

# SMARTER AND GREENER INDUSTRY

Companies in the Oulu region,  
Finland



## CONTENTS

CAVERION .....	6
CHEMPOLIS .....	8
EHP ENVIRONMENT .....	10
EMPOWER .....	12
ENVITOP .....	14
FCG .....	16
FLEXBRIGHT .....	18
GREEN COMPANY EFFECT .....	20
GREENLED .....	22
HÄTÄLÄ .....	24
KEMIRA .....	26
KIERTOKAARI .....	28
KL MECHANICS .....	30
LEDISTYS .....	32
LEHTO GROUP .....	34
LUMOUS LIGHTING .....	36
MACON .....	38
MAINTPARTNER .....	40
MECTALENT .....	42
MEKA PRO .....	44
METALPOWER .....	46
MINIMA PROCESSOR .....	48
NESTOR CABLES .....	50
NORDIC TANK .....	52
OMP GROUP .....	54
OT SERVICE .....	56
OULUN ENERGIA .....	58
OUMAN .....	60
OWATEC GROUP .....	62
PLANORA .....	64
PROBOT .....	66
PROVENTIA .....	68
RAKEISTUS .....	70
RANDAX .....	72
RAUSTEEL .....	74
REACTIVE TECHNOLOGIES .....	76
REFECOR .....	78
SENFIT .....	80
SFTEC .....	82
SIKLA .....	84
SLATEK .....	86
SOLVED .....	88
SPECIM .....	90
STORA ENSO .....	92
STREAMSAVE .....	94
TACTOTEK .....	96
TERWA KIIINTEISTÖKEHITYS .....	98
TL SOLUTION .....	100
VALMET .....	102
VALTAVALO .....	104
WIND CONTROLLER .....	106
VOLTER .....	108



Oulu Capital  
of Northern  
Scandinavia



# 710

**MILLION EUROS** will be invested in infrastructure development by the city of Oulu in the coming years.

*Oulu region is growing and developing fast, offering a comprehensive selection of business opportunities and a solid platform to launch them. Thanks to its ideal location, Oulu is – among other things – also a perfect gateway to large and evolving Nordic markets.*

Read more at [oulu.com](http://oulu.com)

**Oulu Metropolitan Area:**

## 250,000

people

## 120

nationalities

## #1

in R&D investment in Finland, among the top in the EU

## 300–400

million EUR city center development projects

## #2

in Finnish airport traffic

## 37.4

is the average age of the people in Oulu – that is one of the youngest in Europe

## 35%

with university degree

[www.businessoulu.fi](http://www.businessoulu.fi)

# SMARTER AND GREENER INDUSTRY IN OULU

Oulu is famous for its high technology and ranks among the most intelligent cities in the world. The Oulu region also has wide expertise in basic industries, such as forest, metal and chemical industries. Today, Oulu is the global forerunner in the development of the future factory.

Our companies provide new solutions for industrial companies to automate their processes in order to improve productivity, product quality and efficient use of materials and energy.

Oulu has a unique ecosystem and excellent network for companies. Research institutions, universities and the public sector closely collaborate with industry. We have platforms and test environments for developing your products and services.

Oulu has an ideal location since it is surrounded by huge industrial investment plans in Northern Europe. These investments offer plenty of opportunities for subcontracting companies and innovative producers of added value.

Oulu is among the fastest-growing cities in the Nordic countries. The combination of Oulu's strong ICT expertise and cleantech knowhow provides excellent possibilities for new business. This catalogue presents innovative industry and cleantech companies that are creating a smarter and greener industry for the benefit of us all. You are warmly welcome to join us!

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# INDUSTRY 2026

– INNOVATION AT  
THE HEART OF BUSINESS

*Oulu is your home to expertise in a broad range of areas, including cleantech, digitalisation and health technology. The gateway to this world-class know-how is the Oulu Innovation Alliance (OIA) and its five ecosystems. Leading the charge in smart, clean and sustainable solutions is the Industry 2026 ecosystem.*

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OIA, founded in 2009, enhances Oulu's attractiveness to business and reinforces its position as an international centre of growth. This strong network of collaborators in research, education, business and the public sector fosters innovation, supports entrepreneurship and helps great ideas and research evolve into businesses. OIA makes Oulu the number one place for your business to expand.

Industry 2026 brings together expertise in varied fields: bioeconomy, metal industry, energy, circular economy and more. The common thread is smart solutions, cleantech and internationalisation. Led by the University of Oulu, Industry 2026 aims to become an internationally acknowledged expert in RDI and entrepreneurial activities by 2020. The success stories of Industry 2026 so far include many spin-off companies founded on research ideas and going global with revolutionary products and solutions.

In Oulu, you get all the assistance you need for productising, funding, testing and commercialising your product. Come to Oulu with an idea, and leave with a finished product in hand.

## THE FIRST CHOICE IN DIGITALISING ENVIRONMENTS

*Caverion designs, builds, operates and maintains intelligent and energy-efficient solutions for buildings, industries and infrastructures in Northern, Central and Eastern Europe.*

**D**igitalisation will revolutionise our industry. Our vision is to be the first choice in digitalising environments for our customers, employees and partners in industry. Our unique service offering covers the entire life cycle: design, build and maintenance. We are a technology forerunner providing excellent customer experience.

Our services and solutions are used in commercial, industrial, public and residential buildings and processes ensuring business continuity, safe, healthy and comfortable conditions, optimised performance and cost control.

Ensuring the safety of our employees, partners and clients is an inherent part of everyday life and management. Caverion's management and all employees are committed to complying with, maintaining and developing common safety rules.

Our goal is to become an accident-free workplace, and we focus on preventive safety work. We consider the environmental impact and energy efficiency of properties from the very beginning and evaluate the effects of technical solutions in terms of the entire life cycle. We design technical systems in such a way that they contribute to the energy efficiency of the property and that their maintenance takes up a minimum amount of resources.

» [www.caverion.fi](http://www.caverion.fi)



## BIOREFINERIES ARE SOLVING THE PROBLEMS THE GLOBE IS FACING

*Greenhouse gases and global warming, particle emissions, declining forest resources, shortages of food and water and plastics in our food chain are daily hot discussion topics in main news streams.*

**W**e at Chempolis have been working over two decades to solve and overcome these challenges and increase sustainability level of companies by using our advanced formico® biorefining technologies.

Our formico® biorefining technologies and our expertise across the entire processing chain – from biomass to end-products – enable companies to use residual biomasses from advanced liquid transportation fuels, biochemicals, bioplastics, paper and textiles with the co-production of green power, while enabling societies to:

- Reduce the greenhouse effect and air pollution
- Reduce the use of fossil raw materials
- Reduce the use of plastics
- Improve circular economy

And naturally improve sustainability in its all aspects – economic, environmental and social

» [www.chempolis.com](http://www.chempolis.com)

# Biorefining **OUR FUTURE**



## ENVIRONMENTAL ONLINE MONITORING AND SAFETY YOU CAN TRUST

*EHP Environment Ltd. provides modern solutions for online monitoring. Our monitoring stations can be operated remotely in harsh conditions, and they bring data to our customers in an easily understandable form. Map-based systems, mobile applications, early warning and alarms systems are our expertise.*

**E**HP Environment Ltd. provides modern solutions for real-time online environmental monitoring. We design, manufacture, install and operate monitoring stations. Over 800 monitoring stations have been delivered to Northern Europe.

Specialties like online oil-in-water and dissolved heavy metals monitoring make us forerunners in the field. Our customers include public authorities, research institutes, mining and heavy industry, among others.

EHP Environment Ltd. offers a completely unique and modern environmental monitoring concept, EnMonCon. Developed together with supervising authorities, the solution creates more important real-time information

about the environment and remarkably lowers costs of current monitoring programs.

By emphasizing on-line environmental monitoring and reducing manual sampling, a much more comprehensive, real-time knowledge of environmental load is achieved. This helps to avoid environmental accidents and enables controlling processes and actuators according to measurements. Measurement data from remote monitoring stations is transferred automatically to the EHP-Dataservice, where it's available 24/7. Numerous useful features help you easily understand and get the most out of your measurement data.

» [www.ehpenvironment.com](http://www.ehpenvironment.com)



# MAKING INDUSTRIAL DIGITAL TRANSFORMATION A REALITY

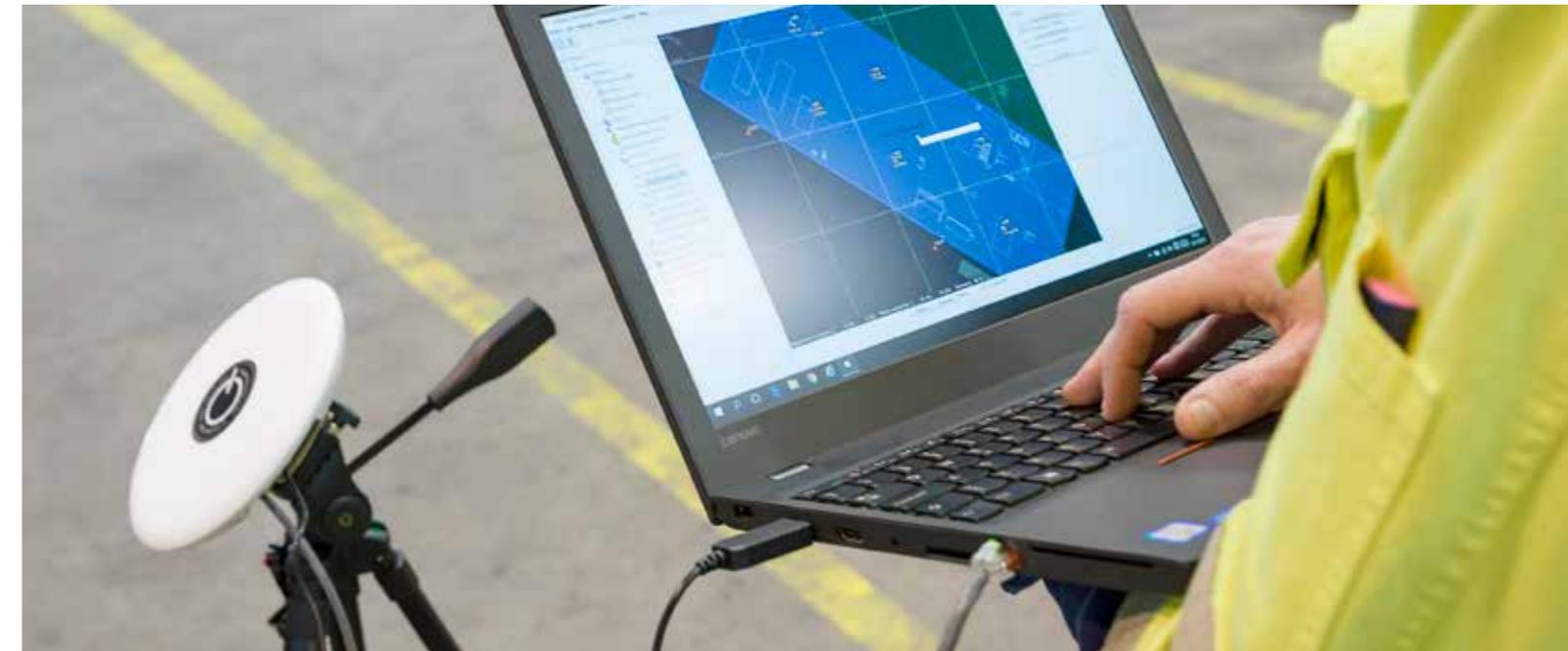
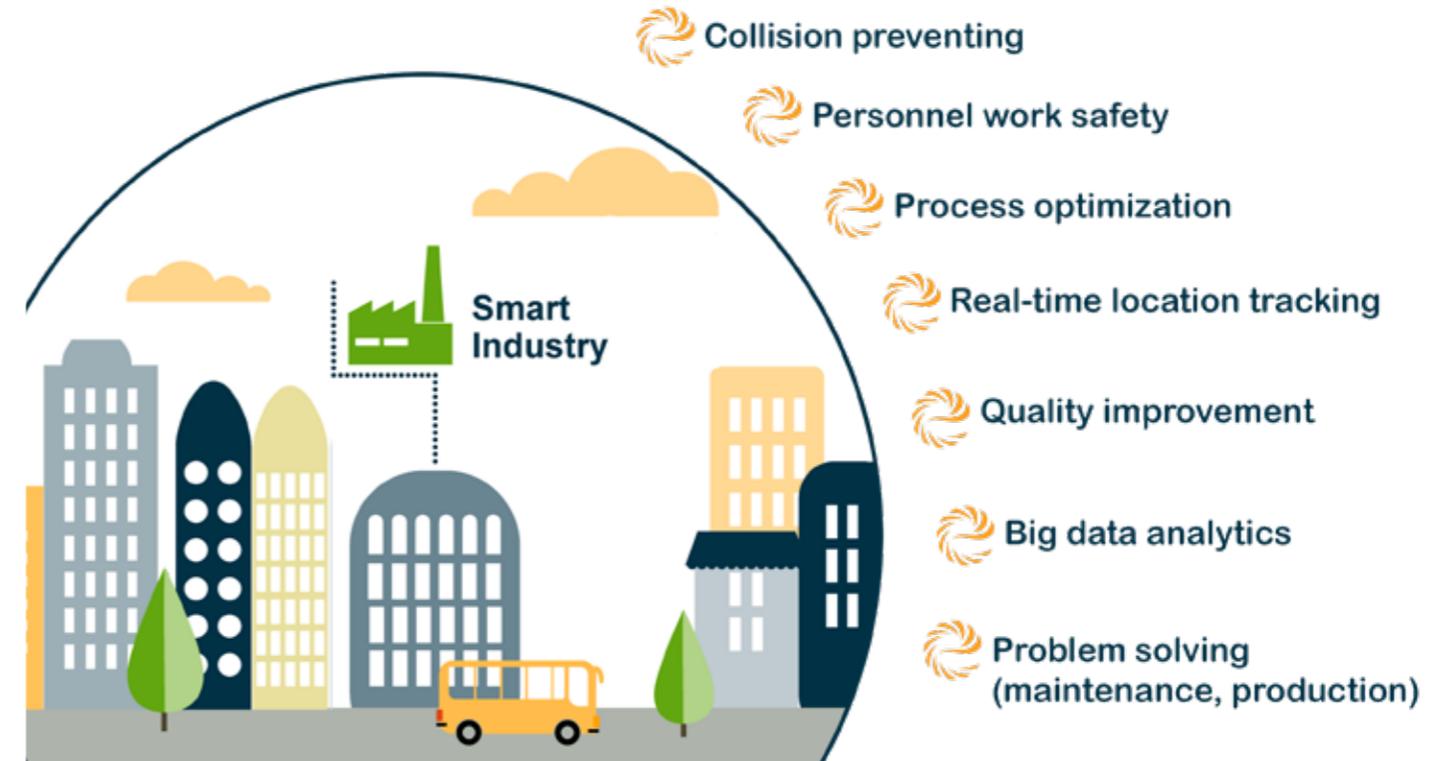
*Empower is a multinational company building a smarter society.*

