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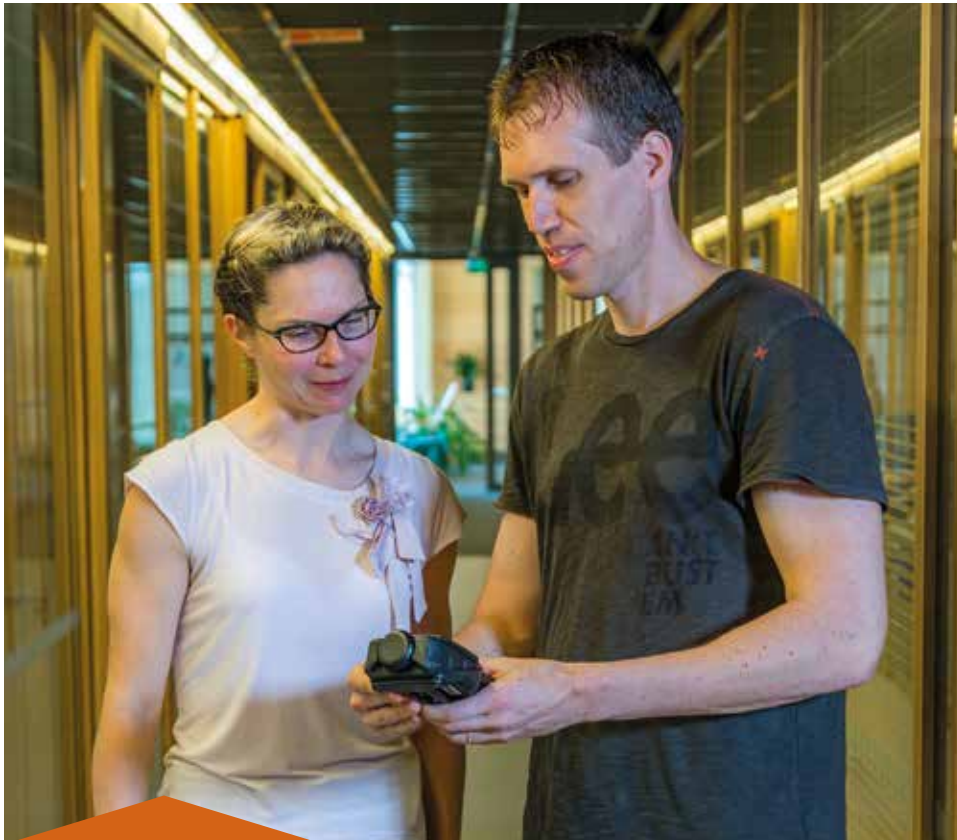
STATE OF THE ART  
technology for niche markets

FACILITY EXPANSION  
opens space for new services

UPDATING THE  
MANAGEMENT SYSTEM  
unleashes new options

# DAREKON.net

**AUTUMN • 2016** CUSTOMER MAGAZINE OF DAREKON GROUP LTD



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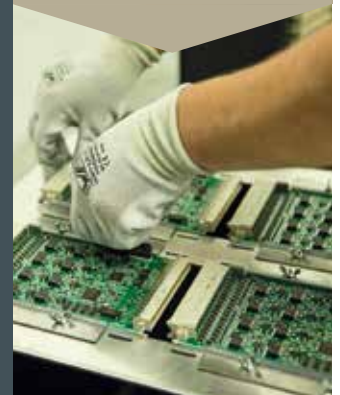
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**“** Darekon's revenue will exceed 40 million euros.”

**16** In Savonranta people master manufacturing electronics to meet the requirements of many different standards. The dedicated multi-talented employees skilfully handle many different production tasks.

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Darekon Group Ltd  
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**Production:**  
Lampila Publishing Ltd  
**Editor:**  
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**Layout:**  
GoMedia Oy  
**Printer:**  
Eura Print Oy  
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## Darekon is back on the growth track

**TO MEET OUR CLIENTS NEEDS** Darekon needs to continually evolve. At our Haapavesi facility there is an enlargement under way. The space will be expanded to almost 5,000 square meters. At the same time the existing premises will be modernised and the facility layout will be changed to better correspond with existing and future requirements. The enlargement is an investment of about two million euros and will be completed by the end of the year.

Darekon's revenue growth is back on track after a slighter increase last year. With over 20 million euros of sales achieved by the end of June and a strong order book for the rest of the year, we can expect to reach a record level of sales of over 40 million euros. Last year sales were 38 million euros.

The growth has been exceptionally strong at our Polish facility. We have been able to effectively use our new premises to reach significantly increased manufacturing volumes for prominent clients. Revenue at the facility may increase by up to 30 per cent.

Growth and profitability are the core pillars in our strategy. They give us the prerequisites to continually develop our operations and serve the ever increasing requirements of our clients in a competitive market.

One major step in developing our operation is the updating of our management system that takes place this year. ISO 9001 and ISO 14001 have both been updated at the same time and commissioning the updated standards will bring significant changes.

In this magazine we have revealed two of our successful clients. Neither company is huge in size but they share a manner of operation that I wish would become more popular in Finland. Both companies manufacture state of the art technology for very targeted markets. And both export almost all of their products.

Darekon has proved it is well able to serve clients with the most strict technological requirements in the world. We have also gained new clients, showing that we are on the right track and that the complete service we offer is competitive.

**Kai Orpo**

“

Finland needs high-tech manufacturers.”





## A strong growth phase at Polish facility

The Darekon operation at the new Polish manufacturing facility has been developing and growing. SMD lines and work places now fill the whole production hall and the production numbers are rumbling high.

Right after moving to the new facility the 2,400 square metre premises allowed room for expansion but now that room is being used. A third SMD line has been set up and new work places have been added for increased production needs.

"The growth now seems to take place in two ways," says Darekon Poland's CEO **Kari Koponen**. "There are new products from existing clients coming on production and we are also gaining new clients. It seems that we are competitive."

With the same breath Koponen praises his staff, the number of whom has now grown to some 75.

