Science Institutes. The ILO-net is a crucial element in the organisation of the Big Science business market and I thank them for their effort.

Michiel Sweers
Deputy director-general of Business and Innovation
Ministry of Economic Affairs and Climate Policy

www.bigscience.nl

Foreword

The mission of CERN is to uncover what the universe is made of and how it works. CERN provides a unique range of particle accelerator facilities to researchers, to advance the boundaries of human knowledge. At Nikhef, the Dutch institute for subatomic physics, we carry out this mission in the national context and provide the bridge between the large-scale infrastructure at CERN and Dutch researchers and industry partners.

Curiosity based research at CERN continues to generate the interest and fascination all over the world for many years. CERN started its adventure to study the subatomic world in 1954, with The Netherlands as one of its founding members. Today, the Holland@CERN event welcomes the continuous interest and visibility of Dutch government, industry and science in this laboratory. CERN has managed to push the boundaries of knowledge again and again. The Large Hadron Collider is producing collisions with unprecedented high energies that has led to the discovery of the Higgs particle – one of the biggest discoveries in physics over the last decades. And this is not the end of the story – as the Large Hadron Collider holds great promises for the future physics beyond the Higgs particle.

Likewise, CERN always manages to push the boundaries of technology. Advanced and innovative technologies are at the very heart of research at CERN and scientific developments in turn lead to surprising new technologies and innovations. This provides a natural connection between science and private enterprises: they benefit from each other and reinforce their mutual impact.

There are many practical examples of the past where this connection was successful. This new edition of Holland@CERN will continue to strengthen this trend, aided by the large investments in Big Science in the coming period. For example, CERN and its member-states are upgrading the accelerator complex, and invest significantly in the upgrade of the Large Hadron Collider and its large detectors. This requires robust and high-tech solutions, where Dutch industry and innovations may have sizeable impact.

Innovation is prominently visible in the Dutch National Science Agenda and the Top Sectors in Key Enabling Technologies. It can only flourish if there is an open and lively discussion between public and private R&D, where researchers and private enterprises are in constant and constructive interaction. Holland@CERN aims at exactly this.

Amsterdam, June 2019

Prof. dr. Stan Bentvelsen, Director of Nikhef

Contents

Programme Holland@CERN 2019

Monday June 3

- Travel to Geneva
- Before 16:00 check-in at reception
- Prepare stands
- Check-in at hotels
- Opportunity to have dinner together

Tuesday June 4

9:30	Arrival at CERN
9:45	Final clarifications about programme (council room)
10:00	Coffee at stands
10:30	Arrival of VIP and CERN delegation
10:45	Inauguration ceremony (council chamber)
	• Welcome address by the Director-General F. Gianotti
	• Brief presentation of the Laboratory by R. Steerenberg
	• Address by the Director of Nikhef S. Bentvelsen
	• Inaugural address by Deputy Director-General Mr Sweers
11:15	Visit of the stands by the delegation
	(lunch will be served from 11:30 onwards for participating companies)
13:30	Pitches by Dutch companies
14:30	Presentation on CERN procurement by Anders Unnervik

Programme Holland@CERN 2019

15:00	Coffee break
15:30	Presentation on Knowledge Transfer by Han Dols
16:00	Presentation on the CLIC project by Nuria Catalan Lasheras
16:30	Presentation on Hi-Lumi project by Hector Garcia Gavela
17:00	Free time
18:00	Presentation of the Laboratory by R. Steerenberg
19:00	Buffet dinner in Restaurant 1

Wednesday June 5

8:45	Gather at the CERN reception
9:00	Depart for tours to ATLAS and the magnet construction facility
11:30	Lunch at stands
13:30	Wrap up of official programme (council chamber)
13:45	Presentation on PIB by Patricia Vogel
14:00	CERN to business meetings

Thursday June 6

9:00	CERN to business meetings

About CERN

Mission

CERN works to uncover what the universe is made of and how it works. They do this by providing a unique range of particle accelerator facilities to researchers, to advance the boundaries of human knowledge. The Laboratory, established in 1954, has become a prime example of international collaboration and strives to:

- Provide a unique range of particle accelerator facilities that enable research at the forefront of human knowledge.
- Perform world-class research in fundamental physics.
- Unite people from all over the world to push the frontiers of science and technology, for the benefit of all.

Research

Today, we know that all visible matter in the Universe is composed of a remarkably small number of particles, whose behaviour is governed by four distinct forces. CERN has played a vital role in reaching this understanding. But there is still much to learn about the Higgs boson, and many other puzzles remain about how and why matter in the universe is the way it is.

Advancing the frontiers of technology

A myriad of engineers, technicians and scientists develop novel technology and expertise that can be applied to fields other than high-energy physics. This is made possible by the CERN community, which develops the expertise and shares it with society. CERN also collaborates with industry from large companies to SMEs and recent start-ups.

Knowledge-transfer

The scientific advancements of CERN push the frontiers of technology, which has a positive impact on society globally. Although the core mission of the Laboratory is fundamental research in particle physics, it is also committed to train the next generation of scientists and to bring nations together. The transfer of CERN technologies and expertise to society is an integral part of these activities, providing novel solutions in many fields.