The company develops digital platforms for customer needs, utilizing its strong competence in services ranging from building and maintaining electricity and telecom networks and maintaining factories and power plants to delivering information management systems and services to the energy sector. The company operates in the Nordic countries and in the Baltics.

The Internet of Things and global digitalization are transforming manufacturing and industrial operations at large. Empower's Smart Industry solutions focus on creating new value for customers by providing new services and renewal of current core business operations and processes.

Our Smart Industry solutions are driven by our customers' objectives, and our portfolio currently covers digital innovations in the areas of factory and mill operability, operations efficiency and work safety.

» [www.empower.eu/en](http://www.empower.eu/en)



## CREATING CIRCULAR ECONOMY FOR INDUSTRIAL WASTE

*Envitop Oy turns industrial waste problems into end-of-waste and utilisation solutions through environmental research and by connecting waste producers (metal, mining, pulp and paper industry, municipalities), waste recovery and transfer companies, waste end users (constructors) and authorities.*

Our mission is to increase circular economy through an open and risk-based approach, in compliance with environmental legislation and criteria and by simultaneously finding markets for reusable materials. Our chemical and geotechnical studies are understood by engineers, managers, constructors, environmental authorities and anyone outside the field.

As an example, the metal industry generates millions of tonnes of slag yearly worldwide. A part is reused as construction material, and the rest is discarded as environmental characteristics are unknown. Envitop was asked to evaluate the environmental acceptability of slag materials collected throughout the world.

Leachability was compared to the EU limits values for inert solid waste, which has negligible potential to cause environmental harm. More than 80% was chemically stable inert material, and the rest was classified as non-hazardous waste. Because of these positive findings, the research continues.

The results encourage the authorities to define an end-of-waste or by-product status for such materials and to reconsider environmental permits and regulations. For the industry, this means huge savings on waste disposal and taxes as well as additional product sales profits.

» [www.envitop.com](http://www.envitop.com)



## SERVICES FOR INDUSTRY

*The design of industrial sites requires diverse information and broad expertise. Environmental issues are often associated with permit processes, the climate, filtered water and groundwater, wastewater treatment, water monitoring, vibration and noise. FCG offers a high level of expertise and skills.*

### Hydraulic balance management

- Raw water intake
- Raw and process water and wastewater management
- Raw and process water and wastewater treatment
- Closed water circuits
- Storm water management and drainage
- Optimisation of energy and operating costs

### **Technical Due Diligence (TDD) and Environmental Due Diligence (EDD)**

#### Infrastructure construction

- Terrain engineering and measurement
- Geotechnical design
- Regional planning, railway, roads, pipelines, waterways
- Port and pier structures, water construction
- Dams and dam safety

### Construction

- Architectural design
- Structural design
- HVAC design
- Landscape and yard design
- Development services and supervision
- Repair and construction

FCG is one of the largest consultant companies in Finland. Our extensive engineering- and technology-related service portfolio covers community planning, construction and renovation, land use planning, geotechnology and structural engineering, traffic and routes, water maintenance and research, environmental consulting and energy and climate services. We also provide all industries with property development and maintenance services. Our diverse expertise, experience and skills are at your disposal!

» [www.fcg.fi](http://www.fcg.fi)



## SMART LIGHT, NEW LIFE

*Finnish high-tech company Flexbright Ltd aims to revolutionise the world of lighting thanks to its ultra-thin LED light foils. The newly started Roll-to-Roll production line in Haukipudas is the first of its kind in the world.*

**F**lexbright has developed one of the most innovative products in lighting: LEDFOIL, in collaboration with the Technical Research Centre of Finland. The exciting new technology is based on Roll-to-Roll mass production capacity, massive lighting power, IoT capabilities, low energy consumption and, most importantly of all, an ultra-thin flexible construction that is less than one millimetre thick.

LEDFOIL can be used in a number of different industries, from aerospace right through interior design and auto motives to general lighting. With the lighting market being worth over €60 billion, the global market potential is huge.

» [www.flexbright.fi](http://www.flexbright.fi)



## FIND THE MOST SUSTAINABLE COMPANIES IN ONE PLACE

*The world's biggest window into sustainability. Millions of viewers and thousands of companies and brands on the same platform.*

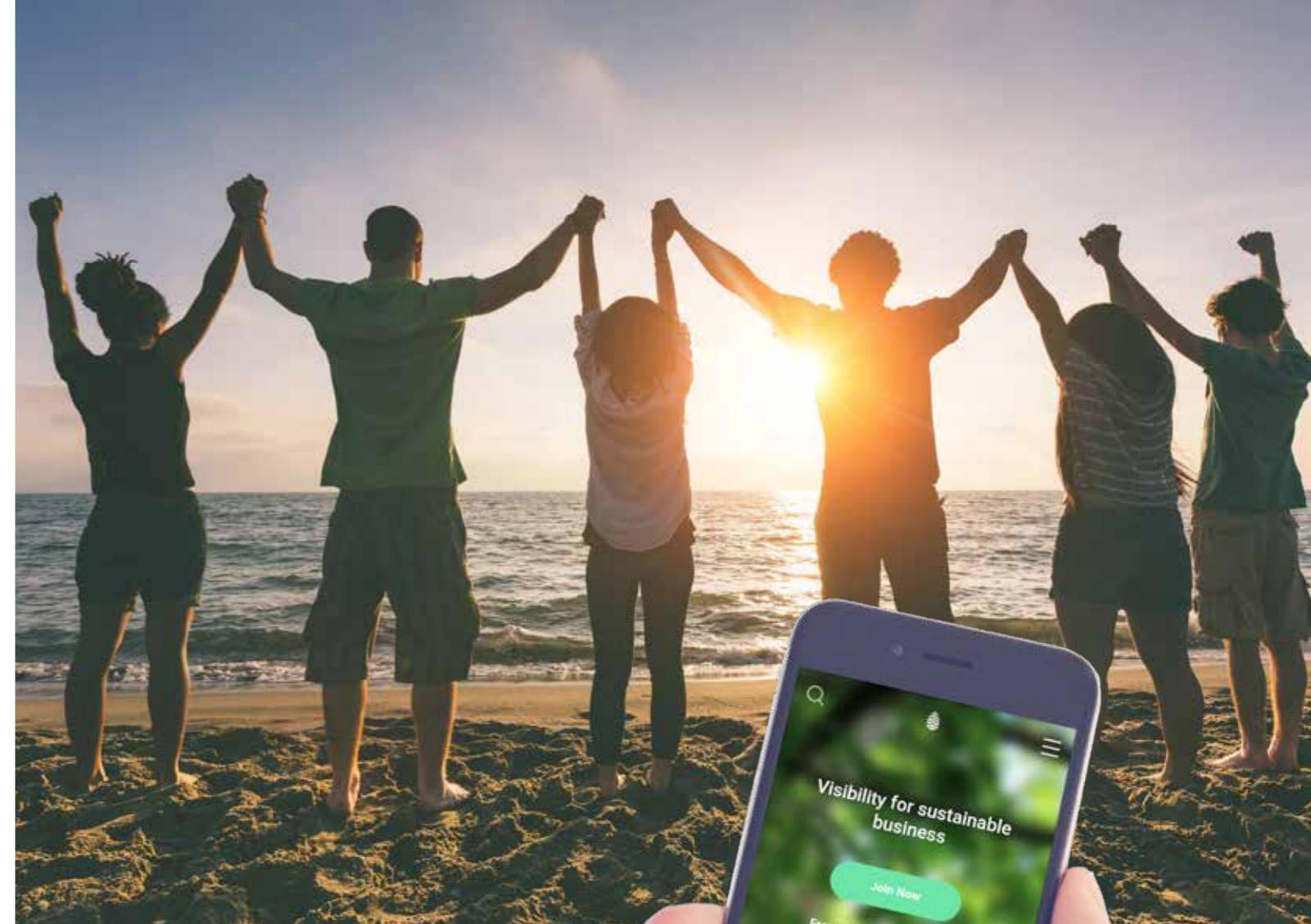
Green Company Effect, GCE, is a social media platform concentrating on sustainability. The sole purpose is to connect companies and consumers on one platform to make sustainable efforts visible and transparent.

It is meant for all types of companies – not only cleantech and social enterprises, but all companies that have sustainability as a value, and even cities and organizations, big or small, globally. Companies and organizations have a great impact on the environment and social well-being for us all. Companies already do a lot to be sustainable, but these actions are hard to find. In GCE we call these good actions DEEDs.

Consumers are aware, and they are interested in choosing products and services from sustainable companies. With GCE, everyone gets to easily view what companies are doing and make responsible choices.

Together We Can Change the Future. Let's Do It. Good deeds for our world.

» [www.greencompanyeffect.com](http://www.greencompanyeffect.com)



## PROVIDING ADDED VALUE THROUGH SMART LIGHTING SOLUTIONS

*Greenled is a lighting solution provider to companies and public sector. We assist our customers in adding value to their business activities by offering smart lighting solutions with respect to principles of sustainable development.*

We provide smart LED lighting solutions for many industries like shops, parking areas, offices, manufacturing, logistics, sports halls, street and area lighting, and public sector. As a turnkey solution provider for indoor lighting, customers can purchase everything from solution to service from us – from lighting planning and product delivery to installation and deployment, according to the customer's exact needs.

Our smart lighting solutions improve occupational safety and work efficiency, add comfort and sales, and take energy-efficiency to a whole new level. The all-inclusive Lighting as service concept includes planning, installation and maintenance with monthly payments.

