Comatec Group, Customer Magazine 3/2013

COMATEC news

COMATEC news

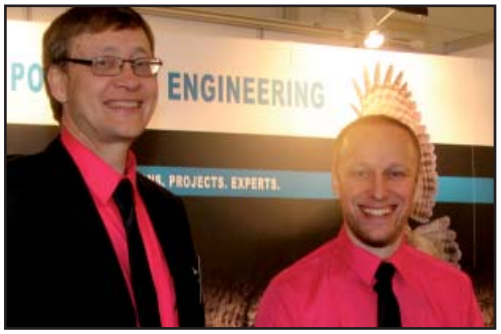

Table of Contents

Editorial

Back to the future

As I was thinking about the title for this article, it brought to mind the image shaped by the media of recent developments in our society and the outlook for it, as well as the changes that have taken place in the business environment for companies.

The turning point for the period of positive growth that had lasted many years came in 2007. Although many people consider that the global recession began with the bankruptcy of American investment bank Lehman Brothers in the summer of 2008, the first signs of a downturn were already starting to be seen in actual business operations in the summer of 2007. At first the signals were weak, but, carried away by the excitement of success and the long period of economic growth, businesses failed to understand or interpret them correctly. As a result, companies took many wrong decisions, and made actual mistakes, and correcting these has given rise to much extra work and considerable costs. This happened to us as well.

Last summer we carried out a comprehensive analysis of the major changes in our business operations. This analysis showed for example that our Group's capacity utilisation began to decline significantly in the summer of 2007 and reached its present level in autumn 2008.

Since then businesses have crawled along in the twilight zone between faith and despair, having its hopes raised, and time after time being disappointed. The driving force behind all entrepreneurs and their business is a strong belief in a better future and confidence that they will succeed. Not even the ups and downs in the economic cycle have managed to crush this driving force.

Looking back today at the past five years, it can be said that this period has been a time of reassessing activities and putting them back on a healthy footing, both for our company and for society as a whole. In fact the entire EU area, which is a vital part of our business environment, has experienced a significant restoration of discipline, and for good cause. The long economic recession in the EU has compelled nation states and business to impose discipline on their financial management. The old structures and ways of operating have to change if the EU wishes to maintain its competitive standing in the global business environment.

Fortunately the business operations of our customers that are based outside the EU have seen strong growth, and will hopefully continue to do so.

In contrast, the ordeal by fire of Finland's consensus-based society still continues. Attempts to correct matters are made on the principle of "no compromise on anything until we absolutely have to". This principle keeps overall taxation at an unfortunately high level, which hampers employment. Taxation should encourage people to take a job rather than living off the welfare state. And this is a society that itself is constantly living beyond its resources, piling up debt. As we all know, this debt is in turn a tax liability that is being passed on to the future, to be paid by future generations of tax payers.

Finland lives by its exports, and the life and death question for the country is the competitiveness of Finnish labour costs. The erosion of this competitiveness has meant rising unemployment in the domestic market as work and jobs have moved to countries with cheaper labour and more favourable employment terms.

In one passage in a really ancient book it says that 'seven fat years were followed by seven lean years'. It does not actually say there what happens after the seven lean years. Since there are no signs of time coming to a standstill, it can be assumed that we will face something then. I would not have set up this company in 1985, if I hadn't believed in growth and a better future. We cannot change the past, so let us make the future, enriching it with everything that we have seen and experienced. Coincidence or not, but the film "Back to the future" was released in that same year, in 1985. NOW is the time to start doing something new.

Wishing you a Merry Christmas and a Happy New Year for 2015 - that comes after next year.

Aulis Asikainen
Comatec Group CEO

Publisher

Comatec Group, Kalevantie 7 C,
FI-33100 Tampere,
tel. +358 29 000 2000
www.comatec.fi

Cover: SandvikPantera in Talvivaara Mine. Photographer: Jari Kivelä, Pixoi

Editing and implementation

Comatec Group
Taina Syrjänen, tel. +358 40 5931 259,
taina.syrjanen@comatec.fi

Heikki Harri
Taina Syrjänen

Feedback, subscriptions, cancellations

Taina Syrjänen, tel. +358 40 5931 259,
taina.syrjanen@comatec.fi

Comatec gives new perspective

Sandvik's Pantera range starting with clean slate

Underground and surface drill rigs have been designed at Sandvik's factory in the Myllypuro district of Tampere for more than 40 years. In spring 2012 Sandvik began a project to design a new drill rig, starting with a clean slate. Sandvik also decided to ask for a designer from Comatec to take part in the project and give an outsider's view, to avoid just copying the old ways of working.