Our exhibitors

Holland@CERN
4 & 5 June 2019
Switzerland

Notes

Stand No. 3

BKB Precision

Plastic machining in a leading and innovative way – that's what we do at BKB Precision. We work up to 3µm accuracy. BKB Precision has been a specialist in the machining of high-grade plastics for almost 40 years. We operate in various market segments such as high-tech, semiconductor, medical, defence, aerospace and chemistry. We machine technical plastics, high performance plastics, composites and foam materials. Examples include: PEEK, Semitron, Torlon, PEI, PAI, Airex,POM, PA, PC, HMPE, PETG, etc. BKB Precision is ISO 9001:2015 certified.

State-of-the-art machinery

We have a climate controlled production hall with a wide range of CNC machines for 3 and 4-axis milling, with or without robot loading. Our machinery can operate 24/7. For complex products, we can do simultaneous 5-axis milling and we have portal benches. Assembly, (cleanroom) cleaning, packaging and testing of products are also important components in our production process.
We have a wide range of CNC machines, from three-axle milling to complex five-axle simultaneous milling or even 7-axle-milling and turning machines:

- We have a number of CNC milling machines ((Hermle, Unisign and HAAS) for 5 axis machining including robots in our climate controlled production area;
- Our impressive portal milling machines can work very accurately, with 0.02mm accuracy over a length of over 6.000mm.
- The Okuma turning-milling combinations can work up to 3µm accuracy and from Ø10mm to Ø100mm.

Cleaning, compositing, testing, packaging

BKB Precision is not only your manufacturing partner, but also your supplier when it comes to realizing your assembly and supply chain needs. That is why assembly, packaging, testing and cleaning is an important part of our manufacturing process.
Cleaning: cleaning parts and products is done with care; we work according to a strict protocol. In our cleanroom, plastic products are cleaned according to the Grade 4 norm (ISO class 7 certification);
Assembly: we have mounting, gluing, welding and testing possibilities available.

References

CERN – ASML – Trumpf – Storz Medical – Philips –
Thales – VDL-ETG – Airbus DS – Festo – Paul Scherrer Institut

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High Performance Plastics Machining

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BKL B.V.

Stand No. 16

BKL is a specialist in developing customized mechatronic solutions to meet complex technical challenges. Especially solutions that enable our high-tech customers to work safer and more effectively. As a family owned company with more than 35 years track-record, we operate from our locations in Nuenen (Netherlands) and Brno (Czech Republic).

Products

Main focus applications include:
- Handling tools (hoisting- and lifting systems, also for cleanrooms)
- Special machinery and modules (a.o. test & measurement systems)

Services

As a system integrator, we enable our customers to outsource complete projects including
- Development and engineering
- Production, qualification and installation

Next, we also provide a range of installed base services:

- On-site technical support
- Maintenance, repairs and upgrades
- Safety inspections and consultancy

Safety Expert (CE)

We are specialized in the area of machine safety and we take the CE responsibility if needed. BKL is internationally ISO/IEC17020 accredited to perform safety related inspections on customized hoisting and lifting tools.

References

On request, amongst others: ASML, ThermoFisher (FEI), Philips, VDL Group

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BKL
smart engineering works

www.bkl.nl

Stand No. 13

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**	**Customer**
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. traceabillity	
Powder coating	Upto 4 meters long	
Hoisting	Hoisting capacity inside the factory is 120 tons	Max. 120 tons

MACHINEFABRIEK Boessenkool
Osse Equipment Manufacturing Group

Ing. Eelco M. Osse
CEO

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Turnover: 5 M€ | 40 employees

www.boessenkool.com

Ceratec Technical Ceramics BV

Stand No. 23

"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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ceratec® TECHNICAL CERAMICS BV

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Stand No. 10

Cryoworld BV

Advancing in Cryogenics

Cryoworld B.V. is a manufacturer of cryogenic, vacuum insulated equipment. Our company is based on extensive experience in both theoretical as well as practical field. Our core business is design, production, testing and installation of helium and other custom designed cryogenic equipment.

In our new production facility our dedicated engineers and specialists make sure every project meets the highest quality standards. Cryoworld delivers projects to renowned companies and scientific institutes worldwide.

Besides the design and fabrication of "standard" cryogenics our fields of expertise are:

- Valve boxes for liquid helium
- Liquid helium transfer lines
- Cryogenic pressure vessels
- Special cryostats
- Special cryogenic processes and equipment
- Innovative design, cryogenic prototyping
- Accurate sensing and controlling of cryogenic processes, level, pressure and temperature
- Custom built valves

Some references

Cern – Linde Kryotechnik AG – Air Liquide ALAT – GSI Darmstadt – Helmholz Zentrum Berlin – Triumf – Radboud University (HFML lab) – Merck – MBB Fertigungstechnik – CCM

cryoworld advanced cryogenics

Marcel Keezer
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www.cryoworld.com

Demaco Holland BV

Stand No. 21

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
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100 employees

DEMACO

www.demaco.nl

Stand No. 16

FMI HighTech Solutions

FMI consists of 10 companies in engineering and manufacturing, with more than 400 employees located in the Netherlands and Germany. Our products and services include engineering, component manufacturing and the assembly of modules and integrated systems.