"Many people have been with the company almost from the beginning and the turnover rate is minimal. A wonderful team spirit has developed in the company and the peo-

ple really think about the company's and the common good. When new employees join the team the same spirit seems to stick to them too."

"Big starts of new products can cause pressure but everybody has shown the ability and willingness to stretch when needed and everything has gone well. This year seems to have brought us an increase of some 30 per cent," smiles Koponen contentedly at the thought.

## A new stencil printing machine for Haapavesi

**DAREKON HAS** invested in a new stencil printing machine for the firm's facility at Haapavesi. The EKRA Serio 4000 Compact machine is replacing existing equipment at the site.

Stencil printing is a critical part of SMD manufacturing. It is essential that printing is done fluently, with the reassurance that a backup machine is also available. The new machine is faster and more accurate and has a built-in inspection system.

The machine has an advanced, easy to use and intuitive user inter-



face for programming it fluently. Job changeovers are very fast, taking less than two minutes. The machine also has an automated PCB support system, removing some human factors.

## 3D modelling in use at press brakes

**PRESS BRAKES** are sometimes used for manufacturing very complicated three dimensional sheet metal parts. Until now the operator has had a drawing on paper for guidance and he or she has had to understand the parts in three dimensions.

Now the press brakes have been equipped with computer screens for examining and rotating the parts as 3D models. This is of huge benefit and makes understanding the parts and examining the details much easier.

It is now also possible to get the results of inspection meas-



Jani Ruostesaari is checking the 3D model of a part to be made and examines its measurements.

urements directly to the system in digital format. Previously the measurements had been written on paper.

## An investment for a nitrogen generator has been made at Klaukkala facility

**THE AMADA QUATTRO** laser cutter has proved to be a remarkable tool for manufacturing small and/or complex shaped sheet metal parts. Cutting requires the use of assisting gas for which Klaukkala is using nitrogen. The gas blows away the metal melted by the laser and prevents oxidation of the cut surface.

In Klaukkala they used nitrogen coming from a gas supplier in high-pressure 200 bar containers. They had 20 containers of 50 litres each and the contents have sufficed for the needs of two work shifts. The supplier had to bring a new load of filled nitrogen bottles to the facility every day.

“Air contains 78 per cent nitrogen and isolating it is in principle simple,” explains Klaukkala’s plant manager **Pekka Antikainen**. “The nitrogen generator supplied to us by the Finnish Laser Gas Oy can produce up to 99.9999 per cent pure nitrogen, even if we can manage with a couple less decimals. It also pressurises the gas high enough for the cutter.”

According to Antikainen the gas generator saves space, time, trouble and



The oxygen generator is knocking almost continuously and separates oxygen and other minor gases from the air so pure nitrogen is isolated. The squad of bottles is the buffer storage of nitrogen.

the environment as the continuous container traffic is ended. The solution is also economical. The monthly payment of the system acquired with a three-year lease is slightly less than the expenses of the container traffic so savings are generated immediately.

## The Savonranta facility uses local renewable energy

**A 1,000 SQUARE METRES EXTENSION** was built at Savonranta five years ago. Seven energy wells, each 200 metres deep, were drilled under the new area.

Most of the heating energy for the building comes via heat pumps from the wells and also in the summer for the cooling energy of air conditioning. The extra energy for demand peaks during top frost comes from a heating centre using wood chips from local forests as the energy source.

“With the five year experience the renewed heating and air conditioning system has worked excellently,” says Savonranta plant manager Kimmo Turtiainen. “Floor heating gives a comfortable and even heating while cooling in the summer is even and welcome. The running expenses have also been according to expectations.”



A local heating entrepreneur looks after the small chip heating centre that generates heat for the demand peaks of the facility.

## Continuous improvement taking place at Klaukkala facility

**AN EXPERIMENTAL** programme for continuous improvement has been started at Klaukkala. The target is to develop new methods, improve ergonomics and in general make things better by generating ideas from the staff. The aim is to improve the common good and the originator of a successful idea also receives a small reward.

“So far we have received seven ideas, out of which four have been discussed and three approved,” says Klaukkala plant manager **Pekka Antikainen**. “The cases are very variable and we have had a good start. If the experiment succeeds we can expand this model to all of our manufacturing facilities.”

One approved idea was for a new kind of tool for press brakes. The expense to realise the idea was about 4,000 euros but has brought yearly savings of 5,000 euros.

The second idea was to get a digitiser table for digital signatures. With some jobs there has been a signed examination document. Previously the document was printed, signed with a pen and scanned back to digital format. Now this excessive and frustrating handling has been left out. The cost of the improvement was 300 euros and the yearly savings have been calculated to be 600 euros.

The third successful idea was about re-arranging the fastener warehouse. The production facility uses vast amounts of screws, rivets and other fasteners. Now it is easier to find whatever is needed. The improvement, put in place following the Japanese Kaizen principle, was of obvious benefit and was arranged by consensus. The monetary value of the improvement has not been calculated.

## New performance for the SMD line at Savonranta plant

**THERE ARE TWO SMD LINES** running at the Savonranta manufacturing facility and last autumn the Siemens line was updated with two placement machines.

At the moment the line has as many as five placement machines so job changes can be faster when required. A number of the machines can be loaded for a new job while others are working on another job.

Altogether the update means a remarkable capacity increase for the line.



The Siemens SMD line at Savonranta got an update with two placement machines that are faster and more accurate than the old ones.









PERSONAL AND NATIONAL  
SAFETY WITH ENVIRONICS TECHNOLOGY

# THREE DECADES OF THREAT DETECTION

Environics is one of the world's leading operators in its field. It is a high-tech company manufacturing chemical, biological, radiological and nuclear (CBRN) detectors and systems. The company's clients are defence forces, security organisations and industry around the world.

**S**ize is relative. A company with close to 60 employees and revenue of 12 million euros is well known and a significant employer in its hometown of Mikkeli, but on the national scale only a few people know it. Among its clients the company, however, is very well known and nobody needs to ask who or what is Environics.