The energy savings gained from installing smart lighting covers the costs – no investment needed.

Greenled's high quality lighting solutions enable energy-efficiency and environmental friendliness guaranteed by their long lifecycle. The luminaries are produced using clean and recyclable materials, with the principles of sustainable development at the core of all operations. Our headquarters and production are located in Finland, and we also have two subsidiaries - Greenled GmbH operating in Germany and Greenled Ab operating in Sweden.

» [www.greenled.com](http://www.greenled.com)



## MARKET LEADER IN PREMIUM FISH PRODUCTS

*Fourth generation family business Hätälä produces fair northern fish close to the Arctic Circle in Finland. With 80 years of experience, we combine traditional handicraft with modern technology to create a wide range of premium fish products for both domestic and international customers.*

The story of Hätälä began in 1938 when Juho Isohätälä started selling fish on the market square in the port city of Oulu, Finland. Hätälä is still a true family business, and we are proud to uphold traditional family business values. We aim to serve our customers at least as well as when the fish were sold one at a time and face-to-face at the market.

Hätälä's production facilities are situated close to the Arctic Circle and the clear waters of Northern Norway, from which we source the freshest salmon. The salmon's journey from Norway to our factory takes only 8–12 hours. This is why the salmon we use is always very fresh.

We buy our Finnish fish from professional Finnish fishermen. They are our valued partners, and we have worked with a number of them for three generations. Hätälä supports local fishermen, for instance by offering long-term contracts and assisting with transportation.

Hätälä has been awarded the highest rating from the BRC, the international certification that informs the customer about the high quality and safety of the seafood. Hätälä is part of a select group of European food companies that have achieved the coveted AA rating.

» [www.hatala.fi](http://www.hatala.fi)  
» [hatalafish.com](http://hatalafish.com)



## SOLUTIONS FOR WATER INTENSIVE OPERATIONS

*Kemira is a global chemicals company serving customers in water intensive industries. We enable you to improve your water, energy and raw material efficiency through chemistry expertise, application know-how and smart technologies. We offer a full portfolio of water treatment chemicals.*

**W**e support municipalities and water intensive industries in optimizing every stage of their water cycle. We offer leading application expertise for raw water, wastewater and sludge treatment technologies and provide the most comprehensive portfolio of water treatment chemicals.

We support water intensive industries – from energy to food & beverage and metals & mining – in the efficient and sustainable utilization of resources and process water treatment. In oil and gas applications, our chemistries enable improved yield from existing reserves and reduced water and energy use.

Get comprehensive support with any chemistry application you need through our global network of highly skilled experts.

Water treatment is at the core of our business, and we continually invest in R&D to bring new innovations to market through our R&D centres on three continents.

Our manufacturing and logistics network guarantees you a reliable chemical supply worldwide. With our Supplier Performance Evaluation program, we assess our suppliers for delivery compliance and quality and perform sustainability assessments to ensure they meet our strict requirements for responsible business conduct.

» [www.kemira.com](http://www.kemira.com)



## ENABLING SUSTAINABLE CIRCULAR ECONOMY IN THE OULU REGION

*The strategic focus of Kiertokaari is to enable the transition towards circular economy through our own actions and through cooperation with competent partners while providing residents with high-quality municipal waste management services.*

We provide citizens and customers with reliable high-quality municipal waste management services while securing the comfort of the surrounding area and the health of the residents. Waste management is carried out as part of the material and energy economy, ensuring an efficient use of resources and responding to the challenges of global climate change.

A good example of our strategy is using biogas as an energy source for us and for industry as well as the utilizing it as transport fuel. Biogas has been collected from the landfill for over 20 years, and, since 2015, it has also been generated in the Gasum Ltd's anaerobic

treatment process plant located in the Rusko Waste Treatment Centre. In addition to biogas, the plant generates nutrient discharge that is used as fertilizer.

Rusko is an ideal location for testing and for circular economy pilot projects. The area is already commissioned for treatment of waste materials, and it has gathered together a number of material resource experts. We are currently looking forward to starting up more circular economy projects together with new partners through our CircHubs project. Join us!

» [kiertokaari.fi](https://kiertokaari.fi)



I am using  
RUSKO BIOGAS

## CUSTOM MACHINE SHOP. PRECISION MECHANICS & ASSEMBLIES

*Trusted vendor and Nordic subcontractor with over 25 years of expertise in precision mechanics. At KL Mechanics, we offer versatility, high capability and comprehensive services. Engineering – CNC machining – Assembly – 3D-measuring – Injection & PUR Moulding – RPC.*

Modern manufacturing technology in the form of multi-axle CNC machines and multi-function lathes enables high precision and short lead times. KL Mechanics has long-term experience in working with demanding materials such as plastics and special steels. Our machine stock enables proto and small-series production flexibly and cost-effectively.

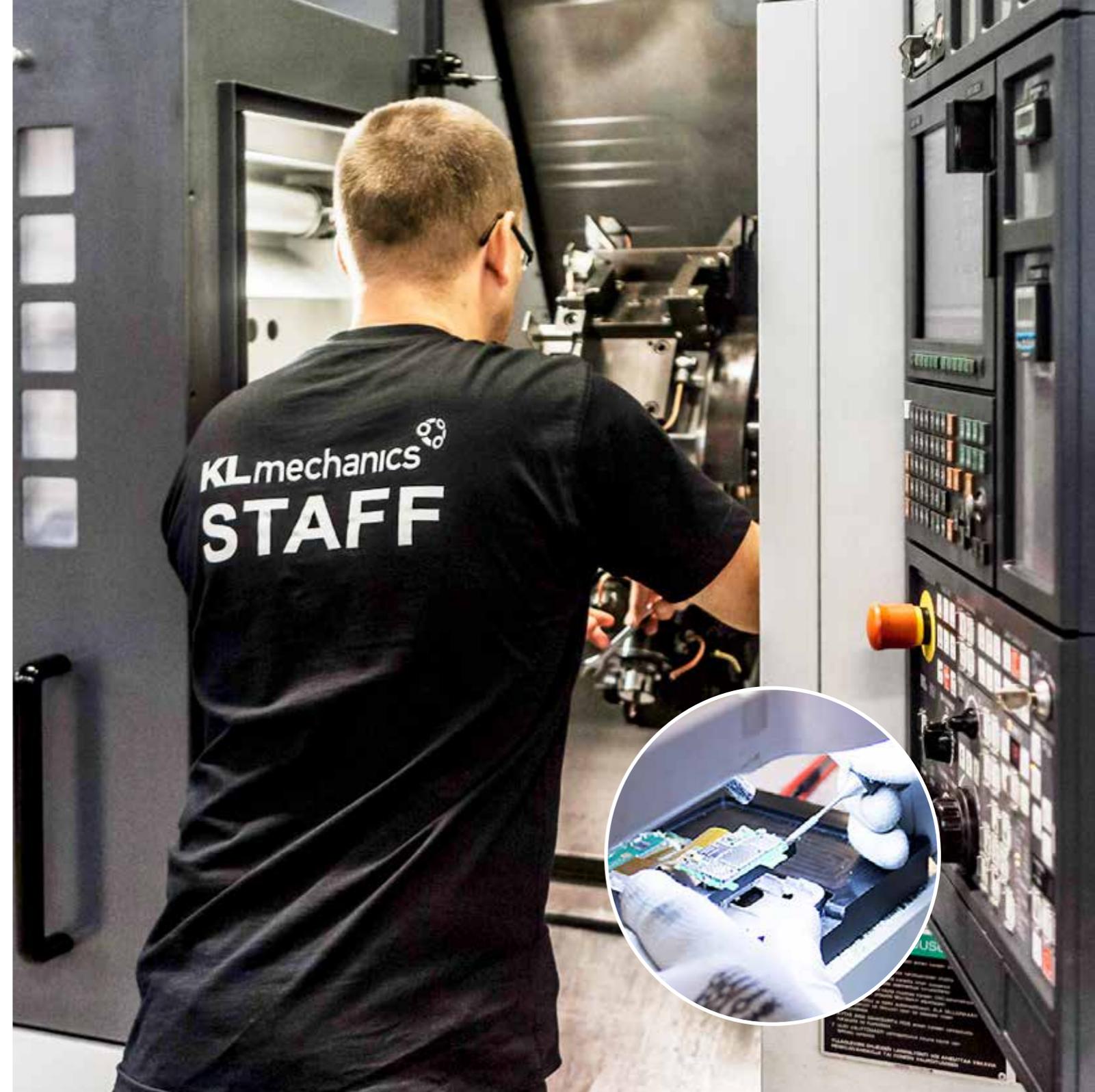
Our designers' solutions range from precision mechanics to demanding assemblies and automation equipment. Expertise, experience and high-quality design software meet at KL Mechanics, and we are able to respond to our clients' needs quickly and flexibly. Advantages of in-house design and manufacturing are turn-key solutions, fast lead times, design for manufacturing and cost efficiency.

We are experts in demanding equipment assemblies such as optomechanical measuring and test equipment, robot grippers, test beds and assembly jigs. Our final assemblies consist of machined mechanical parts and carefully selected purchased components.

Our key values are customer-orientation, trust, punctuality and flexibility. They mean high quality, quick deliveries, projects carried out effectively and cost-effectiveness.

KL Mechanics is certified with ISO 9001:2015 & ISO 14001:2015 standards.

» [www.klmechanics.fi](http://www.klmechanics.fi)



## COST-EFFICIENT LED LIGHT SOLUTIONS

*Ledistys Oy designs, manufactures and sells high quality and cost efficient LED light fixtures and control systems. Thousands of industrial, warehouse, sport and agriculture halls are illuminated with Ledistys Moduled and Profiled luminaires.*

Ledistys Oy offers customized service that helps our customers in their lighting projects from the planning phase through implementation. Our offering is a composition of high quality LED luminaires, professional planning, optimised individual solutions and efficient implementation. The perfect lighting solution is often tailored individually for each location as they all have varying needs.

Our LED fixtures are modular and vary in power from 31W to 400W depending on the requested solution and installation height.

By changing the current lights to Ledistys LED fixtures, customers will benefit in energy saving and lowered maintenance costs. Installation of LED lights is fast and hassle-free, and Ledistys can offer full turnkey solutions from design to installation.

Customers can benefit with additional savings by having a dimming control for the LED lights. That means even faster pay-back time.

» [www.ledistys.fi](http://www.ledistys.fi)



## ECONOMICALLY DRIVEN CONSTRUCTION

*Lehto is a fast-growing Finnish construction and real estate group. We operate in four service areas. Our economically driven operating model makes construction more profitable, ensures the quality of construction and brings great time and cost savings.*

A key element of economically driven construction is repeatable standard solutions, which speed up design processes and construction. It also involves innovative module and element production at our own factories, which guarantees a moisture-controlled process and higher quality than using traditional construction methods.

Lehto builds homes in growth centres, near good traffic connections and versatile services. In the Business Premises service area, Lehto builds modifiable and reasonably priced office, retail, logistics, storage and production premises, sports arenas and shopping centres. In the Social Care and Educational Premises

service area, Lehto plans and builds nursing homes, day care centres and schools for the communal sector and nationwide service providers as well as assisted living facilities for seniors.

In the Building Renovation service area, Lehto carries out pipeline renovations for blocks of flats, building renovations and projects in which 1–2 additional floors are built on top of existing buildings. We seek to maximise cost-effectiveness without compromising on quality and high customer satisfaction for local, national and international customers.

» [www.lehto.fi](http://www.lehto.fi)



## INTELLIGENT LIGHTING SOLUTIONS

*Lumous Lighting is a provider of intelligent lighting solutions. We develop LED luminaires, intelligent lighting control systems and lighting technology. Our products are energy efficient, ecologically sustainable, trustworthy and long-lived.*

Our intelligent lighting solutions create befitting and pleasant lighting. The full potential of our product line becomes apparent when lighting is viewed as an investment, where plenty of light is needed for long periods of time, and lifespan costs turn into a central selection criterion.

The Lumous Lighting solutions and products include LED luminaires, intelligent control systems, and technology platforms of these. The common denominators are energy efficiency, durability, easy maintenance and excellent lighting control.