Competences

Production of high-end parts, Metal 3-D printing, Precision Technology, Material Handling, Project Management, Opto-mechanics, Vacuum Environment, Robotics, Motion, Vision

Products

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

Quality

- ISO9001 QMS, ISO13485
- Lloyd's certificate 0f re-marking
- Compliance & Risk management

Markets

Aerospace – Big Science – HighTech – Leisure industry – Medical – Food – Oil & Gas

References

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

FMI

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Heemskerk Innovative Technology Stand 5

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

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

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

References

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

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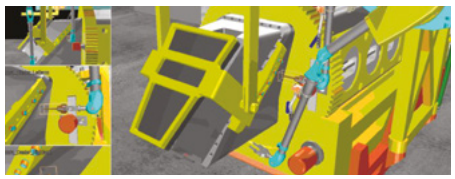
Turnover: 400.000 € | 7 employees



www.heemskerk-innovative.nl

Stand No. 17 Hositrad Vacuum Technology

Hositrad Vacuum Technology combines more than 50 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

Alicat Scientific: The fastest flow controller company in the world.
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.
Extrel: Extrel is the world's leading manufacturer of Research and Proces Mass Spectrometers, Residual Gas Analyzers (RGA's), Quadrupole Mass Spectrometry Systems and Components from 1-100 amu to 16000 amu
Thermionics: Manipulators, Valves, E-Guns, Ion Pumps, MBE Systems, Mechanical feedthroughs.

References

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

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Turnover: 6 M€ | 15 employees

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INCAA Computers

Stand No. 20

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

Product information

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

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

Software Development: Due to our in-house hardware expertise we know best to separate projects into hardware and software functions and how to interface them to build innovative fail-safe systems. Specialisations include system software, databases and graphical user interfaces.
System Integration: We not only deliver hardware modules and software packages but also integrate these with third-party components into complete functioning turn-key systems.

References

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

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Project manager

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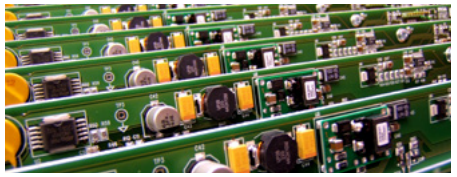
20 employees



www.incaacomputers.com

Stand No. 15

Jeveka

Welcome at Jeveka

Jeveka has been a leading specialist in fasteners and instruments since 1937. Our high-quality program consists of over 60.000 items and are tailored to our customers needs. Jeveka has over 80 enthusiastic employees that have extensive product knowledge.

Great cooperation

As a customer of Jeveka you have one permanent contact person that handles your orders and answers your questions. Our sophisticated logistics system processes your orders quickly and reliable. This way we make sure that 96% of our 60.000 standard articles are delivered from stock. For common items this is even higher with a 99,5% stock rate. All orders placed before 16.00h are sent on the same day.

Complete portfolio

Our fastener program consists of renowned brands that are exclusively represented by Jeveka, such as Unbrako and Kato. The rest of our product range offers branded products from leading suppliers.

Specials and Customization

Are you looking for an article that isn't available in the regular portfolio? Our production department is the solution for all tailor-made solutions. Based on your drawing or your sample our specialists can alter a standard article or develop a completely new product.

Cleanroom and Vacuum application

Jeveka has an extensive product range in stock for cleanroom and vacuum applications. These items are characterized by their standard quality of A4-80.

Jeveka: Your Leading specialist in fasteners and tools since 1937.

Jeveka
keeping it together

Leonard Hofman
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Kusters & Bosch

Stand No. 8

We produce precision parts and assemblies.

With a highly skilled and enthusiastic team of 28 professionals in machining, a very modern machine park and over 30 years of experience in the making of machined precision parts. We aim at a profitable and long lasting relation with our customers in both the science and commercial industry.

Our 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 850x700x500 mm.
- Wire eroding, turning, laser engraving and own heat treatment furnaces.
- Acclimatised state of the art 3D measuring facilities with measuring range 1200x2000x1000.
- Latest ERP system for production and sub supplier monitoring.
- Large network of sub suppliers.
- Used to work for large international organisations.

References in the science industry:

- CERN
- ESRF
- NOVA
- ESO (indirect)
- Various Dutch and German institutes like TNO, RIVM, ZAUM (indirect)

We do like a challenge

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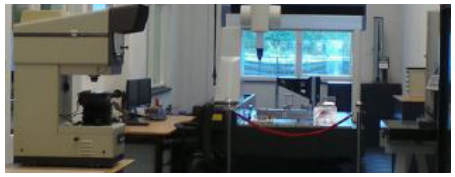
kusters & bosch



www.kusters-bosch.nl

Stand No. 12

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 todays and tomorrows 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

LouwersHanique

Carel van de Beek
Accountmanager

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Mat-tech B.V.

Stand No. 7

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

www.mat-tech.com

MCAP

Stand No. 9

MCAP cable & glassfiber assemblies

MCAP is the specialist for designing and assembling high-grade copper cables, fiber optic cables and modules, which are used in various industries and markets. From milking robot to electronic pyranometer and professional video camera system to underwater telescope. Together with you, we look for the cable or fiber optic connection that best fits your specific circumstances.

Cable assembling

The optimal cable assembly, focusing on your specific application. With optical fibers, copper or combined with tubes for air, water or oil. We will design it for you or build it 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 quantities where quality and reliability comes first and the delivery time will be no issue. 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 bursts or colliding stars. KM3Net consists of a network of cables and spheres with detectors and has a size of over one cubic kilometer.