## **Development and production in Finland**

The story of Environics dates back to the beginning of the 1980s when the scientists of Kuopio university were working on the detection of gases. They succeeded in coming up with a method to detect nerve gas. Hannu Salmi saw the opportunity, acquired the patents of the method and founded Environics Oy in 1987. Salmi worked as the CEO of the company for 25 years.

From the beginning it was quite clear that a company working in an extremely narrow, specialist field had to go abroad. Today the company has clients in more than 50 countries and resellers all over the world.

Environics is distinctive in that it manufactures all its products itself. Development and production takes place in Finland, in Mikkeli, and production has never been moved abroad. All products include a lot of sophisticated electronics. Production of circuit boards for the firm takes place in Darekon's Haapavesi manufacturing facility.

## **A lot of cryptic abbreviations**

CBRN is a self-evident acronym for all the people in the field and there are tens of professional magazines in the world with these letters included in their name. The issue is about threat: chemical, biological, radiological and nuclear.

The "mass product" of Environics is a handheld CWA/TIC detector called ChemPro100i. These letters unfold to "chemical warfare agents and toxic industrial chemicals". With additional modules the ChemPro can be equipped as a complete CBRN detector.

A mass product in this context means that Environics has delivered more than 15,000 handheld devices all over the world. Financially the biggest deliveries are various complete systems that include transportable and fixed devices together with versatile control software.

## **Classifying ionised gases**

"C for detecting chemicals is our most important line of business and the core of the company," says Mika Reiman, v-p of operations and production at Environics. "The base of detection in the ChemPro detector is a sensor that we have developed ourselves, based on IMS technology. IMS is an abbreviation of ion mobility spectrometry. The sensor measures the mobility of ions. Sample gas is ionised with a radiation source and the sensor exami-



Mika Reiman shows Kirsi Korhonen the latest features of ChemPro100i. Besides handheld devices Envionics manufactures fixed systems. The systems are assembled and tested thoroughly before delivery.



nes how the ions fly in an electric field. From this we can evaluate the substance in question.”

“The detector also has several other sensors and the final intelligence of the device is based on combining the information from different sensors. Our expertise is in how to use the sensors.”

After the sensors come the electronics that handle their signals. Reiman explains that measuring is analogue technology and the analogue signal is converted to digital for analysing. Libraries of information have been developed for the devices that include many different substances as standard. The devices can also be taught to detect other substances.

The device detects and classifies various substances. It is a first responder – not an analyser. The purpose of the device is to protect people. They are very fast and warn immediately if they detect something harmful. It does not precisely detail what the particular substance in question is but indicates to which harmful group of substances it belongs.

The handheld ChemPro100i device is turned on when a soldier leaves for a mission. It can be held in hand or attached to a belt. If the device gives an alarm the soldier puts on a gas mask and other protective accessories. Devices in vehicles measure internal and external air and fixed devices sample, for instance, air in incoming air channels.

#### **An active investor to new owner**

“We are such a specialist company in our field that CBRN is practically the only thing that we do,” says Kirsi Korhonen, CEO of Envionics. “Most of our competitors are giant companies and this field is only a small department for them. This means that we can’t afford mistakes in choosing our strategy and developing the products.”

“The US market for CBRN threats and preparing for them is the single biggest market. Our British competitor is practically in a home market there and is very difficult for us to defeat. In all other markets we are doing quite well, also in NATO countries.”

Envionics got a new owner a year ago when the mutual fund VersoVentures acquired the company. The new owner is an active investor and wants to finance the growth of its companies.

“This is a very interesting opportunity for us and allows the possibility for strong development,” continues Korhonen. “We have been continuously growing during the last several years and after a few years with negative results our operating result has now been positive for the last three years.”

#### **Many possibilities in business**

The growth of the company has been especially strong on the system side. For instance, the Far East market has been warming up and the company has recently made good deals there.

“Besides the army, our devices are needed in many other uses as well,” Korhonen points out. “For instance border control and there radiation detection is particularly a growing area. At the border we want to detect nuclear material, dirty bombs and other similar things. At Helsinki Vantaa airport we have more than 40 detection stations examining people, luggage and cargo.”

“Emergency operators are one significant group of customers, the police for its part have to prepare for terrorism. The human situation in the world is bad – for our business it is good.”

“Our systems also protect critical infrastructure such as public buildings, metro stations and other places that are potential targets for terrorism. Also VIPs are often protected.”

#### **Continuous development is essential**

“We know that some have tried to copy our devices,” says Reiman. “The measuring algorithm, gas library and intelligence of the device are, however, things that can’t be copied.”

At Envionics they do continuous development work and one thing with a significant contribution is the firm’s own IMS sensor. However, a new version still waits to be introduced.





In the calibration room the sensors of the detectors are calibrated to be accurate. Harmful gases are used in the process so ventilated cabinets and protective accessories are needed.

“The development costs are divided into a relatively small number of devices so we have to carefully consider the things to develop. Just minimising the device would be a one-year job. Developing measuring capability is always a much bigger task.”

“At the moment we are considering the direction for development,” says Reiman. “For the ChemPro product there are many alternatives. The most important thing would be to gather reliable information about the market before making the decision. If you ask the clients, of course they want all properties in the same parcel and at the lowest possible price.”

### Easy cooperation with Darekon

“At the beginning of the millennium we developed our first handheld detector,” remembers Reiman. “The board manufacturer we used since then had financial problems in 2012 and difficulties with deliveries. We then started looking for a new supplier. We tried one and it didn’t work. Then we found Darekon.”

“We first tested the cooperation with a small test batch of ChemPro boards. It worked perfectly so we moved production of all the boards to them as new boards were needed.”

At this moment Environics has Darekon producing some tens of active boards. The run lengths of

production series vary a lot as only tens of some rarer boards for fixed devices are needed per year while boards for handheld devices are needed in much greater numbers.

### Prototypes and flexible deliveries

“We might order from Darekon, for instance, 300 pieces of a certain board and commit to take them in within a year. Darekon is committed to have a certain buffer of completed boards so we know that we can always get boards for eventual express deliveries. On the other hand Darekon can manufacture all the boards in a suitable slot if they so wish.”

