

# DAREKON.net



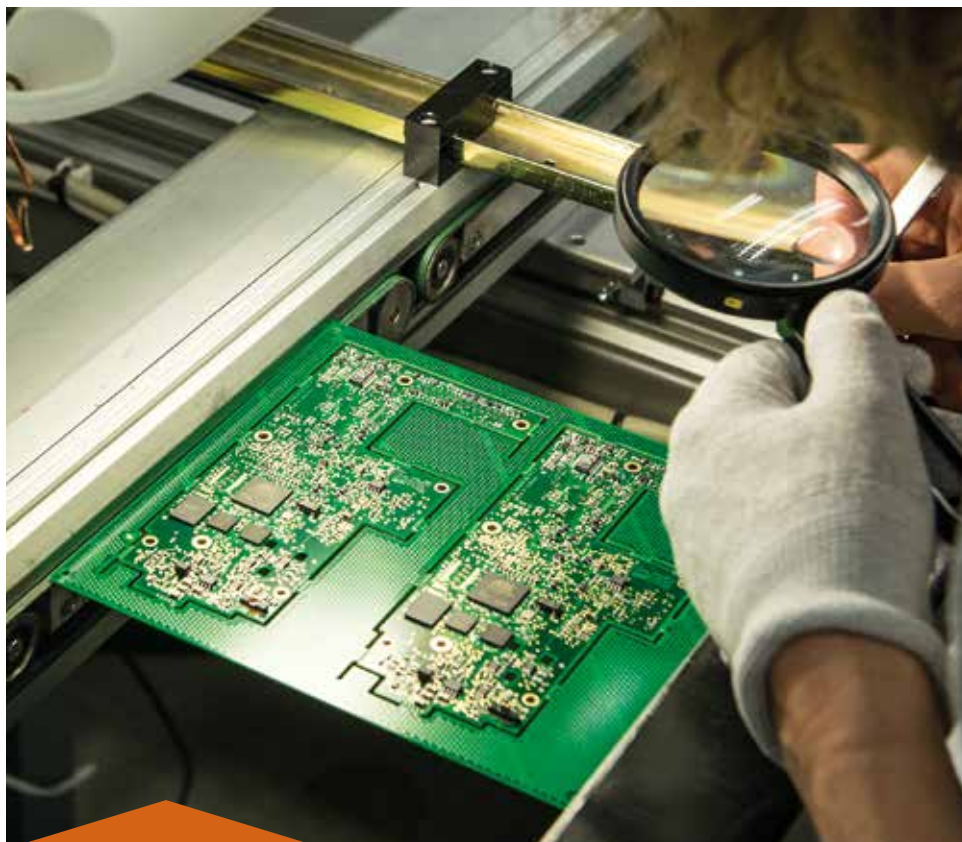
NEW SMT  
PLACEMENT SYSTEM  
improves efficiency at Haapavesi  
manufacturing plant

ENSTO AND  
DAREKON  
develop their  
deep co-operation



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**AUTUMN • 2015** CUSTOMER MAGAZINE OF DAREKON GROUP LTD



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“Challenges are made to be faced.”

**10** At 30 years old Darekon is like a young man at his best, ready to face challenges and overcome difficulties. Growth and development continue steadily, in hand with the firm's humble approach.

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## 30 years old and feeling good

**THIRTY YEARS** encompasses the whole history of the Finnish electronics industry. Darekon has lived through it, all the time growing profitably from nothing to current levels of 38 million euros. Sometimes the steps have been small, sometimes bigger as every succeeding million requires quite a lot of extra production. Our personnel has always been flexible and able to stretch to meet changing needs.

At the beginning we were a family business and in 2008 a private equity company became the major shareholder. We sold our share to them because it was the financial reward for a long entrepreneurial career. At the time we had no idea that we would one day acquire the company back. However, that happened last spring.

We believe that this is the next step forward for Darekon. Hopefully I have years yet to give the company. Ownership allows the space to influence the firm's future direction. However, major changes are not being planned nor any change to the firm's objectives. Instead, expansion and profitability remain essential to the future. If we can nurture those objectives there will be nothing to worry about.

Medical equipment, industrial electronics and cleantech are also central to the future. If we provide Darekon's great service we can grow organically together with our clients. Further acquisitions may also be possible in the future.

We develop the company relentlessly. This year we have invested close to one million euros in the new SMT placement system at our Haapavesi plant and smaller investments take place regularly at all plants. This year we will outsource our IT services, which will bring more flexibility. Also our One Darekon initiative proceeds according to plan and has already improved operations.

It is once again time to thank our clients, thank our employees and thank all our partners. Now I wish to say 11,000 thank-yous – one for each day on our 30 year journey. Thank You – without You we would not be here.

**Kai Orpo**

“

Success  
requires a  
willingness  
to develop.”