Special cables

For KM3Net we helped developing tubes with a combined length of 800 meters with power wires and optical fibers. These tubes of 40 meter are linked together between glass spheres with sensors, so called Digital Optical Modules. The tubes are filled with oil to withstand high pressure at a depth of 2 to 3 km in the Mediterranean Sea. These kind of challenges we like to take on, because where others say something is impossible, MCAP continues.

MCAP
CABLE & GLASSFIBER ASSEMBLIES BV

Martin van Aperloo
Owner/Director

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www.mcap.nl

Mikrocentrum

Stand No. 1

As an independent knowledge and network organization, Mikrocentrum supports the manufacturing and high tech industry with training, events and networking. We offer over 160 courses within 15 (technical) areas and organize 10 trade fairs and 20 to 25 thematic events.

Besides these activities, we offer companies a membership to the High Tech Platform, which now consists of 600 members. In all our activities, the aim is to enhance knowledge, expand networks, improve business processes and strengthen the competitive position of companies. We do this by working closely with a large network of industrial organizations, (semi) governments.

- Plastics and molding
- Precision technology and mechanical engineering
- Materials science and bonding techniques
- Additive Manufacturing and prototyping
- Technology for health
- Maintenance and service
- Optics, photonics and lasers
- Mechatronics, robotics, electronics and Industrial automation
- Process improvement, Lean Six Sigma and production management
- Product development and R&D
- Quality management and safety
- Project management, personal skills and management
- Agri & Food technology
- Virtual Reality
- Automotive technology

Our trade fairs:

- Precision fair
- Plastics fair
- Vision, Robotics & Motion
- Photonics Event
- RapidPro
- Eurofinish + Materials
- Business Software Event
- Virtual (R)evolution
- AgriFoodTech
- Technology for Automotive

Geert Hellings
Managing Director

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mikrocentrum
training • events • business

www.mikrocentrum.nl

Stand No. 14

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

NIJDRA

Robbin van Zanten
Account Manager

Dennis van Dijk
General Manager

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www.nijdra.com

Oceanz

Stand No. 2

Oceanz , your 3D printing professional

As an innovator, Oceanz is the specialist and market leader in Additive Manufacturing in the Netherlands. As manufacturer we are your reliable production partner. As a supplier we work on efficient processes, optimal supply chain management and short delivery times with high delivery reliability.

Certified 3D printing experience

Oceanz already has years of professional 3D printing experience. We are very familiar with the market, peers and professionals, based on many practical business cases in various sectors as Industry, Aerospace, Automotive and Medical. Oceanz is the largest 3D printing Service Center of Northwest Europe and is the first 3D printing company in the Netherlands with an ISO 9001 & ISO 13485 certification.

3D printing innovations

Oceanz is always looking for new materials, products and techniques. We support our clients in the search for the best use of 3D printing technology and related materials. Developing together with them and we co-create 3D printing innovations that make the difference in every production.

References

Nikhef, TNO, Bosch, TU Delft, TU Eindhoven, NLR

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CEO

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oceanz
Your 3D printing professional

www.oceanz.eu

Photonis

Stand No. 22

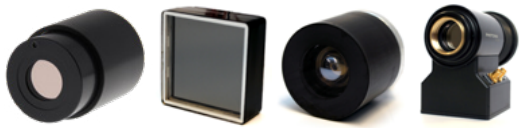
Photonis Scientific Detectors

For nearly 80 years, Photonis has been an industry leader in the development and production of custom detectors, sensors and frequency generators that advance physics research. Our products detect soft X-rays, gamma rays, neutrons, ions, electrons and photons and provide sustained frequency generations for physics research. With Photonis custom detection solutions, you will be the first to discover the secrets of the universe.

Technolgies

MCP-PMT: Photonis MCP-PMT exhibit high Quantum Efficiency and Collection Efficiency and thanks to their fast timing behaviour the MCP-PMT new generation are perfect candidates for single photon detection up to few GHz in burst mode. Their high linearity properties make them compatible up to 100 MHz rate in continuous mode. To fit different applications single and multi-anode configurations are available.
Planacon: The Planacon™ is a square-shaped, 4-side buttable MCP-PMT with a multi-anode structure. Planacons have the excellent time resolution and magnetic field compatibility known of MCP-PMTs, with an active area ratio greater than 80%.
HPD: By combining the sensitivity from vacuum-based image intensification techniques with a silicon diode, Hybrid Photo Diodes get their advantage in the gain characteristics; although lower than for MCP-PMT, the gain is noise-free, stable and linear, making HPDs ideal detectors for resolving single and multi-photoelectrons. The proximity configuration makes it as well compatible with magnetic field requirements.
Image Intensifiers: Photonis Image Intensifiers cover a broad range of wavelengths to support many different types of analysis. Thanks to their gating compatibility and fast decay screen options, they are ideal for fast gating camera's.
Streak Tubes: These highly sensitive detectors are available with a wide range of spatial and temporal resolutions to be customized for high speed applications.
MCPs: MCPs from Photonis are available with a variety of customization options including extended dynamic range, shape and size, configuration, and choice of coating.
Cricket: The Cricket Image Intensifier Adapter attaches via C-Mount to any scientific camera, giving you a quick plug-and-play intensified solution across a broad spectral range.