Thousands of Lumous Lighting solutions have been implemented around the world. Our products light roads, streets, parks, outdoor areas, bridges, underpasses, sports and recreational areas, industrial sites and petrol stations.

Intelligent lighting brings forth enormous potential in energy savings and creates optimized lighting solutions in a completely new way. The Lumous solutions open this potential for all your needs with public outdoor lighting and industrial lighting.

» [lumous.fi/en/](https://lumous.fi/en/)



## MIKKO AHOKAS CONSULTING OY

*Macon offers versatile consulting services. We have one of the best environmental and industry expert networks in Finland, and we offer unique access to specialist expertise and analytical tools.*

**W**e are expert strategists, helping our clients with their most complex environmental and energy strategic challenges. We are building tailored solutions to help our partners achieve sustainable growth.

» [www.macon.fi/home](http://www.macon.fi/home)

Macon experts would like to help you with environmental and sustainability issues to reduce your company's risk, optimise opportunities, create competitive advantage and deliver responsible and sustainable businesses from feasibility, pre-engineering and project management. We can also help you reduce energy bills and deliver future energy schemes to help build a sustainable future.



Growth in  
**Cleantech**  
and Bioeconomy

## INTELLIGENT CARE OF INDUSTRY AND ENERGY

*The way industrial and energy plants are operated and maintained is not indifferent. A well-maintained facility produces more but consumes less. Systematic, proactive maintenance minimizes unplanned production stoppages and their costs and extends the life cycle of machinery and equipment.*

Maintpartner keeps your production facilities operating and in good condition all around Finland and in Sweden, Poland and Estonia.

We help our customers improve the productivity of their plants and minimize process disruptions. We are also a safe partner for all kinds of modification and development projects.

We can support you in operation and maintenance activities all year round. Besides long-term operation and maintenance partnerships, we offer specialised project, engineering and installation services to industry.

Our productivity and digital solutions raise industrial operation and maintenance to a new level. Our digital solutions include criticality classification, and maintenance modelling and simulations. It also includes the predictive analytics system MP Intelligence®, which analyses the systems data 24/7 and is able to warn of malfunctioning machines and process disruptions long before the facility's own systems react.

Everything from our management practices to organization and tools are defined for industrial service businesses. The certified Maintpartner Way serves as basis for customer-specific operational models. It has also helped us raise our occupational safety to an outstanding level.

» [www.maintpartner.com](http://www.maintpartner.com)



## MECTALENT OY

*Mectalent is a top expert in component manufacturing and precision mechanics. Our main focus is on new technology, medicine and the defence industry.*

Our strengths are in precision, security and monitoring mechanics, method development, component manufacturing, assembling and surgical instruments and implants.

We will serve you comprehensively in each step of the production process: we brainstorm, design, analyse, prepare, measure, document and test. We will also take care of the CE-approval of your medical instruments.

Our plan and production services and Mectalent Express will save you time, effort and resources. Our thorough planning service guarantees that your production is fluent and cost-efficient.

Our production service takes care of everything from the idea to the final product – a true one-stop service. And when your need is urgent, and you want your innovation out on the market fast, Mectalent Express is the answer.

» [www.mectalent.fi](http://www.mectalent.fi)



## ROBUST AND VISUALLY APPEALING DESIGN IN HEIGHTS

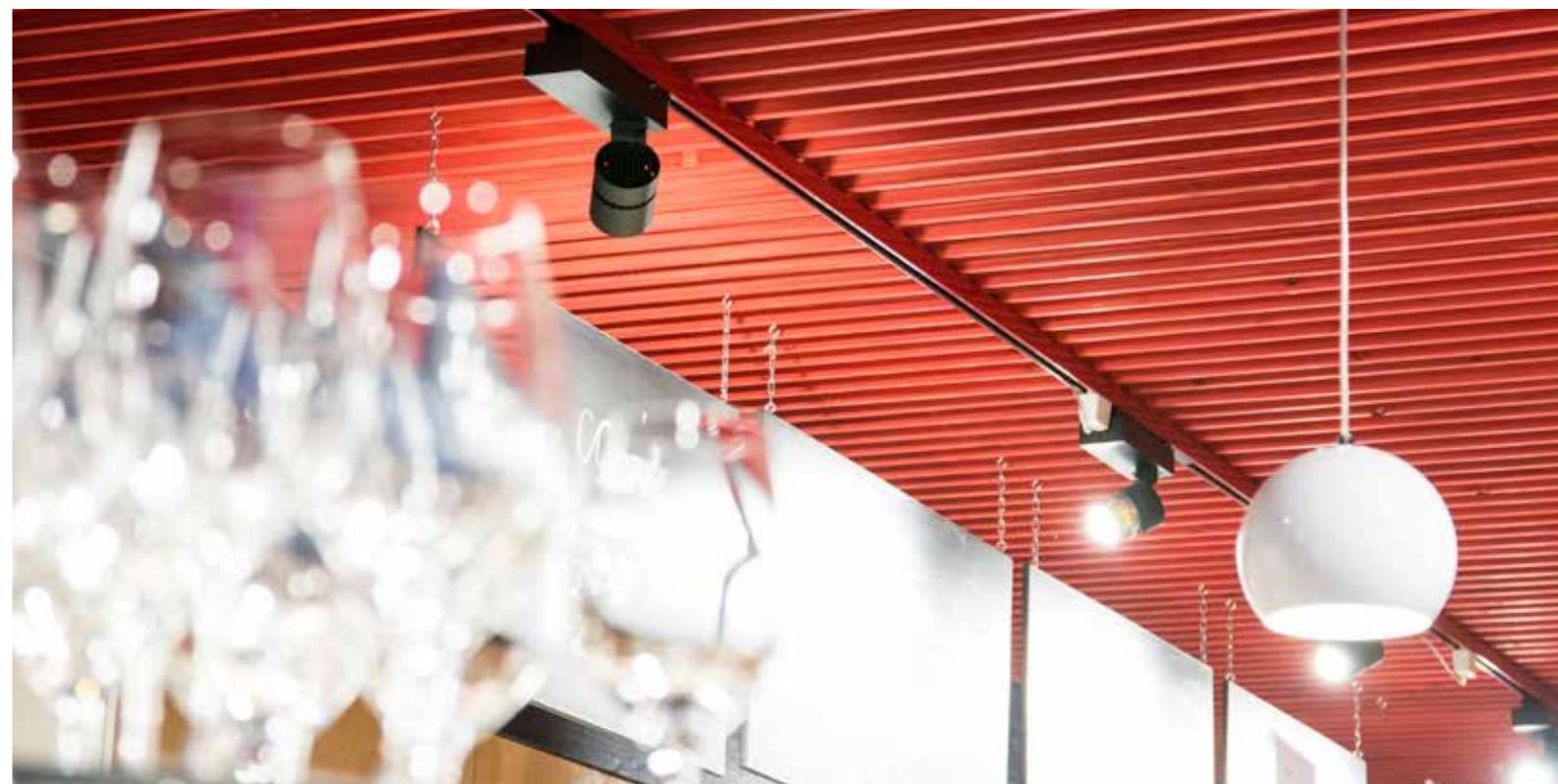
*We believe Finnish determination and seamless cooperation are the keys for success. With high-quality materials and exact manufacturing processes, Meka Pro Oy has a long history in the Finnish industry.*

Meka Pro Oy produces high-quality and competitive cable support systems in Oulu for various construction projects around the world. Key factors in our product design are quality, strength, fluent installation and a long life cycle. Meka Pro Oy's sister company Unipro Oy designs, manufactures and supplies unipro® lighting track products. Smoothly designed unipro® lighting tracks and accessories are easy to install and visually appealing.

MEKA® and unipro® are well known brands by professionals around the globe. Over the decades, thousands of cable support and lighting track systems have been installed. Installations can be found in various industry and power stations, shopping malls, offices and tunnels in over one hundred countries.

The company's production and logistics are kept at a high level by improving automation and work methods. Reliability of delivery is excellent. Product design is done in close cooperation with the production team, customers and end users. Active relationship between sales and customers is a valuable asset while creating ideas for new products. Our goal in all actions is a satisfied customer.

» [www.meka.eu](http://www.meka.eu)



## MASTER OF METAL

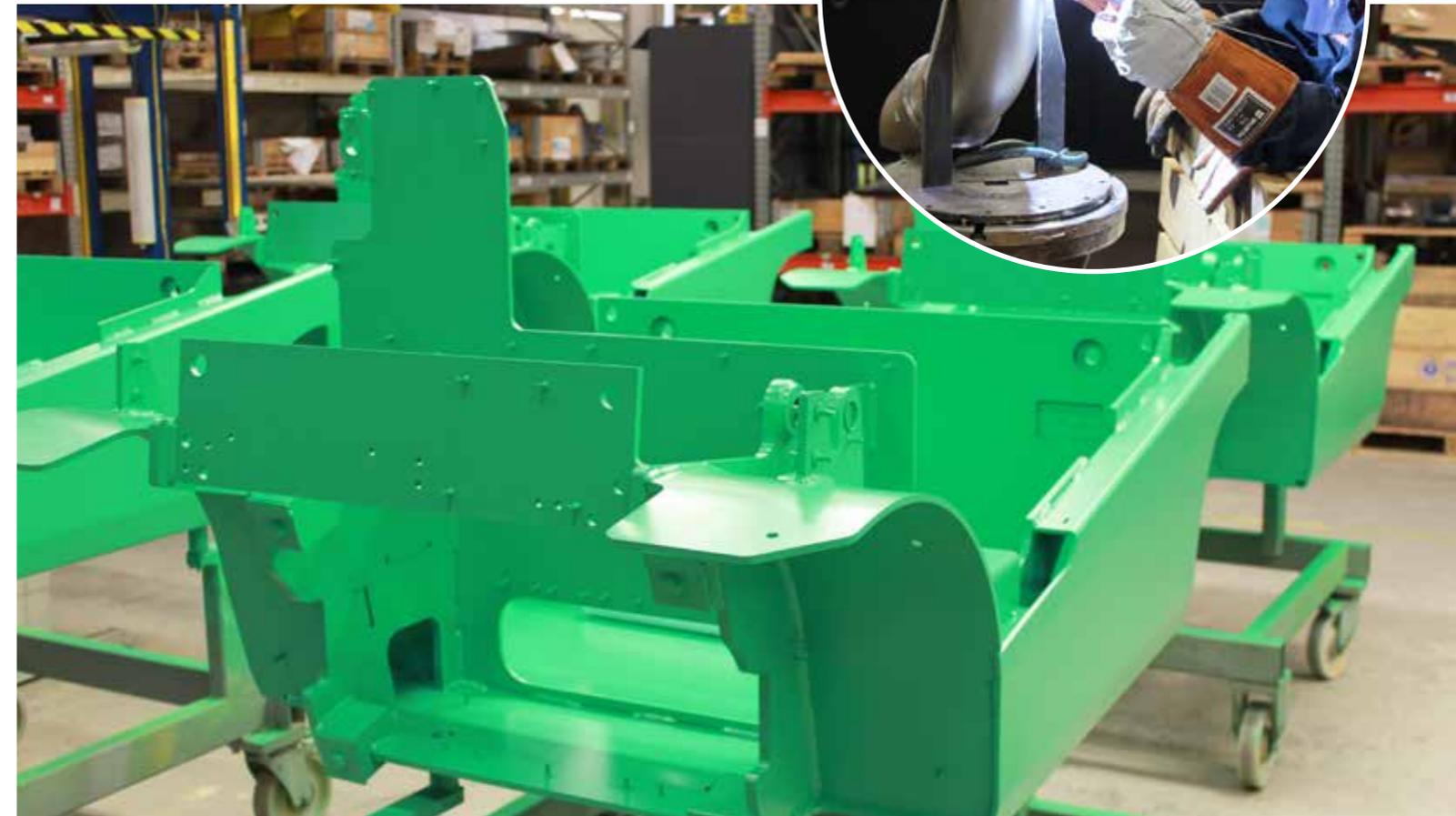
*Metalpower Oy is a contract manufacturer of metal products and components offering your business the opportunity to centralize your acquisitions into one professional company.*

Quality emerges from the cooperation of experience, modern technology and craftsmanship. Our company possesses modern production machinery. In terms of quality, the most essential thing is that our staff consists of professionals who know how to utilize advanced technology in the best possible way.