Darekon also manufactures prototype boards for Environics for product development. According to Reiman they function well and at the moment there is a five piece series of one board in the process. If the device using these boards proves in testing to be suitable for the client, a relatively large order may follow.

“There was a lot of work needed at the beginning when we moved the board manufacturing to Darekon. They also had excellent willingness and resources for that. Now we have come to a situation that everything with them works almost by itself,” smiles Reiman. ■



Environics is one of the leading operators in its field.”



# A BIG EXPANSION AT THE HAAPAVESI SITE



The parking place of the facility has been changed into a construction site. The roof of the old part will also be renewed during the work. The small photo is from the beginning of the millennium.

Space at the Haapavesi manufacturing facility was getting tight with strong volume production so the time arrived to build an extension. The new space will be completed in November and will allow for further growth as well as the ability to offer clients more versatile services.

**T**he Darekon Haapavesi manufacturing facility has been in operation for 30 years and the original 1,000 square meter building has grown with several extensions during that time. The enlargement of 1,440 square meters now being built is the largest and increases the space in the facility to about 5,000 square meters.

## **The city builds for companies**

The Haapavesi city authority has built the premises for Darekon one phase after another every few years. After each expansion Darekon has acquired the extra space. Besides the enlargement, there are also significant modernisation projects underway that cover the whole facility, such as air conditioning and the external roof.

The city and Darekon together came to the conclusion that it would be simpler to have only one

owner for the old and new parts of the building. The result was that the city acquired the whole building from Darekon, making the paperwork simpler. The whole investment by the city is about three million euros out of which the enlargement and modernising account for two million.

## **Space for growth and reforming**

"The old premises started to get poky at the current production volumes," says Haapavesi's plant manager **Antti Järviuoma**. "This is partly due to the change in the nature of production. We have gradually got more mechanics and final assembly work that requires more space."

"Of course our target is to grow and new premises provide the space for growth and an opportunity to offer more versatile services to our clients. We try to respond to changes in the market and streamline our processes continuously. More



modern factory automation also supports the automated processes of our production better.”

In practise this means that the placement and soldering lines are being moved to the new part of the building, which gives more freedom for the layout. This makes material handling – material streams – more fluent when all the manufacturing equipment can be optimally placed for each process stage.

### Air conditioning and energy efficiency

As part of the renovation the whole air conditioning of the building is being renewed. Manufacturing processes require accurately controlled circumstances both for heat and humidity so the space needs to be heated and cooled, dried and moistened according to the time of the year and weather conditions. The renewed air conditioning gives a better and more economical possibility for that.

There are 15 energy wells – each 300 meters deep – drilled under the new part of the building for cooling the premises. The building is already connected to district heating so heating systems are not being changed. Reflow and soldering lines particularly produce a lot of heat and control of that heat is most efficient in the new part of the building. At the same time controlling the environment in the old part will get easier.

More efficient heat recovery from the exhaust air is one natural part of the air conditioning renewal. All three of the usual recovery systems will be used, i.e. fluid circulating heat exchanger, rotating heat exchanger or recuperator and traditional plate heat exchanger.

### Efficiency and product ensembles

“We want to develop and boost our production,” says Järviluoma. “Efficiency does not however mean that we would want to control our employees more tightly, on the contrary. Efficiency means that we remove, as far as possible, all the unproductive stages of the production process. This frees more working time and gives time and space for producing added value.”

Productivity and quality are, according to Järviluoma, tied together. When quality is improved also efficiency gets better as minimised need for repairs shortens the lead-time of a product.

“The enlargement also gives us the possibility to create more jobs and to offer larger than before product ensembles,” continues Järviluoma. “Now we have been able to quote products that we couldn’t produce without the enlargement. We are able to meet the needs for change and move from mere SMD assembly to manufacturing more versatile product entireties.”



Internal construction is in full speed, shows Antti Järviluoma.



The enlargement gives space for more efficient production.”

## HAAPAVESI IS A DEVELOPING CITY

In Haapavesi there are young people, good education services and a healthy age structure. It is a good place for Darekon to operate and advance.

**HAAPAVESI** Vocational College provides, among other courses, education for electronics and IT technicians and Haapavesi Folk High School also provides adult education. The Ostrobothnian city of 7,000 inhabitants is lively and developing.

“Haapavesi city is very favourable towards entrepreneurship

and the decision over the latest contract with Darekon was accepted unanimously by the council,” says Haapavesi’s mayor **Antti-Jussi Vahteala**. “Haapavesi has a long experience of co-operation with companies since the first industrial facility built by a community in Finland is located in Haapavesi. It was built in the 1960s.”

According to Vahteala it is essential that Haapavesi city and Darekon can benefit from each other. The city needs jobs and taxpayers, Darekon needs qualified employees. Darekon is the second biggest private employer in the city after the national dairy company Valio. Stability at the operation is created by the

fact that personnel exchange is very low. When people have settled down in Haapavesi, it is good to stay there.

The age structure of Haapavesi is also good for business as there are young people and children and the birth rate is good. There are no major changes in the age structure visible for the next 5 to 10 years.

“Cooperation with Darekon is excellent. It is easy to discuss with both the managing director and the plant manager, and we have no problems. We believe that this good cooperation will continue in the future. Darekon is a good company and I am sure they will also be successful in the future,” says Vahteala. ■



Former minister and Speaker of the Parliament, Ahti Pekkala, was from Haapavesi and he was an important person in the development of the city. He was also a “godfather” for Darekon to be located at Haapavesi, says mayor Vahteala.

# THIS TRANQUIL ORGANISER IS A HIGHLY APPRECIATED BOSS

Sławomir Wawryk or Slawek, as he is less officially known, has collected a great deal of experience during his life. Maybe that has taught him to be so well organised, motivating and open.



Slawek was already interested in technology as a young man.

**“B**efore we begin, I wish to say that I don’t like this very much,” says Slawek at the beginning of the interview. “This is not a one man show, the strength of the group is always in the background. When we discuss the development of Darekon Poland facility, there are always many people behind the success.”