PHOTONIS
Scientific Detectors



MCP-PMT Planacon HPD Cricket

Emile Schyns
Director of Innovation
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Serge Duarte Pinto
Innovation Scientist
s.duartepinto@photonis.com

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Settels Savenije Group of Companies No. 14

Settels Savenije is a company of over 140 professional serving an international customer base in various high-tech markets. For these customers we invent, design, manufacture, assemble and test high-tech equipment, products and tools. The team is located at our unique and inspiring location at Strijp-T in Eindhoven.

Development & Engineering

Our research, development and engineering activities are covered by 5 expertise groups. Our expertise ranges from physics, mechanics, mechatronics, sensors to software and control. The unique combinations of skills and capabilities allows us to provide practical solutions for complex technical challenges which our customers are facing.

Supply chain and system assembly

Our development and engineering activities are closely integrated with manufacturing, testing and assembly. We use a supply chain of various qualified strategic suppliers. Our assembly area includes an ISO-6 cleanroom which will be expanded to 500 m2 in 2019. Settels Savenije offers unique solutions for the design, realisation and qualification of parts and modules according to the highest cleanliness standards in the industry.

Precision Parts

Settels Savenije Precision Parts manufactures complex high accuracy metal parts & modules for application in many crucial functions in high tech equipment. Production concentrates on high precision machining of parts and modules which in most cases are applied in critical functions of our customers' high tech products. Our fully automated machinery guarantees a process controlled and cost-efficient production.

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CTO

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settels savenije
group of companies
TECHNOLOGY - INNOVATION - INSPIRATION

www.sttls.nl

Stand No. 18 SteeRED Technology

Connecting the dots to make your system work!

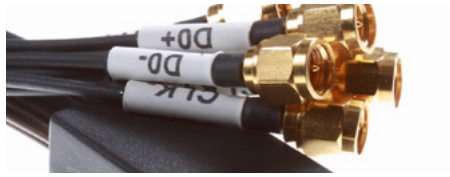
steeRED Technology, founded by experienced industry professionals, is an interconnection system development and supply company. We use internal resources as well as the capabilities and resources of our partners to make new developments possible and to maximize productivity for our customers.

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.

STEERED Technology



Theo Hooft
Business Development

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Technolution

Stand No. 23

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

Since 1987, we are driven by curiosity and innovation. Our 200 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, Safety&Security 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
- We combine technical and application domain knowledge

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Technolution

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TNO

Stand No. 5

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

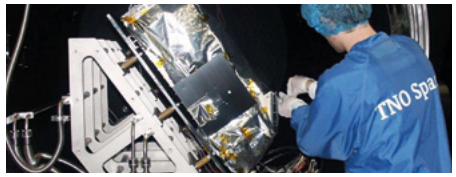
Product information

TNO provides system architecture, multi-disciplinary (pre)design, alignment plans and execution, calibration plans and execution, and control of high-end opto-mechanical instruments and mechanisms. Realization and delivery of these systems is preferable done with industrial partners, certainly for larger instruments and for series production. Thus, TNO hopes to open new markets for these industries.
The instruments that TNO develops are characterized by picometer stability and sub-nanometer positioning accuracy; often operating in extremely hostile environments with long life time; and where necessary with intelligent image interpretation.
TNO's expertise in (adaptive) optics, mechanical engineering, control, image processing and contamination control enables the development of a wide range of complex instruments and mechanisms. Our flexure or magnetic bearing-based mechanisms have low friction and zero hysteresis. We produce quality optics with low wave-front error from a variety of materials including Aluminium, Fused Silica, Silicon Carbide and Molybdenum. We know how to prevent, monitor and remove contaminants, ensuring long life times. And our abilities to process and interpret images are worldwide unrivalled.

References

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

TNO innovation for life



Bart Snijders
Business Development

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Turnover: 494,6 M€
4,400 employees

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Van Halteren Metaal BV

Stand No. 19

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

Markets
VHM serves a large variety of markets: Offshore, Big Science, Shipbuilding, Defense, Sustainable Energy, Semiconductor, Machinebuiding in general.

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
- Vacuum applications

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

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VAN HALTEREN

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Stand 11 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.

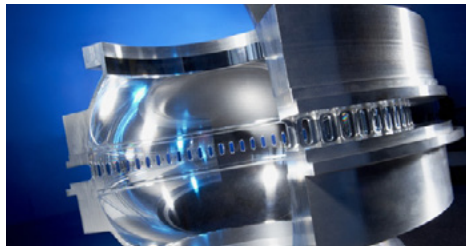
Products
Mono parts, complex high-end modules, complete (mechatronic) systems.