Flexibility and change management can be seen in our product and tool design where a tight collaboration with the client helps us find the best manufacturing solutions right from the beginning of the product's lifespan. Manufacturing samples and prototypes are everyday things for us, and we get the right feedback about the manufacturability of the products to the client.

Metalpower Ltd. was founded in 1991, and it is a part of the Terra Patris enterprise group, under private Finnish ownership. The company has a total of 12,000 square metres of production space at two separate locations in the Oulu region, in Tyrnävä and Kempele, and we employ about 120 persons. Some of our key clients have been with us throughout our history.

» [www.metalpower.fi](http://www.metalpower.fi)



# Minima

## WE TURN SCIENCE FICTION INTO REALITY WITH SCIENCE

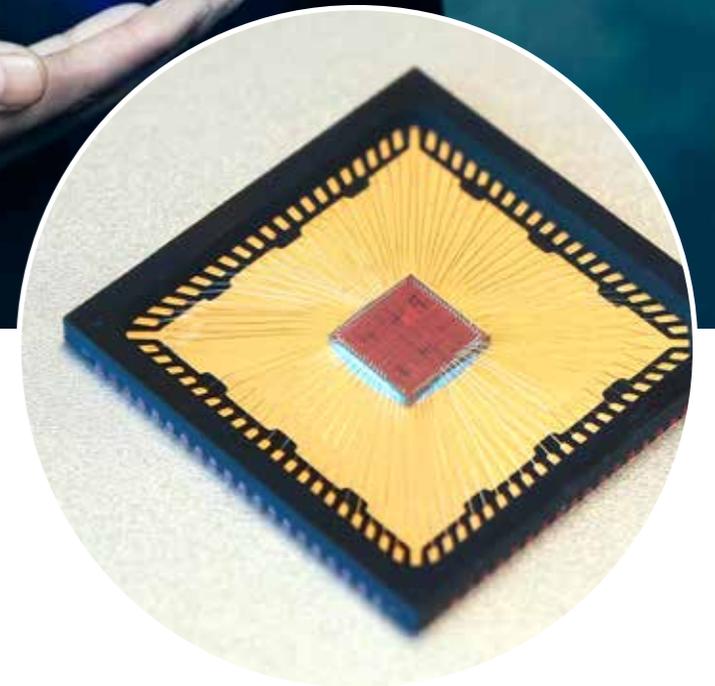
*Minima Processor Oy (Oulu, Finland) was founded in April 2016 to develop sub-threshold voltage processors based on technology developed by VTT Technical Research Centre of Finland Ltd. and the universities of Aalto and Turku. Minima was a founding partner in the RISC-V open hardware foundation.*

Minima Processor's technology improves energy efficiency up to 15–20x in digital processors compared to legacy solutions. This is the key to all new technologies, including edge computing, smart dust, energy harvesting, in-body medical, voice wakeup, low-power wide area networks and IoT security. The main efficiency increase comes from the ultra-low voltage, i.e. subthreshold operation and, additionally, the elimination of timing margins brings gains at nominal operating voltages. Compared to other upcoming solutions, which depend on painstakingly long NRE, our solution is fully scriptable and mainstream CAD compliant. Therefore, it allows scalability over different architectures and semiconductor processes. Moreover,

what differentiates us further from other low-power start-up companies is the middleware tied to the technology, enabling excellent compatibility with fine-grained DVFS.

So, you choose a processor, and we turn it into an extraordinarily low energy consumption product that is ready for the mass markets. For you, it means lower production costs, design flexibility, a wider range of applications, and greater reliability. For us, it means that we have succeeded in doing something that many have attempted.

» [www.minimaprocessor.com](http://www.minimaprocessor.com)



## A FINNISH CABLE MANUFACTURER AND DEVELOPER

*Since 2007, Nestor Cables' factory in Oulu has manufactured tens of thousands of cable kilometres each year. The cables – fibre optic cables, copper telecom and instrumentation cables – are delivered to projects all around the world to create reliable modern communication networks. The cornerstones of Nestor Cables' operation are their commitment to high-quality and long-standing experience in cable industry.*

Nestor Cables' fibre optic cable product range includes products for different installation conditions and special circumstances. Their typical customers are telecom operators, network contractors and wholesalers. Fibre optic cables are also used in power stations, security sector, industrial facilities and various special projects – recently, Nestor Cables supplied cables for applications in data centres and wind power farms. Portable fibre optic cable units by Nestor Cables are used by both defence forces and civilian actors, including event organizers and media companies.

The NesCon product family by Nestor Cables includes essential installation and connection accessories for fibre optic networks, from ODFs to joint closures and terminations. All NesCon products are compatible with Nestor Cables' optical fibre cables.

In addition to their range of cables and NesCon products, Nestor Cables provides several kinds of cabling solutions (FTTx), such as fibre-to-the-building (FTTB) or fibre-to-the-home (FTTH).

» [www.nestorcables.com](http://www.nestorcables.com)



## QUALITY THAT HOLDS

*Nordic Tank is a leading road tanker supplier in Finland with over twenty years of experience in tank manufacturing. We are also a growing supplier of industrial and storage tanks.*

Nordic Tank Oy is a high-tech company in the traditional manufacturing engineering industry in the Oulu region, where development has long been focused on ICT. The company has high-quality export and domestic products, which are widely valued in Europe.

Nordic Tank serves all the needs associated with storage and transportation tank solutions. We manufacture tanks from both stainless and acid-proof steel for transport, storage and industrial processes. We also offer workshop and special products according to the customer's needs. Our services include product lifecycle services, including major modifications and aftermarket services.

Nordic Tank's headquarters is located in Oulu, Oritkari, near excellent logistical connections. There is a direct connection to road transport without any height restrictions. The harbour, the railway and the airport are also very close to the factory. In terms of transportation equipment, our main market areas are the Nordic countries, the Baltic countries and Russia, but, in the near future, Nordic Tank will strive to expand its market area. For storage and industrial tanks and other workshop products, the market area is global.

» [www.nordictank.com](http://www.nordictank.com)





## RAW WATER CLEANING AND WASTE BURNING

*We specialise in designing, manufacturing and installing raw water cleaning equipment. Our products include Bar Screens, Gates, Micro and Travelling Band Screens and Bubbling Fluidised Bed Boilers.*

When utilising water directly from the sea, lake or river via a gravity flow process, cleaning the chain basket filter is required. Water filters are designed according to the water capacity requirements and the size of the facilities. Water filter power in the chain basket filter is  $3 \rightarrow 15\,000\text{ m}^3/\text{s}$  and  $50\text{ l} \rightarrow 1\,000\text{ l/s}$  in a drum filter, depending on the size of the fabric mesh. We offer maintenance, a 24-month guarantee for spare parts and service for other manufacturers' machines.

The VAPOR bubbling fluidised bed plant utilises a natural circulation boiler with a water pipe structure in which the water-cooled bed grate is integrated with the pressure vessel of the boiler. This reliable

and low-maintenance structure can be utilised in the combined generation of electricity and heat (CHP) and in the generation of district heat and process steam.

Our technique includes the efficient removal of coarse material (metal, stones, concrete) off the grate. The proportion of the opening to the area of the grate is roughly a third, which leads to a better usability compared to the typical fluidised bed boilers available on the market. To minimise emissions, it is always ensured that the dwell time of the combustion gases in the furnace is sufficient.

» [www.ompgroup.fi](http://www.ompgroup.fi)



## EXCELLENCE FOR YOUR PRODUCTION RELIABILITY, EFFICIENCY AND WORK SAFETY

*OT Service offers high-level expertise in the field of mechanical and machine maintenance and workshop services. The company owners have decades of experience in performing demanding tasks for the industrial sector. Our customers operate in the fields of chemical and mechanical forest industry, steel, mining, chemical and energy.*

**W**e always customize our maintenance services to correspond with our customers' requirements. Our services range from maintenance shutdowns and on-call maintenance to comprehensive maintenance projects. We are accustomed to working at large construction sites in challenging and critical environments where the production process cannot be interrupted during installation.

We offer a wide range of workshop services for industrial companies. Due to our versatile machine base and extensive subcontracting chain, we are able to manufacture demanding products quickly and competitively. Additionally, we have experience in producing demanding machine repair services. Together with our solutions and operating models, we

improve our customers' production reliability, efficiency and safety at work. We consider environment and sustainable development throughout our activities.

Our services for industry:

- Machine installations
- Mobile machining
- Maintenance services (gears, pumps, bearings, screw conveyors, conveyors and conveyor parts, hydraulic cylinders, heat exchanger)
- Industrial piping
- Steel structures
- Surface treatments (abrasive blasting, spray-painting)
- On-call services
- Electric automation

» [www.otservice.fi](http://www.otservice.fi)



## MODERN CORPORATE GROUP OPERATING IN THE ENERGY SECTOR

*Oulun Energia's operations cover the entire value chain of the energy industry from the production of raw materials, electricity and heat to sales and distribution of energy and a wide range of services including smart energy, network management, subcontracting and maintenance.*

Occupational safety, customer orientation, productivity, social responsibility and courage to change. These are our values, which guide the way we work and the decisions we make.

Our main goal in the near future is to achieve carbon neutrality in our energy production by year 2050. Investment in a new bio power plant is one major step towards this. Our new power plant unit will be entering production for heating season 2020–2021. The construction of the plant starts in summer 2018.

We continue making investments in other renewable sources of energy too. For example, we offer solar power solutions for companies and private homes. Northern Power's electricity contracts give our customers the freedom to choose how the electricity they use is produced. Our construction company is acknowledged for building energy efficient lighting and intelligent transport systems around the country.

Oulun Energia's smart energy services are the answer for everyone looking for competitive, uncomplicated and sustainable energy solutions.

» [www.oulunenergia.fi/en](http://www.oulunenergia.fi/en)



# OUMAN

## BETTER COMFORT AND USE OF PROPERTY – BY SAVING ENERGY

*Ouman is a Finnish group specialising in automation and energy efficiency and growing in the Baltic Sea region. With us, housing companies can save 20% of their heating costs. We deliver 1,2 million products annually to several significant instrument manufacturers.*

### **Building Automation**

Building automation is a necessity today. We know building automation. Most Finnish housing companies use Ouman's automation.

Adjusting heating is the most important thing that automation is used for. We have extensive experience with heating network operation of housing companies in Nordic circumstances. We also know about operating the ventilation in housing companies and the building engineering of the property in one way or another.

### **Energy Efficiency Services**

*Better heating, lower costs*

Ouman is the key partner of an energy efficient housing company. Housing companies can save 20% of their

heating costs with the energy efficiency services. The energy efficiency services are already used by more than 3,000 housing companies.

### **OEM**

Our primary purpose is to manufacture a product for you that is competitive and sells on the market.

Get to know Ouman's ODM and OEM services that will help you with the design, production and maintenance of a competitive and selling product. Ouman supplies 1,2 million products for several significant building service manufacturers annually.

» [ouman.fi](http://ouman.fi)



**SAVING ENERGY**

**Creating Comfort**

## VISIONARY IN THE CIRCULATION ECONOMY

*The mission of Owatec is to make industrial processes more efficient and waste-free to help save the environment and raw materials.*

Several hazardous wastes and dumped wastes contain valuable components that are left unused. Owatec is specialised in utilization of waste streams and reducing the amount of waste by optimising the processes. When dealing with high amounts of waste waters, Owatec has several innovations to reduce the amount of water. The waste water can be purified to create potable water to be used as a process water. Owatec can offer cost efficient solutions with lower chemical usage and waste production.

Owatec provides tailored solutions for each customer to enable closed-loop water circulation and waste water treatment that meets the demands of environmental legislation – without extra costs. Our new innovative ideas create better economic efficiency as well as environmental-friendly industrial processes. A combination of professionals from science and business provides the perfect solution for R&D services.

» [www.owa.fi](http://www.owa.fi)



Water and waste water treatment

Process optimization

Research and development

## YOUR PARTNER IN ENERGY MATTERS

*Planora Oy is an energy solutions company founded in 1987. The company has extensive knowledge, expertise and experience in municipal engineering design as well as industry and automation planning. Coupled with comprehensive project management, we offer an all-inclusive solution to energy planning.*

**W**e offer full planning, design and project management services with an all-inclusive solution to energy planning. In municipal engineering design, our areas of expertise include district heating systems.