TEXT: HEIKKI HARRI

"The new Pantera surface drill rig is now already in production. It took less than 18 months from starting the design work to getting the rig into production, which is quite an achievement in a sector like this, and especially when the project involved designing not just a machine but also a platform, for building several different versions of the machine," says **Pertti Parkkinen**, Chief Design Engineer at Sandvik.

The new Pantera includes two separate products for different rock conditions, built on the same platform with the same components except in their key parts. The Pantera DI6400 is designed for down-the-hole (DTH) drilling, while the Pantera DP2000 is the version for top hammer drilling. Both are designed for the tough conditions in open-cast mining. Pantera is actually a 15-year-old product name, but Sandvik wanted to keep the name, even though the new Pantera is really a completely new machine when compared to the old Panteras.

"Customers wanted to increase the blast hole size, but we didn't have a powerful drill rig of this size equipped with the latest technology and automation. Sandvik realized that it needed to obtain a machine with a very fast schedule if it was to meet customer needs. Once the decision about the new Pantera had been taken, management gave strong support to the project and also approved the idea of designing the machine with a new concept. The first step was to define

Photo: Jari Kivelä, Pixoi

the parameters, which provided the basis for designing the rig itself. The goal was to create a drill rig that would combine a longer working life and ease of maintenance with reliability, and it was also necessary to significantly increase the machine's productivity," states Parkkinen.

The diversity of the design work is also illustrated by the fact that the new RD2045 drill was designed for the top hammer. Two different motor versions will also be available for the models and several levels of fittings tailored to different customer requirements, and integrating these into the overall design required extensive fine tuning to the design.

Comatec part of a large team

A large team of experts took part in designing the Pantera. Concept personnel and the design leadership team comprised ten people. In addition, many mechanical, electrical and automation designers took part. At different times, between 30 and 40 people were working on the project.

Mika Nieminen and Pertti Parkkinen at the heart of the design of Pantera at Sandvik's factory in the Myllypuro district of Tampere.

Comatec's **Mika Nieminen**, a concept designer, joined this team in summer 2012. He was dropped into the team without much warning, but this was by no means foreign territory for him, for he had previously been employed as a designer at Sandvik, working specifically on surface drilling equipment. **Pasi Ruotsalainen** was the second person from Comatec to join the design team, in the autumn of this year. He has also worked previously at Sandvik, so he was familiar with the company and the products.

"I had a wide range of different tasks in the project. I designed for example the equipment layout, the structural concepts and modules, and allocated the mechanical design work to an international design team, for which I also supervised the prioritising and scheduling of the work," says Mika Nieminen.

Pertti Parkkinen states that Nieminen's contribution in bringing an outsider viewpoint to the project was extremely successful.

"He gave us some very good ideas and was a useful sparring partner. In the past our own personnel have been responsible for designing new products, but in this project we did things differently," says Parkkinen.

Design of new Pantera by no means finished

"We have received the first orders and production of these has begun. But at the moment we are only manufacturing the first model in the range, the down-the-hole version, and we'll be launching the Top Hammer version in 2014. So more models are in the pipeline, and design work on these will continue at least until summer 2014," says Parkkinen.

The machine is being built in the Tampere region in Finland, by Sandvik and its partners.

Powerful Pantera

The latest version of the Pantera was launched in-house last May and then to the international mining community in September at the EuroMining 2013 trade fair in Tampere. The machine offers customers many new features and benefits. The Top Hammer version is for drilling 152 - 178 millimetre diameter holes down to a depth of 36 metres, while the corresponding figures for the DTH version are a hole diameter of 115 - 203 millimetres and a depth of 45 metres. The prototype basic model had a weight of more than 37.5 tonnes. The actual weight of a production model should be around 36 tonnes.