## **The biochemist did not become a doctor**

Slawek is from Bodaczow, which is a small town near Zamosc in southeast Poland. Zamosc is a town that is open to versatile cultures and has the third oldest university in Poland. The university was founded by a Polish nobleman Jan Zamoyski in the sixteenth century and provided a very high standard of education.

After primary school in Bodaczow, Slawek went to secondary school in Zamosc to study biochemistry in the very same building where the university first operated. The venerable atmosphere present in the building had a great effect on Slawek. Most of Slawek’s friends became doctors but he was more interested in technology and so he started studying medical electronics in the Technical University of Gdansk in 1987.

“I chose Gdansk partly because the Solidarity movement was active there and I thought it would be good to be near the ‘core’ of Poland. I am not a political person but I have always had a tendency to be critical about the current situation. And I still am positively critical, I follow and support constructive forces.”

## **Luck with people and places**

Slawek commemorates the 1980s that presented some tough and challenging times.

“I remember the changes that took place before the year 1989, when the communist party fell. I saw the dramatic inflation, up to 100 per cent in a month! But I also remember the first holidays abroad. I cycled over the Alps to Rome, the Vatican, around 1990. I was also picking strawberries

in Sweden. I met really fine people and I still have contact with some of them – a 30-year friendship.”

When Slawek graduated the situation was completely different compared to today. He didn’t have any exact plans for the future but then he happened to meet an American who opened a Microsoft training centre in Poland. So Slawek got his first work experience as a trainer of Excel and other software.

After some time he moved to pure engineering work as a service engineer of blood analysers in laboratories and hospitals. By then he wished to continue in a more managerial direction and started MBA studies in 1999.

## **Latest technology in contract manufacturing**

“For four years with the blood analysers I spent a lot of time in a car on the Polish roads that were very much different compared to today. I drove seventy thousand kilometres a year, I was more a chauffeur than an engineer.”

Then Slawek got a job at Philips as a customer support engineer for Central-Eastern Europe. Philips delivered SMD lines and Slawek was involved in start-ups and optimising the operation of the lines. He spent a lot of time in the most modern contract manufacturing facilities in Europe. He also flew more frequently than driving since most of the clients were abroad.

“One day on a plane I read a small news item that Gdansk was going to be the ‘Silicon Valley’ of Poland and Flextronics would be the biggest investor. I sought work with Flextronics and soon I was appointed a production engineering manager. That was my first managerial job, I hired the team and set up the operation.”

After several years with Flextronics, the times changed and the operation was moved abroad. Slawek needed a new job.

## **Darekon was at a threshold of expansion**

“Darekon was located near my home, just four kilometres,” remembers Slawek. “My family was





Slawek has been building one of the most modern electronics manufacturing facilities in Poland for Darekon.

“

Slawek was asked to put his plan into practice.”

growing and after many years of traveling it was a good moment to settle down. Darekon was a completely new experience for me as in my previous jobs I was always starting something new. Now there was an existing operation and organisation.”

Slawek had worked in the most modern manufacturing facilities in Europe and at that time the Darekon operation in Poland had some developing challenges. Slawek agreed to audit the operation, made a report and an action plan. Kai Orpo and Kari Koponen asked him to join the team and put the plan into practice.

“There was a lot to do and a lot of space for development. I knew the challenge and it was interesting. I joined Darekon in the autumn of 2007. The agreement with Patria had just been signed and project management was needed. Also material sourcing was beginning at Darekon Poland.”

After that the development of Darekon's operations in Poland has been quite dynamic. SMD assembly was developed and a big step was made in 2010 when production of medical electronics was started. In 2013 most of the production was moved in to a new and spacious facility. During these years the revenue of Darekon Poland increased from two million euros in 2007 to 6.5 million this year.

#### Who is Sławomir Wawryk?

Slawek prefers to talk about his work, not so much about himself. In his spare time the family comes

first. The eldest daughter is 22 and has just graduated in Krakow. The youngest daughter is five and there are three more in between. Slawek is still an active father.

Slawek met his wife after the first year at the university. He travelled for three years to her hometown but then she moved to Gdansk.

Slawek is active in sports. He runs to stay fit and last May he achieved an unofficial marathon record of less than four hours in Krakow. During winter he uses the same bicycle from his time at secondary school and plans to start cycling the 16km to work. Slawek also keeps dreaming his childhood dream of gliding.

#### What do other people say?

Dorota has worked at Darekon since 1994 in administration. She obviously has a lot to do with Slawek.

“He is a boss who has always time for people. It is easy to talk to him and it is always possible to ask anything. He is very ambitious and likes learning. He is also very well organised and good at solving problems.”

Marta has joined Darekon recently and works at sourcing.

“Slawek is calm and gentle. He doesn't go by emotions and he is good at motivating people. He is not a tough boss even if he has the responsibility of the whole company. I appreciate him very highly.” ■

Jari Aspegren  
explains a dia-  
gram describing  
the relations of  
various stake-  
holders in Dare-  
kon's operation.



## DAREKON UPDATES ITS MANAGEMENT SYSTEM

# PRODUCT MANUFACTURING IN SAFE HANDS

Updating an ISO standard is a big process and Darekon has taken on two updates simultaneously. The firm also has an ambitious target to bring the new versions into practice at the beginning of next year.

ISO is an international organisation with membership formed by national representatives of ISO standard in 163 countries. The principle is to renew all standards every five years to keep them up to date. The renewals are often small but this time the renewals are significant and concern the management system standards ISO 9001 and ISO 14001. Taking on the large renewal of two essential standards at the same time is very unusual.

### Many challenges for the autumn

"There is a three year transition time in taking the new standards into use, but we have made a target to bring them into practice early, as soon as practically possible," says Darekon's quality manager Jari Aspegren. "At the moment we are making the updates of quality management standard ISO 9001:2015 and environmental management standard ISO 14001:2015. The medical devices standard ISO 13485:2016 will be updated right after these, at the beginning of next year."

"A new standard brings new perspectives with it. Risk management for instance is a big new issue in standard ISO 9001. Business strategy will also be included and will be connected as part of the

management system. Various stakeholders will also be included - more than previously - and we will identify their requirements particularly where that effects quality management and management system."