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

VDL



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Business Manager Science &
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Overview of companies

	Company size	Speciality (USP)		
		Discipline (WHAT)		*technology-/skill-/product centric (HOW)*
			CERN procurement codes	
BKB Precision	S	plastics machining, assembly	0502;050405	high performance plastics
BKL Engineering		mechanical engineering service	0590;1102;1104	handling tools;test rigs
Boessenkool B.V.	S	systems;machinery;structures	0504;0590	general machining&assembly
Cryoworld BV	S	Cryogenics	0602;0601	design, prototyping, series, transferlines
DeMaCo Holland BV	M	cryogenics and ultra high vacuum	0602;0601	design, prototyping, series, transferlines
FMI High Tech Solutions	L	mechanical parts& systems supplier	0504;0590	general high precision machining
Heemskerk Innovative Technology	s	remote handling and robots	110308;1104;0207;1001	simulation;systems engineering;consultancy
Hositrad Vacuum Technology	s	ultra high vacuum and cryogenics	0601;0602	customised systems, standard equipmnt, repair
INCAA Computers	s	electronic equipment/turnkey systems/HPC	0207;0305;035002;0210	customised systems; data acquisition; power
Jeveka		tailored fasteners and tools	050106/0208/0303/0308	customized and special articlels/ standard 24h delivery
Kusters&Bosch	S	high precision machining,assembly	0504;06	precision parts;machining S/L series;assembly
Louwershanique	S	ceramic glass-metal UHV feedthroughs	0502;06010606;050405	machining technical glasses and ceramics
Mat-tech BV	S	metallurgy; analasis; joining; alloys	0501;050405	brazing large/small series; SEM; Xray;
MCAP Cable & Glassfiber assemblies		high-grade copper, fiber cables and modules	020505;	design/assembly optical, copper combined with tubes
Mikrocentrum		knowledge and network organization	1214;129004;13	technical training-courses /trade fairs- thematic events
Nijdra Group	M	mechanical parts & systems supplier	0504;0590	general high precision machining & engineering
Oceanz		Additive manufacturing	05040503;05040408	3D printing consulting and on demand
Photonis	L	versatile customized or standard detector tubes	070402;0803;080305	MCP-PMT/HPD/Image Intensifiers/Streak Tubes/Cricket
Settels Savenije van Amelsvoort	S	supply and R&D of high end systems	0590;0207;1305;1214	engineering, simulation, modelling, mechafysics
SteeRED Technology	S	electric & optic interconnection systems	0205;030204;0303;0804	development of cable assys;fibers;foils;connectors
Technolution		high-end electronic HW&SW applications	03;0303;04 0405	custumer specific development & engineering
TNO	L	general innovation partners	03;04;05;06;07;08;09;10	optics;mechanics;electronics;nuclear
Van Halteren BV	M	systemsupplier;machinery;structures	0504;0590;060102;	general precision machining&assembly
VDL Enabling Technologies Group	L	systemsupplier;machinery;structures	0504;0590	development/projects/machining

		Area						service			supply					
								Project management	Systems Engineering	Technical consultancy	System supplier	R&D	Development	Engineering	Production/assembly	Test&Measurement
Metal		*Mechatr.*	*Cryo*	*Vacuum*	*Electronics HW*	*Software*										
Large	*Small*															
	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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x	x	x	x	x							x		x	x	x	x
		x			x	x		x	x				x			
			x	x							x		x	x		
					automation	embedded					x		x	x	x	
x	x		x	x						x			x	x	x	
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	x		x	x									x	x	x	
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					x						x		x	x	x	
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	x	x	x	x						x	x		x	x	x	x
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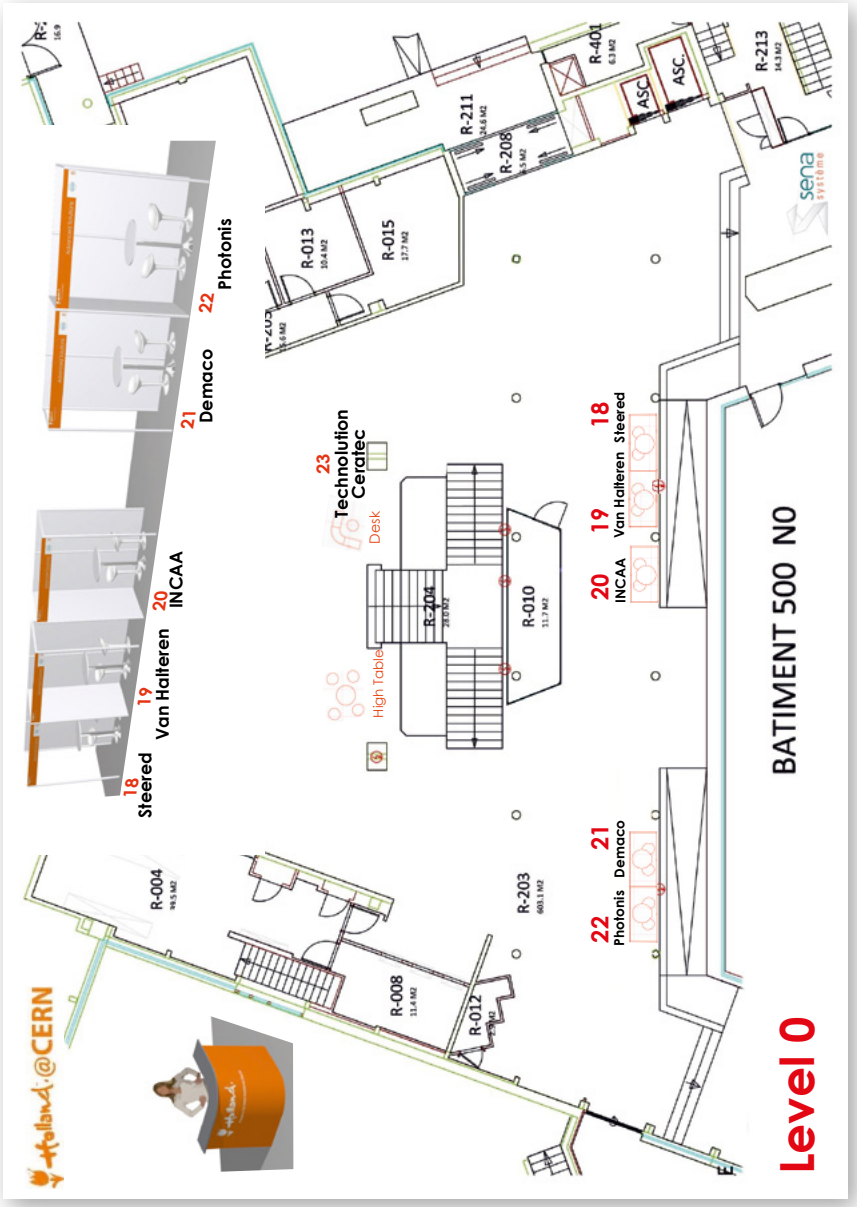
		x		x	x	x		x	x	x	x	x	x	x	x	x
					x					x	x		x	x	x	x
					high speed data	embedded	x	x	x	x	x	x				
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
x	x	x		x			x				x		x	x		
x	x	x		x	x	x	x				x		x	x	x	x