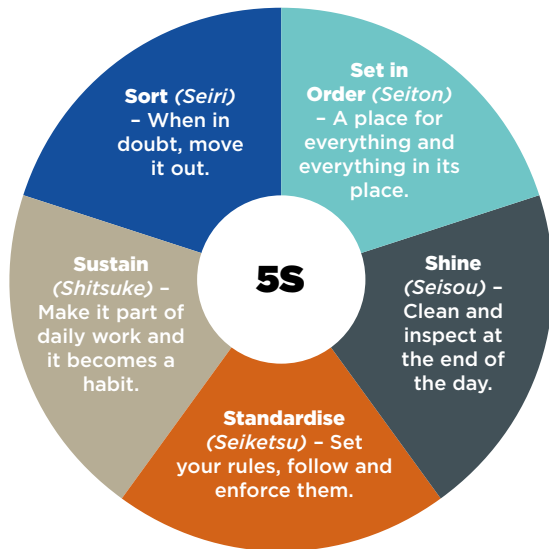
## 5S brings efficiency



### AT DAREKON'S

Haapavesi plant they took to using the 5S method last autumn. It is a Japanese habit of systematisation that makes things easier and more efficient in many ways. The method

is utilised mainly for SMT production. Commissioning 5S requires resources so it will be implemented gradually. The method improves the use of space and safety, working practices become clearer, tools are always in the right place and loss is minimised.



## LED lighting for plants



### AT DAREKON'S

Klaukkala manufacturing facility the fluorescent tubes have just been replaced with LED tubes. The power of the old fluorescent tubes was 58W and the new LED tubes are

24W. However, the light output is better than before. The small heat output of LED tubes also reduces heat load in the summer.

In Klaukkala some 800 tubes were changed and in the Haapavesi plant some 1,000 tubes were replaced earlier. The tubes manufactured by Finnish Valtavalo Ltd are guaranteed a lifetime of 125,000 hours and they have a seven year warranty.



## A new SMT placement system at Haapavesi

**A SIEMENS SIPLACE** system has been installed at Darekon's Haapavesi manufacturing facility. It represents the latest technology and replaces an older system. The Siemens

equipment consists of two placement machines, both of which have two placing fields.

The new system remarkably improves the SMT capacity of the Haapavesi facility and

opens up new manufacturing possibilities, for instance equipment for mobile technology, using very small components. The value of the investment is almost one million euros.

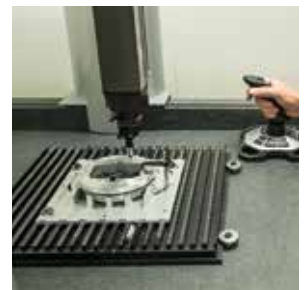
## A new measuring system

**ABERLINK** coordinate measuring machine AXIOM Too 900 CNC brings new levels of accuracy and speed to measuring mechanical parts at Darekon's Klaukkala manufacturing site.

The machine has three uses: checking the measurements for prototype parts;

checking sheet metal products with certain sampling; and incoming inspection of milled parts from external suppliers.

The measuring was previously done manually with a calliper. Multiform parts were, however, not possible to measure with a cal-



liper. The new machine can practically measure all three dimensional parts.

## Darekon is now non-smoking

**AS PART OF THE** One Darekon initiative it has been decided to ban smoking at Darekon during working hours. Smoking is only allowed outside during lunch break.

The subject has been handled thoroughly in workgroups that includ-

ed the participation of occupational health. The trade union is also positive about the issue and encourages non-smoking.

Non-smoking is connected to Darekon's investment in personnel health, which among other aims also supports physical exercise. The



people quitting smoking are being supported in a number of ways. ■

# DAREKON RETURNED TO A FAMILY BUSINESS

Darekon was founded in 1985 as a family business and in 2008 a private equity investor acquired a 60 per cent share. Now Kai and Henri Orpo along with their families have bought back the share of the investor, closing a circle.

**D**arekon was one of the most successful electronics contract manufacturers in the 2000s in Finland. However, at the beginning of the millennium they faced the challenges of serving large international clients and managing continuous growth. To ensure that development, **Kai** and **Henri Orpo** decided to sell a 60 per cent share of their company to private equity company Sentica Partners.

## **Investor joins for a limited time**

“A private equity company always becomes a shareholder for a limited period of time, normally around five years, plus or minus a couple of years,” explains Kai Orpo. “Sentica had owned their share for seven years so it was time for an exit. A private equity company typically establishes a fund for ten years, strives to achieve as great a profit as possible and then the fund is dismantled. Owning a certain company does not in practise last longer than this.”

“When the asset company is coming to a suitable situation for selling, the investor examines alternative channels for an exit.

Among these might often be competitors, international investors, other industrial companies or stock exchange listing.”

According to Orpo some international competitors and investors had some interest, but the desired result was not achieved. Offers good enough for the company and its owners were not received.

## **Executive management the best buyer**

“If the buyer would have been some industrial company in the field – possibly some international competitor of ours – there would have been large rearrangements after the deal,” continues Orpo. “Respectively a private equity company may also acquire other businesses in the same industry and merge their operations together. Neither alternative was tempting.”

“The difference between a family business and a private equity investor is that the investor has to operate in a limited time frame while a family business does not have such limitations. The longer the process advanced, the clearer it became that the executive management with their families was the best candidate to buy.”



Neither alternative was tempting.”



## **Not selling or buying**

According to Orpo they felt that the value of the company was more than the offers received from the best of the candidate buyers. It was also possible to arrange financing for buying the company back. The bank studied and monitored the situation of the company and concluded that they could participate in financing the deal.

“When we started negotiating with Sentica Partners in 2007 we had no plans to sell the company,” says Orpo. “We were not the active partner in the project. Terms and a common strategic vision about the future, however, led to an agreement. We were also not actively seeking to buy the company back but at the end it turned out to be the best solution for both the company and its owners.