According to Aspegren, process management will be enforced and also responsibilities, authorisations and roles in development will be specified for supportive processes. The target in the entirety is to minimise operating variations and to create a self-learning organisation. All processes shall also have clear measurable targets. The measured figures will for their part give a base for further development of the operation.

### An entirety of four sites

All the four manufacturing facilities of Darekon have the certifications for standards ISO 9001 and ISO 14001. The facilities in Finland have also been certified for ISO 13485 regarding manufacturing of medical devices. With the new update ISO 13485 will also be certified in Darekon's Polish manufacturing facility. Operations in Poland will also be included in the corporation's management system.

"With the update we will compose a new description of the management system that was pre-





Control lists near production lines are visible to all workers, showing the operability of various manufacturing stages in the production.

viously called the operational system,” continues Aspegren. “In the management system the strategy will be based on the published mission, vision, and values of the corporation. Business targets or strategy details will not necessarily be published publicly, but things described in the management system will be revealed to clients when needed and published to personnel.”

“The documentation will include things specified in the standard, such as sourcing, production and customer satisfaction together with things that we ourselves want to include. The owners have given a perspective that we will implement. Management will operate the practise according to circumstances. Reporting will take place from production teams to facility teams and further to the CEO and board of directors who evaluate the success of the strategy and operations.”

### Many benefits from the update

According to Aspegren risk management is one important benefit effecting daily operations. It expands in many ways the current risk management system and covers as well accident-, agreement- and human risks as product risks and risks involved in production. The recovery plan is one important detail. These plans are developments of prior existing arrangements.

“In Haapavesi we may have had space for improvement in building security,” estimates Aspegren. “The outside doors have previously been unlocked during the day time, but now they will be equipped with electric locks and access control. During the refurbishing of the building there will also be a new fire alarm centre and new sensors installed.”

Data security has already been taken care of at Darekon. Servers, for example, were moved last year to secure data centres. For production there are two production lines and other doubled systems so things are quite well arranged in case of accidents and machine breakdowns. Rearranging work shifts can solve momentary capacity problems but in worst cases scenarios another of Darekon’s manufacturing facilities can operate as back up.

Taking stakeholders into account more than previously is in Aspegren’s opinion another important issue. Staff and owners are mostly the internal stakeholders but there is a long list of external ones: clients, suppliers, competitors, society, authorities, insurance companies, financiers, real estate owners, waste material handlers and many others.

### What is the benefit of standards?

“Our own qualitative operation is systematic and robust because of concrete specifications, and we are able to measure and develop our operation,” answers Aspegren. “At the same time we have the evidence for our stakeholders that we operate according to standards and customer requirements.”

For the clients this means, according to Aspegren, that they can sleep peacefully at night knowing that the manufacturing of their products is in safe hands. Their requirements will be met and as an additional bonus Darekon can supervise many extra things on their behalf.

“During the updates we make plans and naturally look forward several years. Those plans we, however, will not reveal yet,” smiles Aspegren contentedly. ■



Updating the management system unleashes new options and benefits.”



Kimmo Turtiainen on the “balcony” of the latest extension of the facility. SMD lines have been moved to a spacious environment, making space in other parts of the facility for other tasks such as final assembly.

## SAVONRANTA IS AN **AGILE ALL-ROUNDER**

Darekon’s Savonranta manufacturing facility was acquired in 2006. By then the facility had been manufacturing electronics for 20 years. The last ten years in the Darekon family has been a period of strong development for the facility and staff have evolved into multitalented manufacturers.

**E**ach of Darekon’s manufacturing facilities has its own role within the corporation. Haapavesi specialises in mounting the most demanding printed circuit boards. Darekon’s site in Poland is an economical facility and manufactures longer production series, together with products with more manual work. Klaukkala for its part makes sheet metal parts and final assembly. The role of Savonranta is both versatile prototype production and final assembly of equipment.

### **Many high demands**

The production equipment at Savonranta is to a large extent identical to that at Haapavesi, although the facility is half the size. The most de-

manding SMD mounting is usually done at Haapavesi as it has the newest and most accurate machines. On the other hand Savonranta has the capability of running some processes that the other facilities don’t have. Versatile coatings is one such area.

“We manufacture products that often have certain special requirements,” says Savonranta plant manager Kimmo Turtiainen. “We have for instance the ISO 13485 certification for manufacturing medical devices and we manufacture products for explosive areas according to EX/ATEX standard and equipment for railroad traffic according to IRIS standards. With so many various high requirements, the standard production is done to a very high level even if no certification is required.”



Final assembly requires knowledge and care. Ari-Pekka Karvinen assembles central units for control systems. In the background more frames are waiting their turn.



An automated coating robot spreads selective coating on desired parts of the circuit board.



Emilia Jääskeläinen is preparing component cassettes for the placement machine for manufacturing the next product.

For instance the EX/ATEX certification demands that the production process follows some exact rules. The components and manufacturers must be traceable and watchable: who has done it and what have they done. In Savonranta the makers are identified down to the personal level. A person must also have EX/ATEX training, otherwise he or she cannot do the work. The training includes study of the meaning of the certification and how to meet the requirements for recording inspections, entries and documents.

### Makers are all-rounders

The employees have very different lengths of careers behind them. The first person to retire from the facility did so last year and many staff have been employed at the facility for over 20 years. On the other hand some of the people are quite young and have only been in work life for a few years.

“At the beginning the number of employees was of course much smaller and has been growing year after year,” says Turtiainen. “Everybody has had to do many different things and adapt to changes. We have also intentionally trained people in-house from one task to another. So they have gathered ability and experience in many tasks.”

“All have a strong commitment to the company and to taking good care of customer projects. Many of them are really multitalented experts in all the functions in the facility. This gives us the flexibility to allocate resources according to needs and avoid bottlenecks before they even exist.”

### Many years of development

Kimmo Turtiainen has been employed at the facility for some twenty years. He has seen the rapid change and development of the facility, particularly during the last ten years.

“When Darekon acquired us in 2006, we got completely different resources for developing the operation,” recalls Turtiainen. “Year 2008 was the

period of the strongest development. That year we got into the first enlargement of the facility and our turnover grew strongly. At the moment our revenue is some 6-7 million euros and we are about 40 people.”