Planora combines planning, design and project management for a cost-effective, functional and productive solution. Our lisi-Netti service expertly manages information and operations related to heat, electricity and water supply as well as biofuel production. The lisi-Netti service is easy to use and accessible with any end device that is connected to the internet, without the need to acquire extra software.

The customer data is processed and converted into an accessible form, Expert Data Base (EDB). The database provides up-to-date information for different applications and information systems. The retrieval of information from various databases and its use by different applications is based on the correct capturing of information as well as mastery of the user interfaces between different applications.

» [www.planora.fi](http://www.planora.fi)

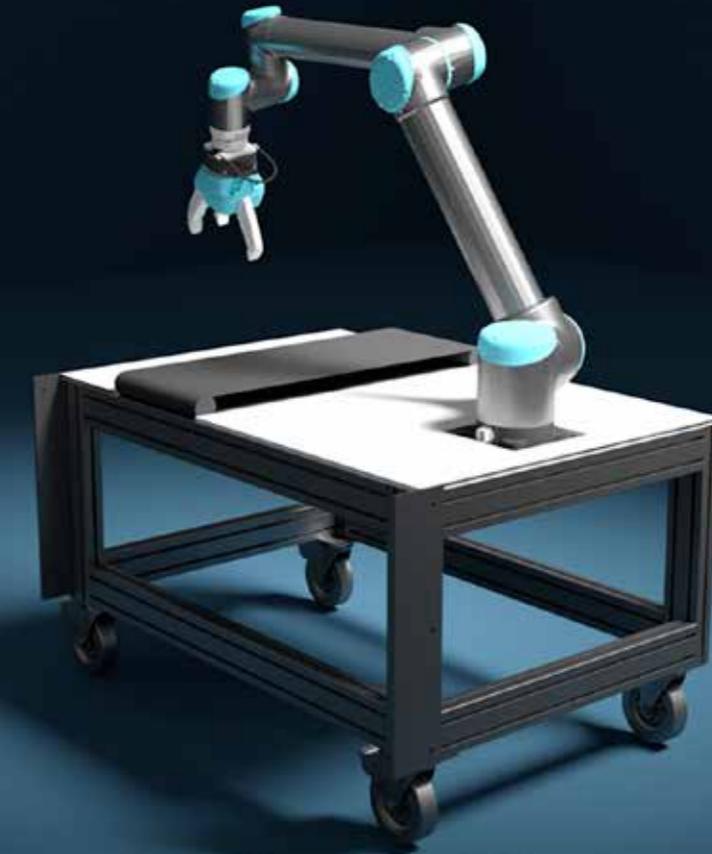


## WE AUTOMATISE EVERYTHING!

*Probot is a high-tech company in the field of robotics and automation located in Oulu, Finland. The company was established in 2006 to fill the gap between the academic research and industry. We have built a skilled team to design and implement automation to various fields of businesses.*

The modern industry is slowly but surely moving towards the industry 4.0 and beyond. The key for automatising the various fields of businesses is a wide understanding of the process and the bigger picture around the processes. We have built a skilled team to efficiently learn to understand your business and to provide the best solutions to automatise it! Through the large scale of projects during the last 12 years, we dare to say that we can automatise anything! Challenge us with your production automation needs!

» [www.probot.fi](http://www.probot.fi)



## TECHNOLOGIES FOR CLEANER ENGINES, MACHINES AND VEHICLES

*Proventia is an innovative technology supplier for the engine, machine and vehicle industries. The company develops and supplies emission control systems for diesel engines on the OEM and retrofit markets. Proventia designs and manufactures unique modular test laboratories for the automotive industry.*

Proventia offers engineering services for all emissions-related matters and supplies integrated exhaust after-treatment systems for the world's leading OE engine and machine manufacturers. Proventia's strengths are its agility, flexible tailoring capability and high-quality products.

Retrofitting older diesel buses and trucks with high-tech exhaust after-treatment systems is the fastest, most cost-efficient way to improve air quality in cities. Proventia's prizewinning NOXBUSTER® City retrofit exhaust after-treatment system reduces toxic diesel emissions by more than 90% and is designed specifically for low exhaust gas temperatures in urban

traffic. The system can be retrofitted on city buses and trucks, for example.

Modular Proventia Test Units and Centres meet the testing challenges of the fast-changing automotive industry. The demand for a hybrid, fully electric powertrain and EV battery testing is rapidly increasing, and the Proventia Test Unit offers a modern and flexible approach with modular test laboratories and centres. Proventia Test Solutions allow customers to rapidly increase capacity, change the setup at any time or expand their capacity in stages without disturbing operations in other test cells.

» [www.proventia.com](http://www.proventia.com)



## GRANULATED ASH AND SLUDGE: CIRCULAR ECONOMY AT ITS FINEST

*Rakeistus Ltd is privately owned company, est. in 2012 and situated in Oulu Northern Finland. We are the only company in Europe concentrating in ash and sludge granulation and the manufacturing of granulators.*

**W**e are experts in granulation of ash and sludge, and our process is patented, cost effective and can be implemented quickly. The applications of granulation machinery include granulation of ash and sludge into fertilizer, technical construction and symbiosis products, to name just a few. With our entirely novel granulation method, ash and sludge are substantially easier to handle. Granulated ash and sludge are solid, and there is hardly any harmful dusting.

Our company manufactures granulators integrated into industrial processes and provides a comprehensive end-to-end service, all the way to the distribution of the end product. The service can be implemented quickly. The granulation machinery operates fully automatically, completely unmanned. Cost savings can be achieved when our system operates in connection with an energy production unit.

» [www.rakeistus.fi](http://www.rakeistus.fi)



## RANDAX OY

*We design and manufacture advanced permanent magnet motors and generators, as well as electric drive systems for industrial and maritime equipment manufacturers.*

Randax Oy was founded in 2006 in Oulu, Finland. Randax develops modern and innovative electrical machine solutions based on permanent magnet (PM) technology. Motors and generators are covering a power range from 5–3,000 kW and speeds from 100–25,000 rpm. Customers are equipment manufacturers in the fields of maritime industry, process industry, renewable energy and vehicles.

Randax® motors are tailored for customers' needs. Their amazing, alterable structure allows them to be integrated into the driven equipment. This improves energy efficiency, reduces the equipment's size and provides the customer with the freedom to design and develop its equipment.

Randax® motors allow the customer to focus on the efficiency of the overall process without being limited by the equipment's components. Our long experience in the sector and extended cooperation with research institutions ensure the continuous development of our products and expertise.

» [www.randax.fi/en](http://www.randax.fi/en)



## SECURITY FOR TRANSPORTATION WITH A SAFETY TANK

*Around the world, millions of litres of diesel are stolen every year from heavy vehicles. RAUSTEEL has a solution for preventing the thefts. A safety tank made of protection steel with a hydraulic lock stops the act before it even begins. Today, RAUSTEEL is ready to go international.*

RAUSTEEL solves multiple problems in the transportation industry. Fuel theft is one issue RAUSTEEL solves. Planning transportation routes is easier since you do not need to worry about thieves along the way. The fuel tank is made of protection steel, which is used to reinforce military vehicles, and a hydraulic lock in the tanks cap, withstanding hard impacts, drilling and even shooting. It effectively prevents thefts. Often, a safety tank increases the size of the fuel tank of the vehicle, enabling a significantly

longer trip. Custom-made tanks can be manufactured in bigger lots. The RAUSTEEL safety tank is installed directly onto the brackets of the original fuel tank and can be fitted to both old and new trucks. The safety tank is an excellent choice in nature reserve and groundwater areas. The fuel will not leak into the soil, preventing unnecessary environmental issues and costs. RAUSTEEL also manufactures tanks for military purposes, which requires strong vehicles.

» [www.rausteel.com/en/](http://www.rausteel.com/en/)



## DELIVERING THE ENERGY SYSTEM OF THE FUTURE

*We're leading the transition to a lower carbon energy future by creating added value for businesses, generators and grid operators with ultra-fast, cloud-based communications technology.*

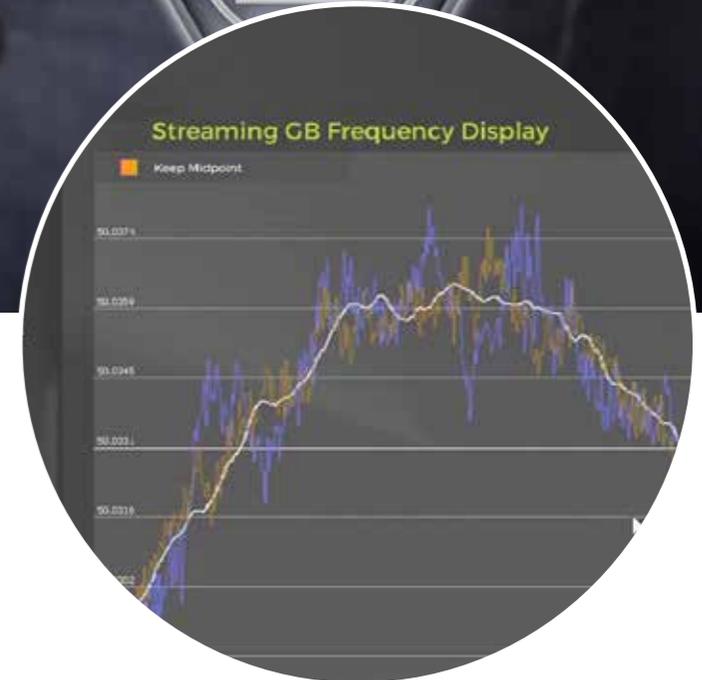
Our technology is the result of our considerable experience in the energy sector, software engineering and deep communications technology.

This merging of telecoms and energy means Reactive Technologies' approach to solving energy system challenges is very different, implementing cutting-edge technology previously used exclusively in telecoms for the first time in the energy sector to resolve the industry's greatest challenges. Reactive's technology is set to positively disrupt the way end customers interact with their energy and the way grid operators manage their systems.

Tradenergy® is the fastest cloud-based energy management and demand side response (DSR) optimisation service for businesses. It understands your electrical assets and how they can provide flexibility with minimal impact to your operations. It enables you to earn new revenue streams from optimal DSR opportunities and to materially save on your energy bills through advanced energy control.

Gridmetrix® is the first technology on the market capable of accurately measuring system inertia, which is critical to enabling grid operators to effectively maintain the security of supply cost in an increasingly volatile energy environment.

» [www.reactive-technologies.com](http://www.reactive-technologies.com)



## THE REFERENCE DESIGN CORPORATION

*Refecor Oy is a professional electronics and products design company located in downtown Oulu, Finland. We have extensive experience in engineering and products design, hardware, software, systems integration, strategic sourcing, manufacturing and complete solutions. We are a good team player company.*

Refecor Oy offers professional design power, rapid prototyping, product development and professional sourcing with manufacturing support, as a full turnkey solution for customers. Our engineering background covers a high number of completed products for many world class well-known brands.

Examples of the products that we have designed and produced, and what we can do for any customers, include: Wireless products (mobile handsets, M2M devices, IoT sensors and networks, GPS and GIS devices and system solutions, WLAN, Bluetooth, 2G/3G/4G/5G network devices, wireless routers, MESH devices, radars, radio-controlled UAV electronics), medical devices, logistics devices, etc.

We are a team player company looking for win-win business cases. With our strong sourcing and engineering, we can provide very competitive priced products from the factory without any capacity limitations. The services support customers' longer term operations.

Shorter lead times, better productivity, faster time to market and higher overall quality are the most-desired and appreciated values from doing business with us. So, why not to contact us?