## **We rely on the company's future**

When Sentica Partners became an owner of the company, it gave a sturdy backrest for the business. The question may now arise: does the family business have enough capital without a wealthy investor? Orpo is in a position to reassure the possible questioner and explains that the capital structure of the company is in order. Equity ratio is 40 per cent, which is generally regarded as good.

“Acquiring the company is also a message that we trust in its future. As we work here and see what is happening in the company, we believe in our personnel and in everything that we are doing. We are still able to develop. Darekon is not yet complete, it is only 30 years old.” ■



## A PARTNERSHIP BETWEEN DAREKON AND ITS CUSTOMER ENSTO

# HAS DEVELOPED RAPIDLY

Ensto is a family-owned business and international cleantech company with products for the distribution and use of electrical power. In the constantly growing range of products the role of electronics is becoming increasingly essential. In Darekon, Ensto has found a partner able to quickly develop deep levels of cooperation.

**W**hen **Ensio Miettinen** founded Ensto in 1958 he had a vision to manufacture electrical supplies that are easier to install and work better. Today this vision is reinforced by a commitment to sustainability and energy efficiency. The areas where the firm operates have expanded and Ensto now aims to be the world's number one company for the energy efficiency.

### **From megatrends to energy efficiency**

Ensto's development has been coordinated to meet the world's changing environmental circumstances. The megatrends affecting the world today are climate change, energy efficiency, digitalisation, decrease of pure water and other natural resources, sustainability and urbanisation.

Energy efficiency is one way in which we can influence climate change. With increasing energy prices it is also a prerequisite for economical management. Sustainability is about what is happening to our environment while the common opinion influences both legislation and markets.

### **Electricity is not the problem: it is the solution**

The three central sectors of operation for Ensto are supplies and components for power distribution networks, electrical building

technology and enclosing solutions and components for industry's demanding uses.

Industry solutions are used - for instance - in renewable energy production plants; wind and solar power stations. Enclosing equipment needs to tolerate heat, cold, dust, vibration, water, UV radiation and so on. As a result, products are often designed and tailored in close cooperation with a client.

Power distribution is the oldest and largest sector of operations for Ensto. The field is, however, experiencing great changes. Ensto is a forerunner in designing and building reliable and efficient utility networks. Ensto also has a strong grip on developing intelligent electrical networks.

Building technology is closely connected to energy efficient, healthy and safe living. Energy efficient ventilation and precise heat recovery in a well-sealed and insulated building are the basis for these needs. The most important thing about lighting is not to save energy but to create a pleasant environment in which to stay and work. Yet, besides this the Ensto LED lighting range is very energy efficient.

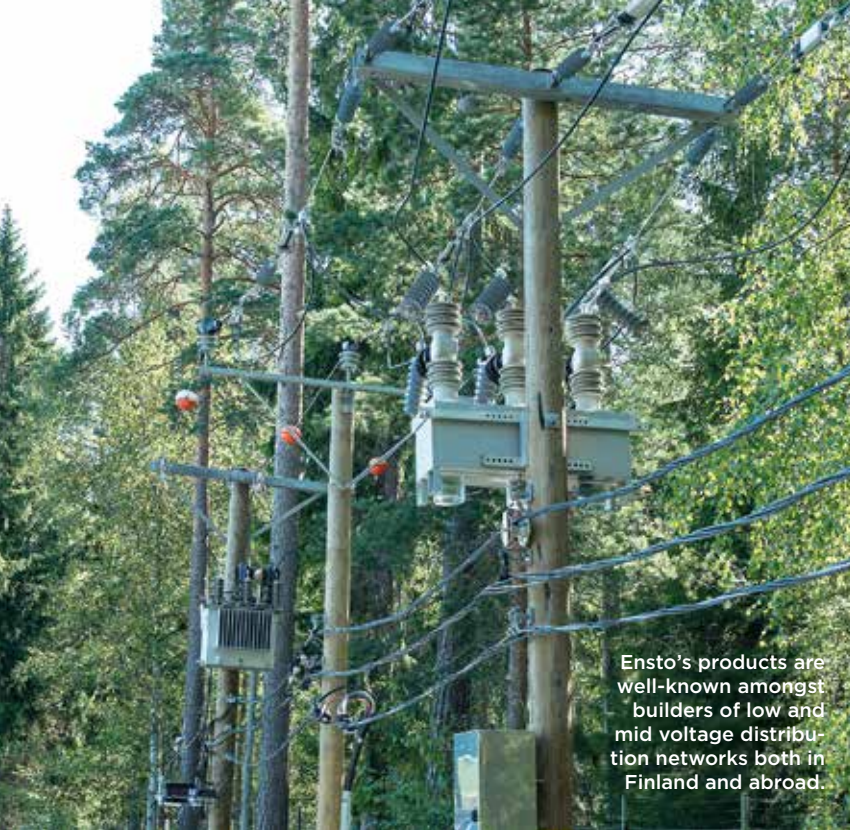
Electricity is common to all of these solutions. It is easy to move and control and in the future it will be an even more versatile form of the world's power. Produced by renewable energy sources it will slow down climate change. The role of electronics in





Equipment and components for electricity distribution networks is an important field of operations for Ensto. Juhani Koski is showing the demonstration area in the yard of Ensto's Porvoo manufacturing plant.





Ensto's products are well-known amongst builders of low and mid voltage distribution networks both in Finland and abroad.