The Pantera has improved drilling efficiency for example with a new drill rod handling system, lower fuel consumption, a new cabin designed to simplify the work of the operator and improve safety, better stability, new automation systems, and improved remote operation features.

All in all the new features of the Pantera make it a Sandvik spearhead product in its class.

Bright future for Comatec Estonia

Comatec Estonia OÜ, which has its office in Tallinn, was established two years ago in the autumn of 2011. At the time the company was set up, Tõnis Tiedemann saw it had potential for growth and stability as part of Comatec Group. It can already be said that Comatec Estonia has got off to a good start and established itself in the Estonian market.

TEXT: TAINA SYRJÄNEN

Business unit manager Pekka Jaakola and Tõnis Tiedemann, who heads Comatec Estonia in Tallinn, at the Instrutec Trade Fair.

Comatec Estonia was established in autumn 2011. How is it doing today, two years later?

Comatec Estonia has got off to a good start. It has established itself in the Estonian market. Comatec Estonia has significantly increased its net sales from its level in its first year of business, and last year it also moved into new and better premises.

Comatec Estonia has also seen a change in its ownership since it was set up. **Tõnis Tiedemann**, who heads the office, and **Hugo Klaos**, who has been with the company right from the beginning, are shareholders today, which shows their strong faith in the company.

Two years ago Tõnis Tiedemann saw that the company had potential for growth and stability as part of Comatec Group. Today Tõnis confirms that this has been the case.

“Comatec Estonia has grown, and there are no obstacles to further growth in the future. At the start of 2012 we succeeded in negotiating a cooperation agreement with a very major Comatec Group client also in Estonia. The business has expanded, and we have even been able to use a sub-contractor to meet temporary needs. We foresee that this trend will continue,” states Tõnis.

“We are extremely happy that we have finally been able to start working with our main clients. This has been our goal all along. We are now doing our utmost to ensure that the clients remains satisfied with our work and that we are able to expand our cooperation where possible,” says Tõnis.

Economic outlook in Estonia also brings challenges

Estonia adopted euro in the same year as Comatec Estonia was established. Now the Estonian economy has also dipped into recession. Looking at the country’s most important export markets, Finland is in recession, Sweden is having problems, and trade with Russia is at a standstill. The rate of growth in the economy slowed down early in the year to its lowest level in three years. The distinct slowdown in growth has come as a surprise to some economists. Even so, this has happened in Estonia as well.

"The Estonian economy has also had challenging times. We have achieved some of the targets that we set two years ago, but we still have some work to do to reach all our targets.

"We are now trying to expand our customer base, and naturally we also aim to keep our existing clients as satisfied as possible. We still need a few more clients to keep our basic work load at a stable level.

"We mainly carry out mechanical design. Our largest clients are companies that manufacture electrical devices and manufacturing equipment. Hugo and I have a background in mechanical design, but the company also possesses electrical expertise.

"Comatec Estonia will still need more personnel in the future," says Tõnis.

"One special feature of the Estonian economy, compared, for example, to Finland, is that we don't have so many large companies that carry out product development. There are some, but nothing like in Finland. In Estonia the other engineering consultants usually manufacture the machinery and equipment they design themselves, in addition to having design to support other production. We leave manufacturing to others and concentrate on design. In this respect we are pioneers in the Estonian market with our business model," states Tõnis.

"We do need to increase awareness of our business model. Firstly, of course, to major companies, who are more naturally interested in what we can offer."

To showcase its offering, Comatec Estonia took part for the second time in the Instrutec trade fair held in Tallinn, which is a similar international event in Estonia to the Subcontracting Trade Fair in Finland.

"The contacts from the first trade fair developed into good relationships. We are seeing the same trend after this year's fair," says Tõnis with satisfaction.

Tõnis and Hugo

When they started in 2011, Tõnis and Hugo were excited about their work at Comatec Estonia. Tõnis spends much of his time with clients and Hugo mainly works on mechanical design. Both are still just as excited about their work.

"I have really enjoyed working at Comatec Estonia. During these couple of years I have obtained loads of new experience and it has been a pleasure to work with skilled colleagues. We have a good team here," says Tõnis.