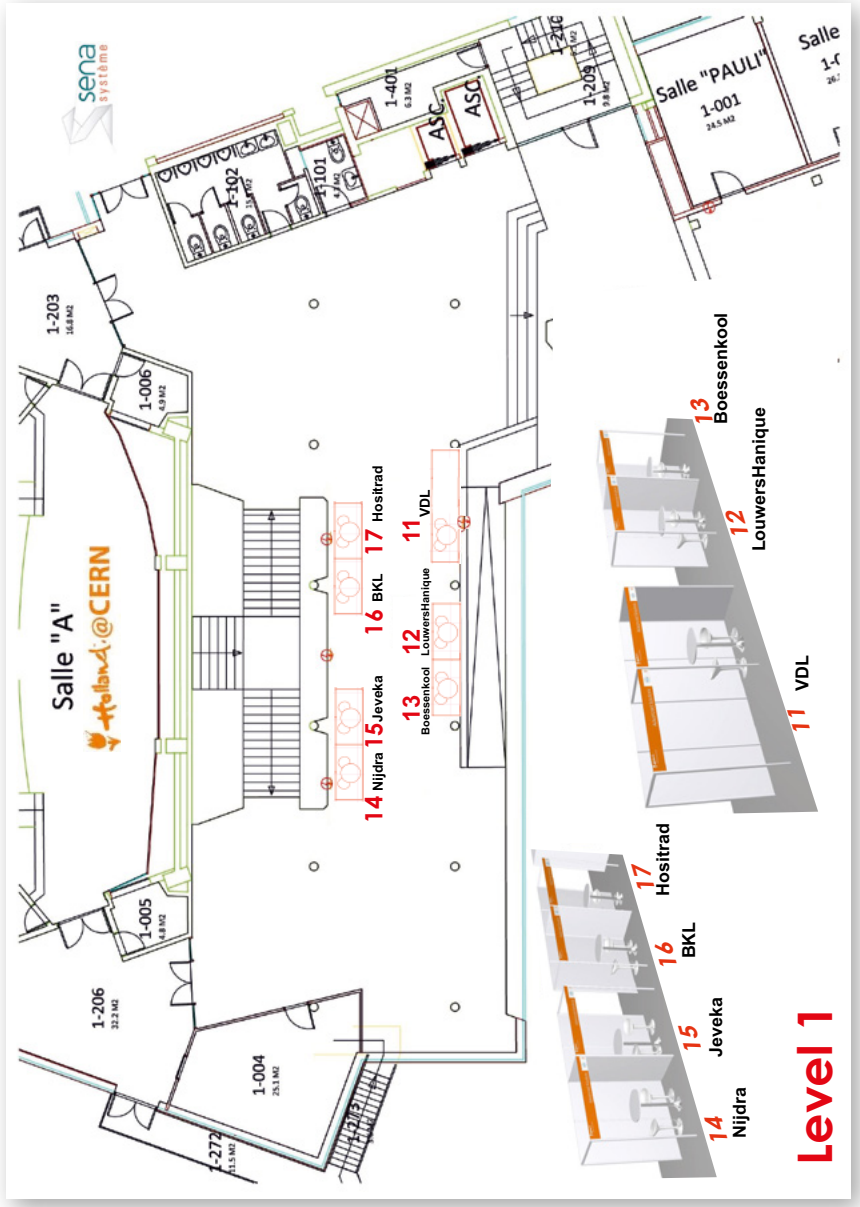
Floorplan

Ground Floor



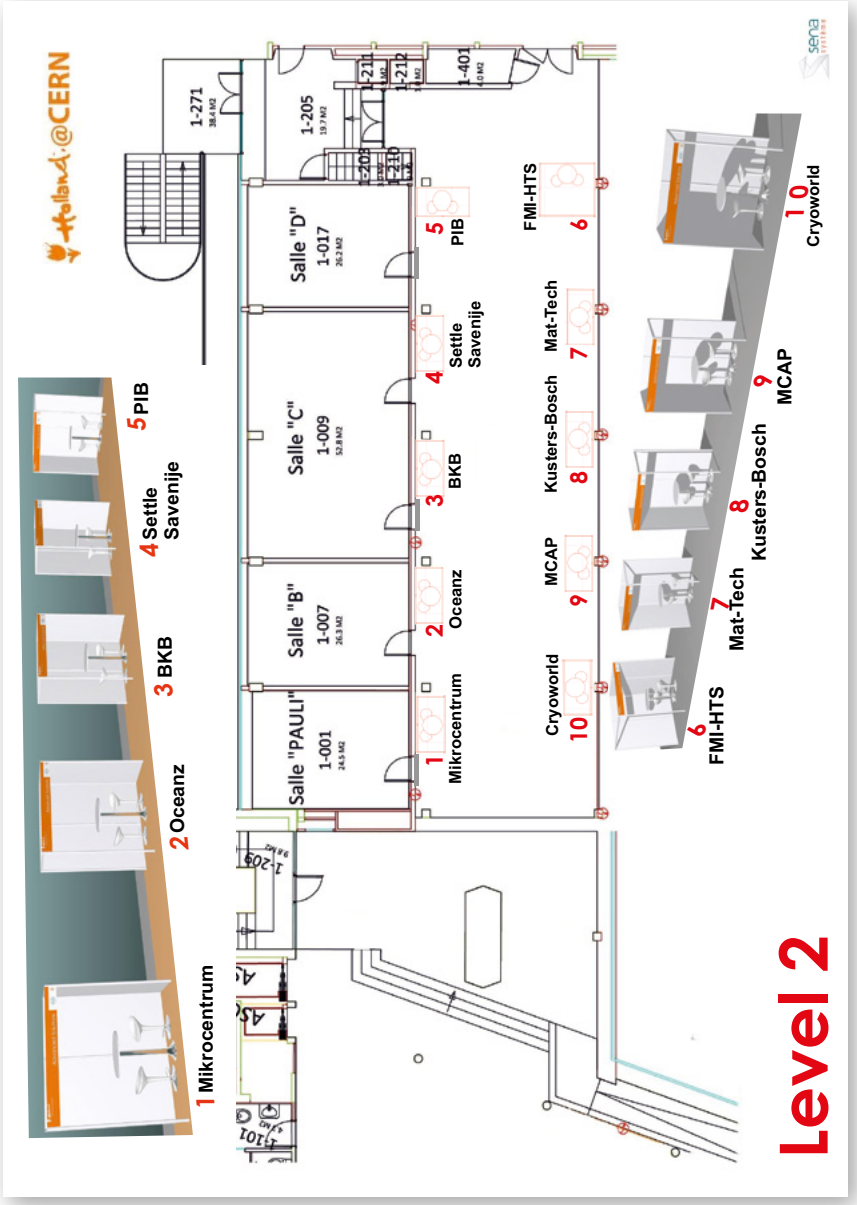
Floorplan

First Floor



Floorplan

Second Floor



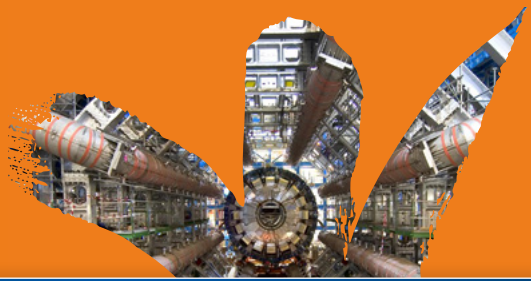
www.bigscience.nl

ILO's for Big Science

Name ILO / Affiliation	Email	Facility / organisation	Theme
Gerard Cornet	G.Cornet@sron.nl	ILO-Net coordinator	
Eric W. Boom	ericboom@upcmail.nl		Representing the Dutch Industry
Toon Verhoeven (DIFFER/ITER NL)	A.G.A.Verhoeven@differ.nl	ITER (F4E) – FR, ESS/ RID – SE, JET (EFDA) – UK, Asdex-U* – DE Wendelstein-7X* – DE IFMIF* (IEA)	Fusion facilities.
Jan Visser Rob Klöpping (Nikhef)	janvs@nikhef.nl klopping@nikhef.nl	CERN – CH ET-NL	Accelerator and gravitational wave facilities.
Ronald Halfwerk Michiel van Haarlem (ASTRON)	Halfwerk@astron.nl Haarlem@astron.nl	LOFAR – NL SKA	Radio Telescopes.
Wilfried Boland (NOVA + ESO)	boland@strw.leidenuniv.nl	E-ELT ALMA	Optical telescopes.
Paul Hieltjes (SRON)	P.J.Hieltjes@sron.nl	ESA/SRON	Space Science.
Daniel van Beekhuizen (NSO)	d.vanbeekhuizen@spaceoffice.nl	NSO	Space
Martin van Breukelen (HFML)	M.vanBreukelen@science.ru.nl	HFML – NL, Nijmegen EMFL – NL, FR, D	Magnets with ultrahigh fields.
Marck Smit (NIOZ)	Marck.Smit@nioz.nl		Coastal and Marine Research (including deep sea research and technology).

Notes

Until next time!



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