Darekon delivers subassemblies to Ensto's Keila facility near Tallinn where they manufacture lights and other products.

“

Electricity is an easy to move and control form of the world's power.”

controlling electricity is becoming more and more essential and this is where the paths of Ensto and Darekon cross.

#### **Boards from supermarket to shopping basket**

“The cornerstones of Ensto's operations are strong product development, skilful design and efficient, lean production,” says **Juhani Koski**, Ensto's sourcing manager. “We demand that our contract suppliers meet short delivery times and absolute reliability of deliveries. High quality is considered self-evident.”

“Our production is based on lean principles. Our warehouse is a ‘supermarket’ where the supplier ships a ‘patch’ for approximately three days production at a time. From warehouse we move a ‘shopping basket’ or ‘bin’ into production with components for about three hours. This means our suppliers have to be able to react accurately.”

With Darekon the cooperation started with the production of boards for LED lamps, according to Koski. Darekon's Savonranta plant first produced some prototypes and after the product was mature, the production was moved to Darekon's site in Poland. LED boards were later followed by several other subsystems.

In Ensto's cooperation with Darekon, Koski has been especially happy about the initiative shown by the firm: unclear things are quickly resolved and if some information is missing, the firm checks. Also cooperation in planning has begun well and Darekon has

already planned and produced a batch of thermostat test equipment for Ensto. One person at Darekon is planning mechanical parts and productisation almost full time for the customer.

“We started looking for a new contract manufacturer consciously as our LED products increased our electronics purchase substantially,” continues Koski. “We organised a bidding process and Darekon was selected as a manufacturer for several products. Priorities for this selection are most often delivery time, reliability and price.”

“We have a strong quality and NPI organisation. We audit all our new suppliers and production lines. We normally reconsider our electronics contract suppliers every three years and lean aspects even more often if needed.”

#### **A lot of production from Poland**

“Ensto has invested a lot in starts and supported us with new products,” says **Kari Koponen**, CEO of Darekon Poland. “We have had many visitors from Ensto to Poland, both NPI and quality people. We appreciate the know-how and support that we have had from them.”

“We started producing test series in Poland at the beginning of last year and moved to series production the same spring. We started with one product and have now got an excellent range of new products. We have worked well, quality has been in order





Electronics are becoming increasingly important for Ensto's products. You can get a good idea of the range of the firm's products at its Porvoo show room.



## NEW touch screen ventilation control

**MODERN** people spend a lot of time indoors, in well-sealed buildings. It is essential that the inhabitants know how to control the ventilation so that internal air is fresh and healthy. Enervent eAir control is a solution for this.

Ventilation is easily controlled with a visually clear, touch screen controller, according to programmed settings, like 'At Home' or 'Away'. The controller also has an 'Eco' energy-saving mode.

The controller has a versatile timing function if one wishes to set start and stop according to one's own schedule. Timing is possible to set on both a weekly and annual level.

Ventilation can also be controlled via the internet with an equally clear and easy-to-use 'eAir' web interface. ■

and delivery times have been right. Most of the products Darekon makes for Ensto now comes from Poland and the total volume last year was more than one million euros. This year we will probably exceed two million euros."

According to Koponen contacts with Ensto are substantial, between some 20-30 people, and cooperation is developed further on many levels. The products are interesting and the volumes are a little bigger than with most of the other Darekon clients so they suit volume production in Poland. Many products are delivered to Ensto completely finished and ready in customer packages.

"The amount of electronics in Ensto's products has increased strongly and is bound to increase further in the future,"

estimates Koponen. "The next step in our cooperation is logistics. We will start managing the amount of goods in stock directly from Ensto's system and regularly supplement that."

### Three plants produce for Ensto

The cooperation between Ensto and Darekon has developed in just a short time and today Ensto is among the largest of Darekon's clients. Three of the four Darekon production plants have been harnessed to serve Ensto and there is a lot of flexible capacity for growth.

The Poland and Savonranta plants manufacture electronics and Klaukkala's share of the work is a lot of sheet metal proto-mechanics together with product development cooperation.

## Ensto Group

**ENSTO** is a family business and international Cleantech company specialising in the development, manufacture and marketing of electrical systems and supplies for the distribution of electrical power as well as electrical applications.

Ensto is committed to lasting, sustainable development and the goal is to be the

world's leading company in green energy efficiency and distribution.

Ensto's products are environmentally friendly and leave a minimum carbon footprint.

Through recycling and efficient use of resources Ensto helps to reduce the degradation of our planet and make the world a more comfortable and

healthier place to live.

Established by Ensio Miettinen in 1958, Ensto is a family business with 1,700 employees in Europe and Asia. Ensto's turnover is 280 million euros and the company has three key business units: Ensto Utility Networks, Ensto Industrial Solutions, and Ensto Building Technology.



# DAREKON 30 YEARS



In the 30 years since Darekon was founded there has been a lot of work and many remarkable moments. We have collected some of the most important milestones here.