» [www.refecor.com](http://www.refecor.com)



# MICROWAVE AND MILLIMETER WAVE SENSOR EXPERTISE

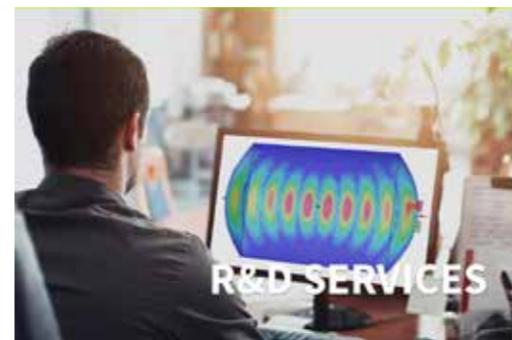
*Microwaves are utilized in many measurements, such as analysis of water content and other material properties. They are usable for a variety of different liquids and solids, covering food, wood, biofuels, oil and paper, to name a few. Distance, level and thickness can also be measured with  $\mu$ meter accuracy.*

**W**ith over 40 years of experience in industrial microwave measurement devices and solutions, Senfit is the trusted development, manufacturing and OEM partner for global measurement and automation corporations like Valmet, Emerson, Raute and many more. Although our logo can't be seen, devices designed by the Senfit team have been sold for over €300M in various industries around the world.

Our mission is to combine our unique knowledge with the latest developments in microwave digitalization and signal processing to help our customers succeed in their businesses. Our goal is delivering the most innovative, reliable and cost-effective microwave measurement solutions, from the earliest research stage to final product lifetime care.

We are boosting the greener industry by enabling energy and material savings through optimization and replacing technologies like radioactive and x-ray.

» [www.senfit.com](http://www.senfit.com)



## DRYING NEW VALUE

*Many materials are left unused because processing them while wet is not possible, drying them is not profitable or the material cannot be handled with traditional technologies. We have developed a new drying technology - ModHeat. With ModHeat, we dry value out of even the most difficult materials.*

SFTec was founded in 2013 as a spin-off company from the University of Oulu. The idea for our main product ModHeat stems from the metallurgical industry need for more cost-efficient material dryer. The solutions before were either too large and expensive or too small and inefficient. We manufacture and develop industrial dryers that are based on our own patented technology.

ModHeat is an affordable, scalable, mobile and continuous drying technology. It handles many different materials. The biggest customer sectors are different industries, bioenergy producers and agriculture. Technology has been successfully piloted in industrial scale for industrial sludges, woodchips and animal manures, among many other materials.

Material drying is a challenging process. Every material and environment is unique. We want to ensure that our customers get their materials reutilized in an easy and affordable way. SFTec offers drying and testing as a service to ensure that the technology solves the needs of the customer.

With ModHeat technology and our services, we can solve drying needs of any scale. We are an innovative technology company and experts in drying technologies, process engineering and circular economy. Let's dry some business!

» [sftec.fi](https://sftec.fi)



## SIKLA AIMS TO THE FRONTLINE IN WOOD BUILDING

*Sikla is a fast-growing, financially stable, medium-sized company operating in the fields of building and construction. The company was founded in 2007, and the headquarters is located in Oulu, Finland. Sikla has about 200 employees.*

During recent years, Sikla has strongly invested in wood construction – in our recently opened headquarters, wood has been used as one of the main materials both in building and in interior design. Our first wooden multi-storey apartment building, Asunto Oy Helsingin Haapaperhonen, was completed in 2017 in Helsinki. Sikla also has a multi-storey apartment building project, Asunto Oy Porin Karjaranta, starting in 2018 in Pori. Additionally, we have launched a wood building-related research and development project in Oulu.

In the R&D project, we will build three multi-storey apartment buildings. One is built of Cross Laminated Timber (CLT), the other being a hybrid building with a concrete frame and wooden exterior walls. The third building is constructed of plank elements. The project explores if the residents value the more appealing social factors in the building made of CLT than in the buildings made of other materials. The project also assesses the economic and technical factors by collecting and comparing the financial numbers and the technical data of the three buildings. The goal of the R&D project is to increase the knowledge of wooden apartment building construction not only at Sikla, but in Finland in general.

» [www.sikla.fi](http://www.sikla.fi)





# REGENERATING WATER MANAGEMENT PROCESSES ECONOMICALLY AND SUSTAINABLY

*In the future, resources will be few; one of them being clean water. Our mission is to enable our customers to deliver clean water to people by utilizing our electrical and automation systems. Due to our comprehensive manner of implementation, customers economise on both construction and maintenance costs.*

Slatek was established in 1978, and since the beginning, the company has been at the forefront of water management industry development in Finland. Our automation systems scale from small single-pump groundwater pumping stations to big communal wastewater treatment plants. We improve already existing solutions as well as innovate completely new ones. We design and deliver customized solutions to be integrated into our customers' existing water network. The development of each new solution starts from reliability, adaptability, simplicity of maintenance, user-friendliness and economic efficiency.

Modern water networks aren't just lateral point-to-point systems, but a numerous amount of small

stations contributing to one big network of pipes. In order to manage this vast system, automation between stations is inevitably required. Our remote control and monitoring system is the key to sustainable water cycle ecology.

We have released a group of products; Self-assembled electrical cabinets, ready to be installed:

- Slatek SLOP, waste water pumping station for 1–3 pumps.
- Slatek PURA, for pure water pumping stations.
- Slatek PREMIO for pressure boosting stations in the network.

» [www.slatek.fi](http://www.slatek.fi)





# SOLVE YOUR SUSTAINABILITY CHALLENGES EFFICIENTLY

*Solved is a cleantech advisory service and collaboration platform that tackles the world's sustainability challenges. Solved brings together the leading experts, sustainability challenges and new ways of working in order to co-create appealing solutions.*

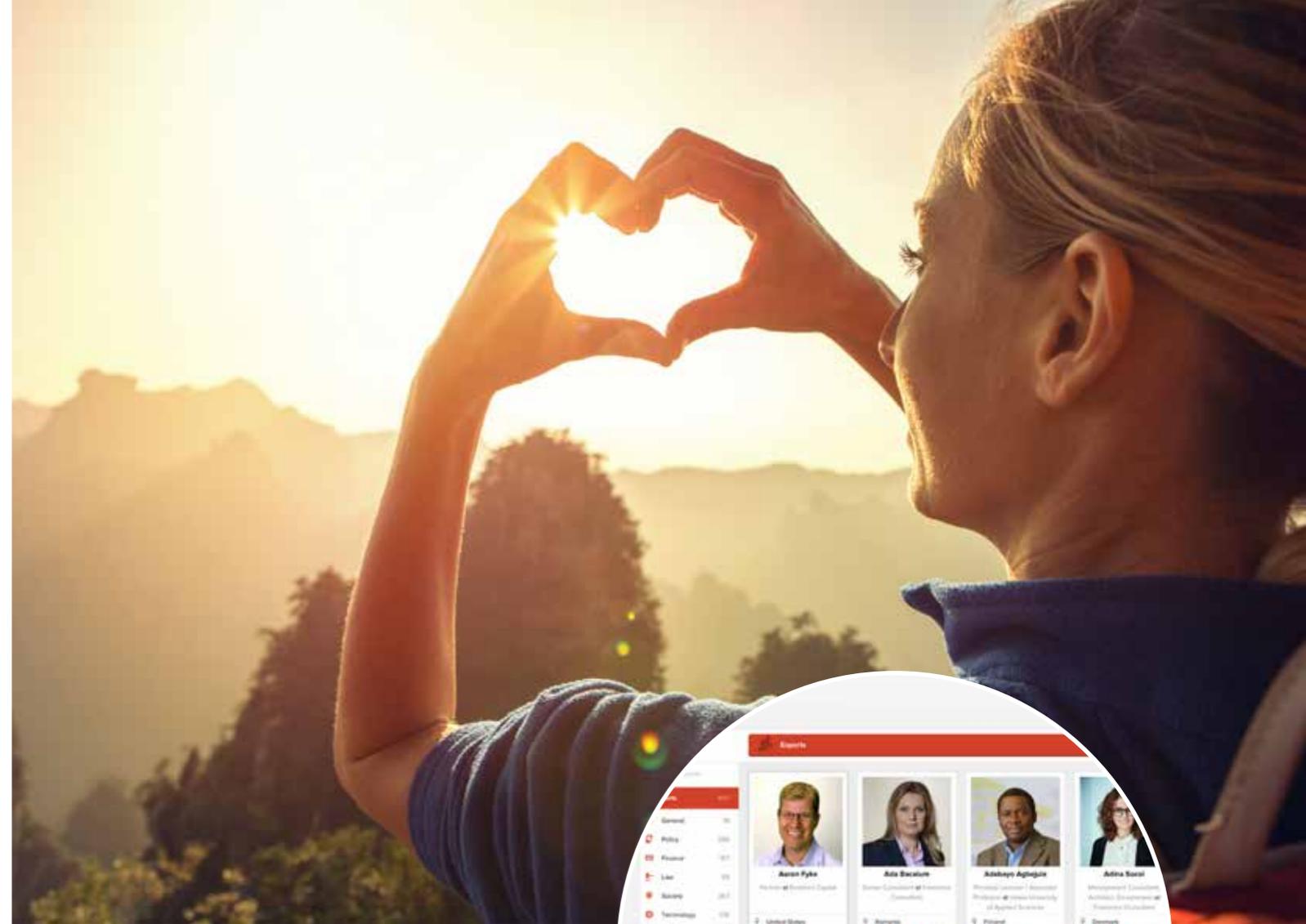
Solved is a marketplace for cleantech advisory services and solutions. Solved offers a collaboration platform, helping customers leverage cleantech solutions in their sustainability efforts, as well as facilitate engagement and co-creation of sustainability networks.

Solved is a community of over 2,500 specialists across multiple disciplines within the clean technology, circular economy, smart city, environment and energy sectors, committed to developing solutions that create profitable businesses and are sustainable for the planet.

Solved's approach is based on a co-creative process involving the client and the selected team of experts. The network of experts consists of independent consultants, innovative entrepreneurs, industry experts and relevant stakeholders.

Solved – The Cleantech Company was founded in 2013. The service has already been used to solve hundreds of sustainability challenges around the world. Solved helps sustainability networks build easily managed online ecosystems where matchmaking, co-creating and launching of new projects, as well as tracking them, is fast, easy and goal-oriented.

» [solved.fi](https://solved.fi)



## SEE THE INVISIBLE WITH HYPERSPECTRAL IMAGING

*Hyperspectral imaging is a non-destructive, advanced machine vision solution for production, recycling and quality control. It will give you more information on every imaged pixel than any conventional camera.*

Hyperspectral cameras can, quite literally, see the invisible. While human eye and conventional cameras can only see what is on the visible light spectrum, hyperspectral imaging divides the light into wavelengths that the human eye cannot perceive, gathering much more information than traditional cameras can. Each material has a unique "spectral fingerprint" that can be identified with hyperspectral imaging.

This means that with hyperspectral imaging you can quickly and cost-effectively identify different materials from each other and tell the difference between two samples that look identical but have, for example, a different chemical composition or amount of moisture. It is a non-invasive technique that allows you to characterize surface colour or texture as well as many chemical compositions.

Specim FX series hyperspectral cameras are fast, accurate and reliable and specifically designed for industrial applications.

» [www.specim.fi](http://www.specim.fi)



## THE RENEWABLE MATERIALS COMPANY

*Part of the bioeconomy, Stora Enso is a leading global provider of renewable solutions in packaging, biomaterials, wooden constructions and paper. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow.*

Our materials are renewable, reusable and recyclable, and they form the building blocks for a range of innovative solutions that can help replace products based on fossil fuels and other non-renewable materials.

Paper division provides best-in-class paper solutions for the print media and office use. The wide selection covers papers made from virgin wood and recycled fibres. We create value for our customers by providing competitive products and services that meet their quality and sustainability requirements.

Stora Enso's Oulu Mill is one of the world's largest and most modern facilities manufacturing high-quality, coated, wood-free papers. The design, integration and location of the mill is unique: almost all raw materials, including energy, are carried from one plant to another by a pipeline. The mill's paper production capacity is 1,125,000 tons per year. The primary market area is Europe, where approximately 70% of all deliveries are directed. The Oulu pulp mill produces fully bleached softwood pulp with annual production capacity of 370,000 tons. Roughly half of the produced pulp is utilized in the mill's paper production.

» [www.storaenso.com](http://www.storaenso.com)



## SAVING MONEY, ENERGY AND WATER

*Streamsave develops innovative solutions that combine flow and temperature measurement technologies with wireless communication to provide water users immediate feedback on their consumption and heating of water. Our technology aims to lower costs and help conserve our most valuable resource: water.*

Water is scarce in many parts of the world and, with the added cost of heating it, a major expense. Most people understand and appreciate the problem but have lacked the tools to measure the real cost of showers at home, in a hotel and elsewhere, for example.