“Year 2011 was another big step and that year the next expansion of about 1,000 square meters was completed. It gave more space for new processes since previously it had been a bit cramped. Final assembly started to grow strongly and resources for coating, testing and ageing processes were developed strongly to correspond to increased demand.”

### Strength in cooperation

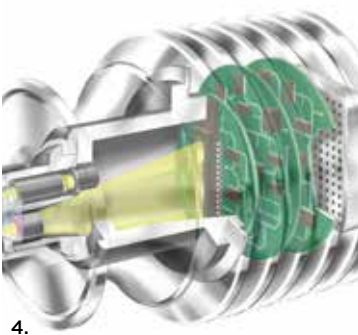
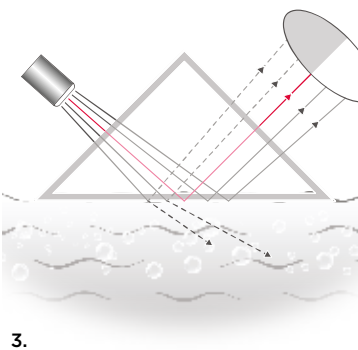
Darekon has made continuous development a key ethos on a corporate level and introduced a new organisational model. It takes advantage of the best aspects of the large and the small. A firm operating across several facilities is flexible but the advantages of size become visible, for instance, in sourcing when negotiating component prices. Each facility independently sources the components needed for projects but prices and other terms are negotiated within the entirety. And this is naturally for the benefit of the clients.

Various of Darekon's facilities operate relatively independently, but also close to the body of the company when required. Products for most clients are only manufactured at a certain facility but the resources of other facility are used when needed, for instance for making sheet metal parts in Klaukka or cable harnesses in Poland. For the very biggest clients there may be some products manufactured in one facility and others in another.

All of this is visible to the client in the economical and efficient operation of their chosen manufacturer. When a client gets their products from one supplier as close to finished as possible, the material streams are better controlled and schedules disciplined. The client saves money, commits less capital and managing their business becomes easier. ■

“Many of the staff are really multitalented.”

# K-PATENTS MEASURES ALMOST ANYTHING WITH A REFRACTOMETER



K-Patents is a real pioneer in industrial liquid measuring. The high-tech company, founded in 1978, exports 98 per cent of its production and develops technological solutions that win customers all over the world. Darekon's Savonranta facility manufactures printed circuit boards for K-Patents and assembles part of the company's product.

**A** refractometer is a device that measures the bending of a light ray and with that measurement can determine the concentration of soluble substance in a liquid. It is only simple in principle. When K-Patents' sensor is used in an industrial process, placed in high temperature and under pressure, typical measuring accuracy is  $\pm 0.1$  per cent. The devices operate maintenance-free and reliably for decades. We are talking about very advanced technology.

## Measuring almost anything

It is possible to analyse samples of liquids from an industrial process in a laboratory. However, this entails an obvious delay and can be prone to errors. When measuring is done accurately and inside the process, one can optimise the process in real time and continuously. The economical benefits are remarkable.

With the devices from K-Patents one can measure almost anything. At the beginning the company started with measurement equipment for the pulp industry, which is still a strong area for the firm. Now one can make a long list of the different industries K-Patents supplies: food and chemical industry; oil refining; medical industry; engineering and mining; semiconductor industry. In short, almost any industry.

"All the companies with good results in the process industry are using our devices," says K-Patents production director Arto Hämäläinen. "What is the reason and what is the consequence, that is worth considering."

## New product series to be made at Darekon

K-Patents has just released its new product series, PR-43. The first PR-43 devices have been designed for the food and med-

ical industry. The start of a new product series is, according to Hämäläinen, a good moment to change manufacturer since it is such always a big task.

"We examined the operation at the Savonranta facility in the 1990s, when the facility was owned by the previous owner," says Hämäläinen. "This time we examined various electronics manufacturers in Finland and found Darekon suitable in many ways. They are not too big or small, the level of their technology is high enough and they have a good quality system."

"Besides that they have the capability to make final assembly, testing and ageing of certain products. They have enough capacity for ageing. It is vital to catch any possible problems at Darekon and at the latest at our facilities. It is difficult and expensive when the product is somewhere behind the Urals or in the Brazilian jungle."

## Big production next year

Cooperation between the firms began about half a year ago and now there are prototypes and zero series being made.

"We have very active communication on both sides," continues Hämäläinen. "We are still on the learning curve of cooperation but we have already got to know each other quite well. Next year we will start big production together." ■

1. The sensor is the core of K-Patent's product. Darekon manufactures the electronics inside it. See also image 4.

2. In most cases the sensor is connected to a user interface, like the Multichannel User Interface MI here. Darekon manages final assembly, ageing and testing of these units.

3. The principle of a refractometer: light is sent through a prism to a liquid. By the angle between reflection and refraction one can determine the concentration of soluble matter.

4. The sensor includes a lot of patented technology. K-Patents invests a lot in research and development and has all important new inventions patented.

5. "K-Patents has daughter companies in USA and China. There are also tens of representatives around the world," says Arto Hämäläinen, showing one of the many sensor models.



# THE SALESMAN IS A CLIENT'S FRIEND

The work of Darekon's salesmen is interesting and varied. The clientele comprises of many kinds of companies operating in many different fields. The products they manufacture are hugely diverse and the challenges they present are various. Workdays are certainly interesting.

It is possible to think – and people often do – that the task of a salesman is to make the client buy as many products from the company as possible. However, Darekon's salesmen operate at a completely different level, a step above.

## **Solution-based added value sales**

"My average workday is filled with communication with the clients by telephone and e-mail, meetings, internal palavers and normal office chores," describes Darekon's sales director Pekka Mikkonen. "Average days are relatively rare though, as each day is different."

Actual "sales work" for Mikkonen is focused on obtaining new clients. Sometimes he uses hardly any of his time for that task and sometimes almost all of his time, if a very promising prospect is in sight. In practise 80 per cent of his communication is with existing clients.