Darekon is established in Haapavesi and training of electronics workers starts.  
**1985**



Haapavesi facility



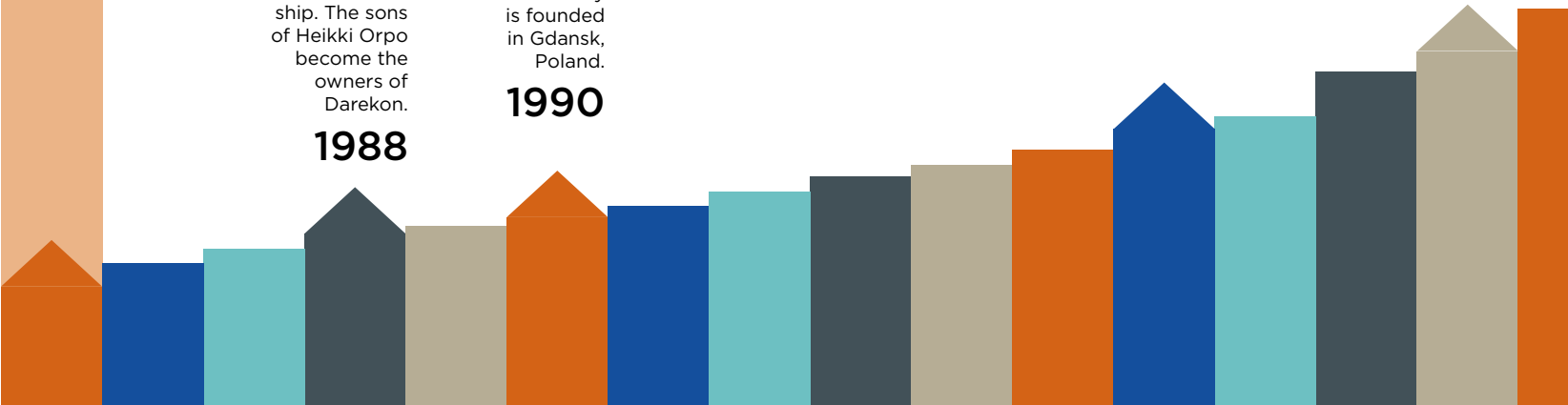
The second generation of family ownership. The sons of Heikki Orpo become the owners of Darekon.  
**1988**



Darekon subsidiary is founded in Gdansk, Poland.  
**1990**

First extension of Haapavesi facility.  
**1996**

Second extension of Haapavesi facility.  
**1999**





Polish facility set up in 2003



New Polish facility



Klaukkala facility

Kai and Henri Orpo with their families buy back Sentica's share of Darekon.

**2015**

Sales growth with a CAGR of 22 per cent in the period 2003–2013.

Darekon opens a new manufacturing facility in Gdansk.

**2013**

Darekon acquires all the shares of Helsinki-based Apelec Oy.

**2012**

Darekon acquires the sheet metal business of Mecanova Klaukkala.

**2009**

Private equity investor Sentica Partners acquires a 60 per cent share of Darekon.

**2008**

Darekon acquires electronics manufacturer ET-Electro, located in Savonranta.

**2006**

Darekon Poland moves to its own 1,500 m<sup>2</sup> facilities.

**2003**

APELEC

MECANOVA

senticapartners

Electro



## EVERYTHING STARTED WITH CRYSTAL RADIOS

One thing you can say of Pekka Antikainen is that his hobbies turned into a career. Pekka was interested in mopeds and cars as a child but eventually the electronics bug must have bitten harder than the motors bug.



Pekka was interested in cars and other machines as a child. Here he practises driving a car in 1966.

**T**he design engineer that spent the majority of his career with Fiskars Power Electronics did not have the chance to work too long in the job he was educated for before he was appointed production manager and later on plant manager. He obviously has a flair for managing people besides his knowledge of electronics.

### Magical electronics

"When I learned to read, I immediately found out how to build a crystal radio," says Pekka. "The first one was made of parts from an old vacuum tube radio and it functioned reasonably. I had been interested in mopeds and cars before going to school but I got fed up with them as my fingers were always greasy."

"Electronics – that was something magical. Crystal radio was a good start but after that there was a world of wonders. An ordinary transistor – how did it function as an amplifier and what made it work?"

His interest in radio technology got a bit more serious during high school as Pekka, with friends, built a real pirate radio station. They did it because of his electronics hobby but also to hear music they liked on the radio. The story of the pirate radio station was, however, to last just a few weeks, as the authorities discovered it at the high-end frequencies of the FM broadcast band.

### Education and work in Helsinki

Pekka was from Luumäki, Taavetti, and it was clear to him that after school he would have to move to Helsinki to study. In Helsinki there would also most probably be a job for him. Soon after military service he won a place at the Helsinki Technical Institute.

At the beginning of the 1980s, the institute went very deeply into electronics, especially into microprocessors, a very new invention at the time. Work attracted the young man

and when graduating as an engineer of measuring and control technology in 1985, Pekka had already been working with Fiskars Power Electronics for a couple of years.

### Managing people

Pekka says he is interested in people in many ways and for many reasons. In high school he studied psychology and had deep conversations with people close to him.

"When I was young I had the good luck to work in places where employees were paid attention to. I managed to catch something of that approach. For instance, they paid attention to employees' well being at Eaton. We have also used this approach at Darekon."

At Fiskars Pekka worked as a design engineer for a couple of years. After that the planning of production test equipment grew into a production methods department that was responsible for products in production. Pekka was appointed manager of this department.

"I soon realised that I was a production manager and then a plant manager. I did not have the chance to do design work for very long until I was moved to manage other people. And I never considered myself a bad design engineer either," grins Pekka.