Streamsave's patented products and software provide immediate feedback in an encouraging way and help create awareness among users. The devices are extremely compact and can be easily added to almost any existing water supply, shower hose and pipeline.

The possibilities are virtually unlimited, and the hardware and software can be tailored to numerous applications. This includes integration into Smart Home and facility control systems.

The measuring devices are IoT (Internet of Things) ready, and data can be transferred to a cloud service or a mobile device. The devices also allow the user to set consumption limits and gentle reminders in the form of LED lights or alarms.

The offering includes a user interface and software for mobile devices, web browsers and computers to guide the user to conserve water in an easy and demonstrative way.

Streamsave measuring devices are energy self-sufficient, easily installed, plug-and-play ready and require no batteries.

» [www.streamsave.fi](http://www.streamsave.fi)



## SEAMLESS AND FUNCTIONAL SURFACES

*TactoTek is a global leader for Injection Molded Structural Electronics (IMSE™) solutions, a revolutionary technology that changes the way electronic parts are designed and built. IMSE™ solutions merge form and function by encapsulating electronics within 3D plastic surfaces.*

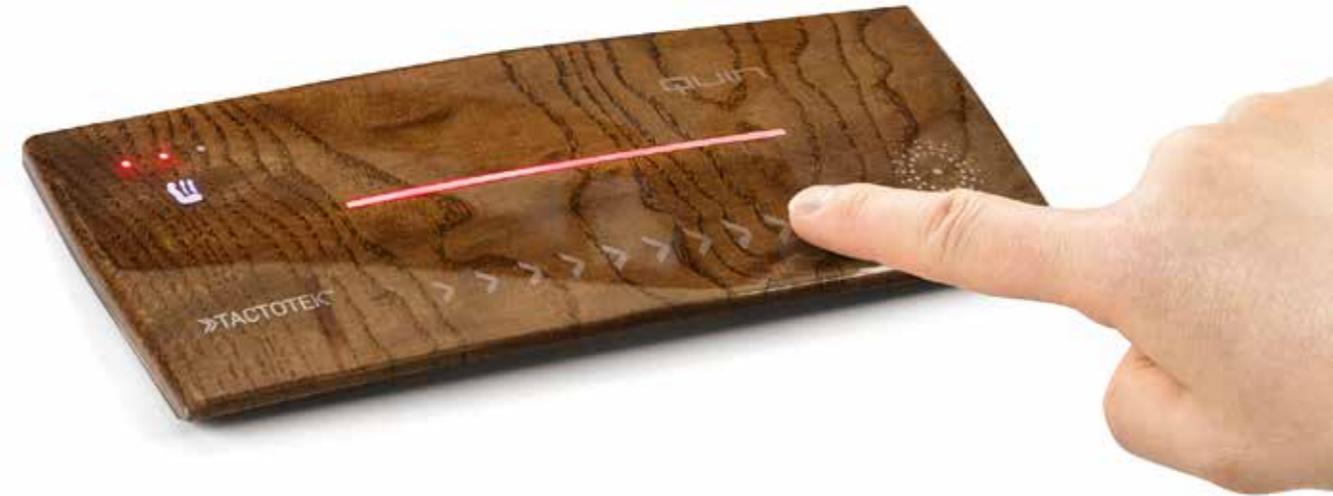
TactoTek™ injection molded structural electronics (IMSE™) solutions bring life to surfaces by integrating electronic functions, including lighting, connectivity and controls within thin 3D contoured parts. IMSE solutions combine printed circuitry and electronic components within injection molded plastics and replace multi-part electromechanical assemblies with light and durable single piece smart surfaces.

TactoTek's IMSE platform is horizontal – it can be applied to diverse use cases in markets ranging from automotive and home appliances to medical, industrial, aerospace, military and wearable technology solutions. Being light, thin and durable, the IMSE solutions bring

electronic functions to stylish cosmetic surfaces and also for unconventional locations and uses. It unlocks design freedom for new shapes and functions, while simplifying assembly, enhancing touch and antenna performance and reducing the use of plastic materials.

Founded in 2011, the company is headquartered in Oulu, Finland, and it serves leading global brands in multiple industries. TactoTek will be growing and expanding its operations and production capacity in the coming years, being one of the most promising growth companies in the area.

» [www.tactotek.com](http://www.tactotek.com)



# TERWA KIINTEISTÖKEHITYS OY

*Terwa Kiinteistökehitys is a professional real estate developer.  
We produce high-quality business premises that meet customers'  
distinctive expectations and add value.*

**W**e resolve to meet your needs and your expectations concerning business premises, whether you want to rent or own your premises.

Our services include:

- Managing real estate development projects
- Arranging investment and financing
- Acquiring building lots
- Generating business idea
- Managing expenses
- Acquiring users

We predict the modification needs of the future so that the life cycle of business premises is optimized as far as it is possible.

We have strong expertise, we are innovative, and we have courage. We have the ability to invent new solutions instead of relying on old ones. This ensures that we are a partner that builds added value.

» [www.terwakiinteistokehitys.fi](http://www.terwakiinteistokehitys.fi)



## MATERIAL EFFICIENCY USING AUTOMATED INDUCTION DEVICES

*TL Solution, founded in 2017, is a technology company with high-tech expertise. The company designs and produces automated induction heating devices for industry. With automated induction devices, industry waste can be reused, coatings can be removed, and metal can be heated.*

The technology is based on induction heating, where metals can be handled without any material or environmental damage. With automated induction devices, processing is effective, and metal parts can be handled quickly and profitably. Induction can be customized for different processes, and benefits are optimized. The most efficient processes with automated induction devices are reuse of industry waste, mass production and hardening applications, pre- and post-heating.

Induction heating is increasing efficiency to a completely new level. With the help of automated induction devices, efficiency is 85% regardless of the shape of the parts processed. Remote access ensures safety. Focusing induction exactly on the part requiring heating is a cost-effective solution.

Utilizing automated induction devices results in significant cost savings due to remote use, automated methods and minimized waste heat.

» [www.tlsolution.fi/en](http://www.tlsolution.fi/en)



## LET'S START A MEANINGFUL DIALOGUE WITH DATA

*Valmet's Industrial Internet services are based upon a meaningful dialogue with data. With our know-how in process technology, automation and services, you can turn your data into a valuable asset for decision-making.*

**W**e have a solid foundation in the Industrial Internet. Our Industrial Internet capabilities rely on four building blocks: process technology, automation and IT platform, applications and services and a solution ecosystem. Our intelligent process technology utilizes the Industrial Internet with sensors and measurement devices that gather data from machines and processes.

Valmet's automation system provides a solid data source. Combining this with data from your other mill and plant systems creates an enormous amount of data. Our experts know which data to analyse and how to utilize it. Expertise is built into our Industrial Internet applications and services for pulp, paper and board, tissue and energy producers.

» [www.valmet.com](http://www.valmet.com)



## FINNISH EXCELLENCE IN LED LIGHTING

*Valtavallo Ltd is the leading LED tube manufacturer in the Nordic Countries. In-house R&D and manufacturing in Finland guarantees the best possible quality of the products. Lifetime value and exceptional quality provide a leading cost of ownership lighting solution to quality-conscious customers.*

Valtavallo LED tubes are manufactured in Finland with two fully automated production lines. Uniform quality and reliability of the products are ensured by an automatic processing. At the end of the manufacturing process, each LED tube goes through a multiphase automated test process to make sure that we deliver only excellent quality.

As an undisputed pioneer of LED tube manufacturing technology, Valtavallo began LED tube manufacturing in Finland in 2012 and multiplied its production capacity during 2016 by acquiring a second more efficient and fully automated LED tube manufacturing line. Due to its technical supremacy and thermal design Valtavallo is able to offer the longest lifetime expectancy on the

market for its products that withstand even the most demanding conditions. The Association for Finnish Work has awarded the Key Flag Symbol to Valtavallo LED tubes as a sign of Finnish manufacturing excellence..

Valtavallo's head office is located in Oulu and production facilities in Kajaani, Finland. There is also a filial in Sweden, sales offices in Germany and the Netherlands as well as distributors across Europe. In addition to LED tubes, the product portfolio includes LED tube luminaires for a variety of different applications such as offices, public spaces, logistics halls and industrial premises.

» [www.valtavallo.com](http://www.valtavallo.com)





## SERVICES FOR ENERGY INDUSTRY

*We provide technical consulting services for the wind industry in Northern Europe. We offer services for energy producers, wind park developers and turbine manufacturers.*

*· Control centre services · Specialist services · Training services*

**W**ind Controller provides technical consulting services for the renewable energy sector.

We offer power plant and substation monitoring services for renewable energy producers, consulting services for wind park developers and wind turbine manufacturers as well as comprehensive safety trainings.

Our services cover all the phases of modern energy production from planning to maintenance.

Our control room engineers and technical specialists are highly skilled and have a solid background in wind turbine design, manufacturing and maintenance. This background and our collective experience and

know-how give us a good understanding of the needs of our clients and the expectations in the wind energy sector.

Our 8760 Control services include remote monitoring of power plants and substations, SCADA control and reporting services. Our control centre engineers monitor your power plants and substations around the clock every day of the year to ensure continued energy production. With our 8760 Control services, you can get the maximum production and the best performance from your investment, be it wind power, solar power, hydropower or a substation.

» [www.windcontroller.fi](http://www.windcontroller.fi)



## PIONEER IN BIOENERGY

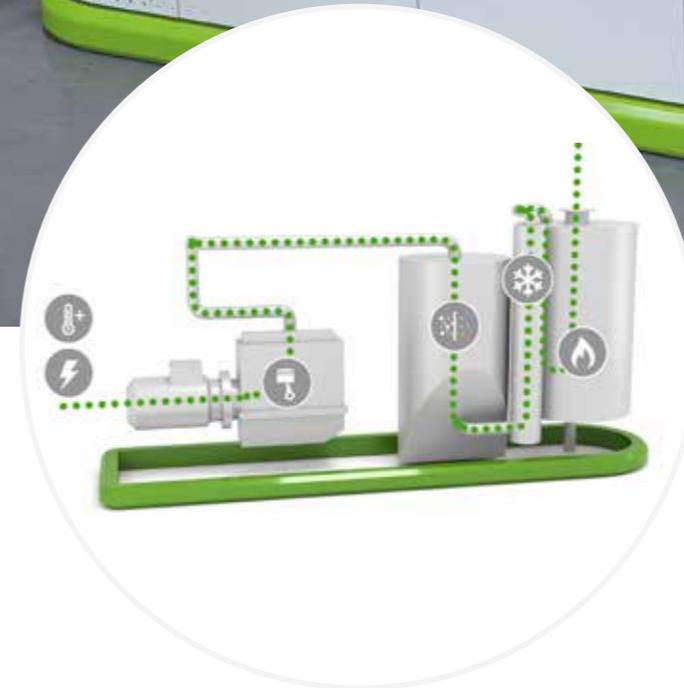
*We manufacture high-quality, small-scale combined heat and power plants, CHPs. We are innovators and pioneers in the development of wood gasification technology.*

Volter 40 CHP provides an easy way to produce energy independently and in a cost-effective way. High-quality, modern technology and a local support system guarantee long running hours and energy security. Compact design, simple installation and advanced automation give extra comfort for producing own, renewable energy.

With Volter 40 CHP, our customers around the world can produce heat and electricity all year round, regardless of the weather condition. They can increase their energy independence and even develop a new business from renewable energy sales. With our solution, our customers can support the local economy by using local biomass for fuel, bringing jobs to the communities.

Electrical output for Volter 40 CHP is 40kW, and thermal output is 100kW. The gasifier superheats the woodchips into wood gas, which works as a fuel for the internal combustion engine. The engine runs the generator and produces electricity. The process also generates heat that our customers use for different heating and drying purposes. Volter 40 CHP is modularly scalable. For example, ten CHPs form an energy park with 400 kW electricity and 1 MW thermal output.

» [volter.fi](http://volter.fi)









## INVEST IN SPECTACULAR SMARTER AND GREENER INDUSTRY

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COMPANIES.....2,300



TURNOVER (EURO) .....7 BILLION



EMPLOYEES.....19,600

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