"With Petri Kettunen and other key account managers we are all the time developing various forms of cooperation with our clients, prepare the production of new products, seek for solutions in order to continuously streamline practical issues and we are always ready to react quickly if clients need us. Especially for new clients we can – thanks to our long experience

– often suggest solutions that bring them significant added value."

## **New clients are wanted**

In Darekon's strategy growth and profitability are essential. Most of the existing clients grow continuously, but also new clients are needed and wanted. Growth, however, has to happen while maintaining profitability.

"We regularly monitor publications in the area to see if new interesting companies have been born and if there are companies that we don't know about," says Mikkonen. "Also old friends are often very useful and give good hints."

"When an interesting prospect is found, we give them a call and suggest a meeting. The companies are almost always happy to see us. During the present start-up boom it is actually quite easy to locate new technology companies. To find an enduring and suitable client is, however, far more laborious. Maybe 5-10 per cent of contacts finally lead to an enduring customer relationship."

## **Both must suit each other**

The first meeting is often followed by a visit to a manufacturing facility if the customer doesn't request for a quote immediately. At the latest, after the visit, the request is presented.

In the best case a Darekon client is a company requiring electronics manufacturing, mechanical structures, logistic solutions, final assembly and design services. All of these are available, but very seldom one client needs all of them.

"The products will of course have to be suitable for our machinery," continues Mikkonen. "For printed circuit boards this is seldom a problem, but for instance with sheet metal parts we may sometimes encounter parts that are difficult to make."

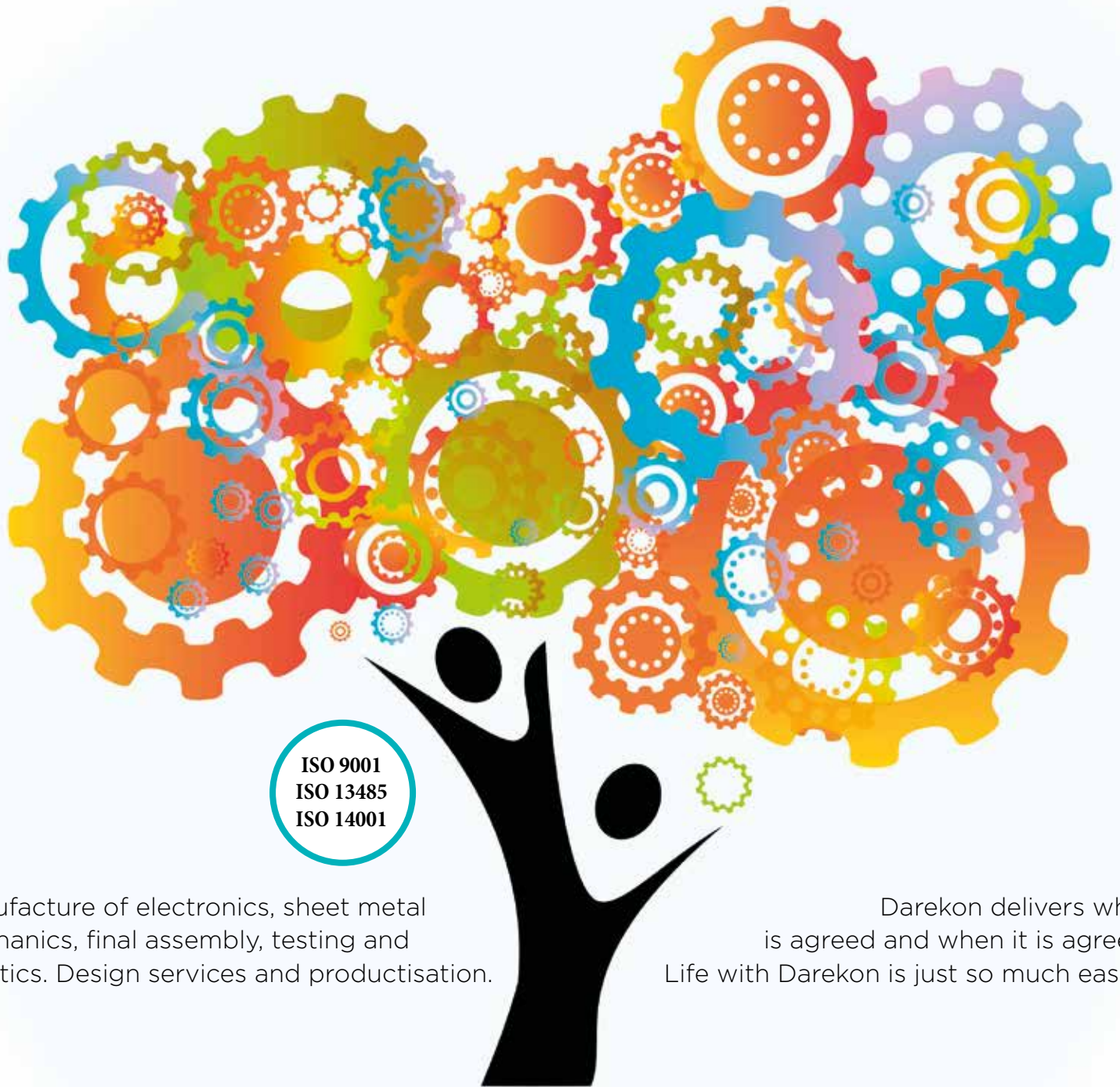
"We can say roughly that everything from a stamp sized product to a 55-inch television set is fine for us. We have, however, built 144 square meter video displays for the Sochi winter Olympics, but we had to assemble them outdoors for testing. We will always find a solution."

"Genuine cooperation with the client is finally the most important thing. In production there are always details that have to be discussed and agreed. Sometimes compromise leads to the best final result." ■



Pekka Mikkonen looks for clients with whom it is possible to create genuine cooperation that is beneficial for both parties.

# Cooperation and know-how



Manufacture of electronics, sheet metal mechanics, final assembly, testing and logistics. Design services and productisation.

Darekon delivers what is agreed and when it is agreed. Life with Darekon is just so much easier.

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