### Out of the American spin

Pekka says he had his first contact with Darekon very early at Fiskars. The cooperation between Fiskars and Darekon and the ending of it led to the establishment of Darekon's Polish subsidiary during the years of recession at the beginning of the 1990s.

"I worked at Fiskars and Eaton for well over 20 years," reminisces Pekka. "Maybe the main reason for leaving the company was that it was American. As the manager of the Finnish unit I first worked the normal Finnish hours. It was followed by a second shift with the Americans as they started their day. This became too heavy for me."





“

I never considered myself a bad design engineer.”

When Pekka was offered a job as the manager of the Mecanova Hungary sheet metal factory, he took the job in 2007. Three years later Darekon acquired the Klaukkala operation from Mecanova. Pekka became acquainted with **Jouko Paganus**, Klaukkala's plant manager at that time. He told Pekka a little later about his plans to retire and the possibility of a new job for Pekka. The return to Finland suited Pekka's family and he was appointed Klaukkala's plant manager after five years in Hungary.

#### **Klaukkala has developed well**

Three and a half years at Klaukkala seem to have been good for Pekka. He seems more relaxed and feeling better about things than at the beginning. He has grown a beard, jokes more and dresses more casually.

“As middle age dawns, one's own well-being seems to become an important personal target,” reckons Pekka. “The importance of spare time and hobbies grows. In winter

time I go to the theatre as often as once a week. I do sweaty exercise 3–4 times a week. During the summer vacation I am a recluse and retreat for four weeks to a summer cottage by lake Kuolimojärvi.”

“At work I try to build a self guiding organisation in my area of responsibility. As few meetings as possible and no ordering about at all. Now there are still too many meetings but hardly any ordering.”

Pekka's skills for understanding people and as a manager have been put to good use at Klaukkala and the operation of the plant has developed well.

“For two years now the plant has been profitable, before that there was a more difficult period of ten years. The final rescue for this unit was the acquisition of Apelec that brought more volume. It was a wonderful decision from our board of managers. When I came to Klaukkala in February 2012 our annual sales was around 4–5 million euros. Now our yearly turnover is 13 million.” ■

Pekka Antikainen shows the punching system that was replaced about a year ago. The new FMS system has brought more productivity and reduced expenses for Klaukkala's sheet metal production.





Open and straight-forward communication between workers and managers is one essential starting point for a good working atmosphere.

# ONE DAREKON UNITES AND DEVELOPS

Darekon unites working methods with interactive programme.

**A**t the beginning of last year Darekon started an initiative to modify its organisation, sharpen operating models and unify practices. While the work continues, the results are already visible.

## Unity in the executive team

"We have developed the executive team routines and clarified the organisation of Darekon Group," explains **Riitta Moilanen**, HR manager of the company and one of the project disseminators. "The next thing is to define good management habits together with foremen and managers."

"ICT, quality organisation, material sourcing, administration and other mutual activities have been centralised to responsible people. In this way the mutual habits will

guide the mutual operations of each plant for the benefit of our clients."

"The principles of our internal communications have been approved and set. Some things will come from the CEO, others from plant managers to their staff. Informative communications are sent on a regular basis, at least four times a year and the use of the company intranet as one communication channel will be improved."

"The working language of the executive team has been changed to English thus taking the Polish plant and its personnel into consideration. Reporting of the ERP system has been unified as well as all other system projects. The result is improved efficiency and better control of expenses. Also the motivation of people has been improved by the spirit of continuous development."

## Contact people serve the clients

Previously, each client was taken care of by one of the facilities. Now key account managers have been appointed who take care of

their clients regardless of the plant that makes most of their order. There are sales people, site managers and a few other appointed people in the key account manager (KAM) role. This means tighter cooperation between Darekon's facilities and clients can always talk to the same contact person.

"Besides appointing KAMs, we have also specified working methods in many other ways," explains **Pekka Mikkonen**, Darekon's sales director. "We have, for instance, specified the minimum number of visits with each client and the way quotations must be filed in a common database. The sales people also have a common calendar. All of this streamlines our operation and all responsible people can answer most of the questions clients may ask."

## Quality of working life for everybody

Darekon has always wanted to take care of its staff.

"Establishing non-smoking Darekon is one concrete example of our well-being project," explains Riitta



The Polish plant and its personnel are also taken into consideration."

Moilanen. "We estimate some 20-30 per cent of our staff smoke so it is not an easy thing to do. Many smokers, however, do wish to quit regardless of the difficulties. We support them together with occupational health care by arranging personal support and discussion."

"Responsibility and common rules are a central approach. We want our people to stay healthy and be in good shape, to be able to retire in the future while still healthy. Functioning work groups are the basis for the well-being of every member of Darekon's staff. All of us working at Darekon are responsible for that." ■





The new server room of DataCenter Oy in Vallila, Helsinki, is connected via several physical routes and several operators. One sloppy digging machine wouldn't break those connections.

## DAREKON DEVELOPS ITS IT SOLUTIONS

The IT infrastructure of Darekon has been maintained in Haapavesi until now. Now the server administration has been outsourced to DataCenter server rooms and Darekon can focus on its own additions to the Visma ERP system it uses.

**C**omputers and the information stored on servers is the lifeline of almost every company. According to one study 93 per cent of companies would close down within one month if their data was lost.

### External resources into use

"We are now using DataCenter's new server room in Vallila as part of our MPLS network," explains **Jari Aspegren**, Darekon's quality manager, responsible for the servers. "They have set up two virtualised ERP servers for us together with other servers. This is an important part of managing

our risks and expenses. It is also essential that the servers are located in Finland, in server rooms we have audited. When external specialists take care of the servers, our own resources are released to our core activities."

The outsourcing also aims to make savings in the longer term. According to Aspegren, Darekon is buying capacity from the service provider who is taking care of the physical realisation of the capacity. The capacity of the service is also scalable as needs change. The solution partner for Darekon is Atea, which has also been chosen as the overall supplier of Darekon's IT infrastruc-

ture. Elisa is taking care of the MPLS network traffic.

### Visma ERP DAP PLM entirety

Darekon's ERP is based on Visma software that has been extended with in-house designed DAP (Darekon Assistant Processes). These are used, for instance, for managing production documents and for product lifetime management.

"We started the DAP project because a commercial application is very seldom able to fulfil all our needs," explains **Pertti Mäkinen**, Darekon's IT manager. "DAP does not in principle replace Visma processes but supplements and supports them."

Production documents, for example, have many details that have been solved with DAP, according to Mäkinen. Among these are control of individual unit's serial numbers, maintenance and traceability as a whole. Respectively DAP sup-

ports incoming inspection with documentation management, traceability and inspector and observation identification.

"Our primary target is not to develop our own systems – on the contrary – we upgrade and develop our Visma knowledge all the time," continues Mäkinen. "However, we have the ability to create system solutions according to need to serve the individual requirements of our clients. We are not depending on our ERP supplier and we can execute solutions quickly when needed."

"We have a good understanding of this business and thus the ability to realise necessary solutions. The benefit is in understanding. The requirements from our clients will not decrease in the future and our target is to 'lean forward', anticipate the requirements and build solutions far into the future." ■





The new SMT placement system increases the capacity of the production plant substantially. High speed and accuracy of the system makes it possible to produce the most demanding electronics.

## AT HAAPAVESI EVERYTHING IS DIFFERENT

Darekon was established at Haapavesi and for a long time it was the firm's only production plant. Today the walls maybe the same but everything else has changed. The Haapavesi facility is still the biggest Darekon unit and manufacturers demanding, high quality electronics boards.

**T**he first phase of the Haapavesi plant consisted of a 1,000m<sup>2</sup> building with 25 employees who started manufacturing electronics, mainly for the Soviet Union. The most important products were large LED displays. Today the business is electronics contract manufacturing for numerous inter-

national clients. The space is now 3,500m<sup>2</sup> and there are more than 100 employees.

Darekon has four manufacturing plants and each of them has its own role in making up the complete set of Darekon services. The role of Haapavesi is mainly production of high quality printed circuit boards with highly automated SMT placement systems.



The retention of staff at Haapavesi is excellent and there are still a few people who have been there for 30 years. Plant manager **Eero Meriläinen** was along from the beginning and retired a couple of years ago. To replace him arose M.Sc. **Antti Järviluoma**, who had already been employed at the company for several years. He has examined the operation of the production carefully and given speed to many development projects.

Efficiency and high quality of production are the foundations for profitable operation. Demanding and complicated products must be created as economically as possible. This requires high automation and standardised working methods. At least as important is the high quality of all production processes so the products are flawless and no resources are needed for reparation.

#### **Precision and speed with new SMT placement system**

Automated SMT placement is one central production process at the Haapavesi plant.

Soldering paste is pressed on the board through a stencil, a placement system places the components in their correct place and in the reflow oven tin melts and solders the components to their places. Easy and simple in principle but in practise it all requires a lot of knowledge and precision.

Last spring one of the veteran SMT placement systems at Haapavesi was replaced with a Siemens Siplace system, representing the latest technology.

“The most important improvements with the new system are huge speed, extremely high accuracy and the ability to handle really small chip components,” explains Järviluoma. “The size of the smallest components is 01005, which means dimensions of 0.4mm x 0.2mm. At the same time the system can also place large connectors.”

“The system comprises of two placement machines, both having two placement fields. In volume production we are able to place some 50,000 components in an hour. Also the placement accuracy has been improved remarkably.”



After reflow sharp eyes examine the flawlessness of placement and soldering.





Paste operator Paula Kurra knows her work and fixes a small flaw before it turns into a problem.

According to Järviluoma the new system is an investment of nearly one million euros and increases the placement capacity significantly.

By developing other parts of the process it is now possible to make in two shifts what had previously taken three shifts. The capabilities of the new system opens doors to, for instance, the market for equipment used in mobile technology, which requires very small components.

### Quality issues around the plant

From the beginning in his new position Järviluoma has brought lean philosophy and the concept of 'Kaizen' into use. The term is Japanese and means 'to do better'. Kaizen means continuous development and aims to establish a permanent cultural change that does things better and better.

"Kaizen is used all over the plant with a particular focus in the SMT placement department," explains Järviluoma. "Together we have been able to reduce the fault rate considerably. Earlier the average process fault rate was around 400–500ppm and now it is about 100ppm. The target is to stay at a level under 100ppm."

We can see a practical example of the philosophy as the production of a new board is just about to start in the system. One area of the board gets slightly too much paste, which could cause problems further on in production. The operator notices that one crutch is placed slightly wrong and the board bends a little. She moves the crutch and the problem is solved.

Järviluoma profusely praises the action: "This is exactly the right way of thinking, fix-

ing the problem instead of just giving aspirin. Paula fixes the core problem and doesn't leave it to be fixed in later stages."

### Upgrades and on-line steering

One development in production is a new way of using machine vision. The software of the AOI system (Automatic Optical Inspection) has been upgraded to the latest version and the principles for use have been revolutionised.

"The most important thing is that now we can really use the AOI system as a tool for process control which is its purpose," continues Järviluoma. "If we discover a problem in optical inspection, we can almost on-line steer the placement process to fix the problem."

Järviluoma has pushed strongly to set these new methods and feedback from foremen and users has been positive. They have noticed that production has become more fluent. Something is going right.

### Teamwork with a committed team

"There is still a lot to do and developing operations is of course a continuous process," notes Järviluoma. "It is not possible to do everything at once – things have to be introduced gradually. One thing at a time – slowly, not too much in one go. People gradually adopt the right ways as they see the better results."

"It is nice to hear when a foreman sometimes comes and says: 'At the time I was in doubt, but now I understand why we did this'. This is teamwork and we have a really splendid team. The people are devoted and want to develop their work. A great thank-you to them – they are our lifeline."

## For love of technology

**DAREKON'S** Haapavesi facility has a new SMT placement system and plant manager Antti Järviluoma does not spare words when praising the machine.

"The placement head includes so many million hours of engineering work that nobody can believe it," he says. "This is today's result of more than two decades of design work. This is such advanced technology. Earlier there was a belt drive, now

the placement head is moved by linear motors, incredibly fast and accurately. The refreshment frequency of our brains is not fast enough to watch its movement with our eyes."

"This is as flexible a platform as possible, everything from 01005 chips to large connectors, everything works fine. We have met no limitations whatsoever. In the first machine of the system both placement heads are 12-head revolvers.

The second machine has a 12-head revolver and a twin head for large components."

"The placement head picks a component from the strip and rotates half way around. A camera observes the component and if it is skewed, the system can correct it. Everything happens lightning fast. And best of all, even if the first machine has 12-head revolvers, it can also work with a pick & place function." ■

# LET US DEVELOP TOGETHER

In the interaction between the client and Darekon it is seldom a question of “buying” or “selling”. It is rather an intercourse and partnership where both parties give and get.

**P**art of the “One Darekon” initiative is that everybody with client responsibility participates in training with the aim of serving clients even better than before.

## Let us develop with clients

“Our clients train us and we train the clients, that is interaction at its best,” says **Pekka Mikkonen**, Darekon’s sales director. “Each client works their own way and our aim is to know their habits.”

“On the other hand our broad experience gives us knowledge to help our clients to develop their working methods even better than before in some cases. Let’s take logistics: the traditional way is an order comes from the client and delivery from us. In the most developed models our people operate at the client’s premises and fill up the production lines.

## We are thanked for our flexibility

Darekon is flexible. Mikkonen says the clients have thanked him for that. For instance controlling change is easy. Bureaucracy is minimised. This relates to changes in both products and operation.

“We serve locally, we have not moved our production

for instance to China,” continues Mikkonen. “This means fast response times, easy communication and contact people that understand the language and culture of the client.”

## Let’s design together

When a client is designing a new product, Mikkonen urges them to contact Darekon as early as possible. Cooperation in design makes it possible to make a product that is as production friendly and economical as possible.

Component choices may also have a great significance. Using components already stocked by Darekon ensures good availability and an economical price.

## Long partnerships are the aim

“Starting a partnership or changing a partner is always an investment,” highlights Mikkonen. “This is true for us and the client alike. Getting a new client ‘into the house’ requires a lot of work.”

“It is also laborious for the client to look for and choose a new partner. When shifting a product from one manufacturer to another, one must take care that there will be no production breaks. Also finding a common ground and way of working with a new partner takes its time.”

Pekka Mikkonen shows a typical product from Darekon, including electronics, sheet metal mechanics and assembly work.



## The elevator speech of sales

**DAREKON** is a competitive contract manufacturer. Our proof of this is that sales today are five times higher than ten years ago. In 2003 sales were 7 million euros, in 2014 they reached 36.5 million.

The company is in good shape financially and is going to be here tomorrow. Darekon is able to invest in new equipment and keep up with the development of technology.

Darekon offers many services:

- Electronics manufacturing
- Sheet metal mechanics
- Cables and wiring harnesses
- Final assembly
- Design services for production
  - testers
  - productionisation

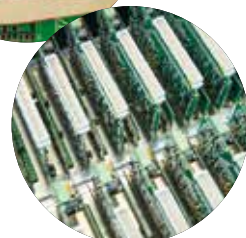
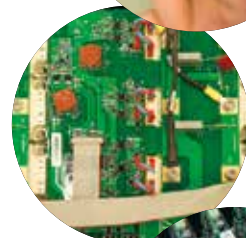
As Darekon hits its 30th anniversary, the experience at the firm is exceptional.

- the experience in sheet metal production dates back to the early 1970s.

Darekon has always invested in quality.

Production can be done according to four different special quality certificates:

- Medical – products for healthcare
- Atex – products for explosive environment
- Iris – products for railways
- NATO – products for defence ■





# Cooperation and know-how



ISO 9001  
ISO 13485  
ISO 14001

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.

 **DAREKON**

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