"I also think that it has been fun and also a challenge to work at Comatec Estonia. I'm waiting with baited breath to see what lies ahead in life," says Hugo.

It is virtually impossible to get anything new from either Tõnis or Hugo about their private lives. Both of them clam up when the discussion turns from their work to other areas in their lives. But they both regularly take part in sporting activities.

"Recently I have been taking part in in fewer Triathlon events as before. At the moment I am enjoying cross country cycling," Tõnis reveals in the end.

Safety engineering on the up

Safety engineer Mikko Ronkainen started working in May in Comatec Group's expert services business unit. He reinforces and expands Comatec's competence centre for safety engineering with his specialist expertise. For Mikko, what makes safety engineering interesting is being able to tackle a wide range of different projects and working with very different issues. Mikko is passionately involved in his field and looks forward to facing fresh challenges in safety engineering.

TEXT: TAINA SYRJÄNEN

Mikko Ronkainen started working at Comatec last May in the expert services business unit. Mikko has experience of safety engineering in the process industry. He has a degree in chemical engineering, from the process engineering program.

"Mikko Ronkainen reinforces Comatec's competence centre for safety engineering. His specialist expertise strengthens and expands the team's knowhow," says **Arttu Laitinen**, business unit manager, expert services.

"Mikko's contribution broadens our expertise particularly in the process industry, for example in the mining industry. The competence centre for safety engineering now covers all industrial sectors, including the process and chemicals industries.

"Full service design and project management require in-depth expertise in safety issues," states Arttu.

Risk assessment and safety in operations

"Safety engineering involves a wide range of risk assessments depending on what is being assessed. We can apply different methods, for example for the safe use of chemicals, for assessing process technology, or for safety inspections of mechanical equipment," says Mikko.

"In risk assessments we can take the role of an independent, external assessor, giving a neutral opinion as part of the assessment," says Mikko.

"Risk assessments are also used in functional safety, when defining the level of safety for automation systems.

"In industry and transport, increasing use is being made of control and automation systems to protect against the risk of disasters and the risk of losses arising from accidents. Ensuring that these systems are effective requires high quality risk management," says Mikko.

"By utilising standard safety processes and assessment methods we can ensure that automation systems are reliable and provide a sufficient level of safety."

Environmental risk assessments

"A well-managed environmental protection system contributes to approval of a company's operations. Various environmental hazards can be managed by identifying for example the areas of risk relating to the use of chemicals. Measures can be taken in readiness for various disruptions and accidents," states Mikko.

"I have carried out environmental risk assessments for many companies. Assessing environmental risks involves evaluating many different factors. For example, whether any chemicals used in production pass into the local environment, or which emissions come out of the chimney. Emissions may also arise from chemicals that are washed out with the rain water and end up in the water system. Environmental analyses involve analysing the impact of these issues and an ecological assessment," says Mikko.

Documentation for protection against explosions

The ATEX workplace directive applies to production plants and workplaces where combustible liquids or gases and dust may create the risk of explosion. ATEX classified products must be used in places that are classified as hazardous, where inflammable products are stored or manufactured. Even a small spark in these may give rise to the risk of fire or explosion. Fire safety officials and Tukes (the Finnish Safety and Chemicals Agency) are responsible for classifying and inspecting these premises.

"Comatec's expert services can assess the risk of an explosion taking place in many ways. We prepare area classifications and can assess the suitability of equipment for explosive environments – in other words in practice we draw up the explosive protection documents from start to finish," says Mikko.

Health, Safety, and the Environment (HSE)

"Our HSE services comprise safety coordination for example relating to EPC[1] and EPCM[2] projects, supporting the different stages in the design work through to implementation.

By utilising our extensive safety knowhow and expertise we can produce the wide range of safety reports and assessments required in the design and provide training for personnel," says Mikko.

Dam safety

Dam safety is regulated in the Finnish Dam Safety Act. Its purpose is to identify leaks that would get out of control and the risk of collapse. The Dam Safety Act was renewed a couple of years ago. Although virtually no new dams are being built, the ageing of existing dams will also set challenges for dam safety in the future. The large hydro-electric power companies have invested heavily in renovating dams in the past few years.

Mikko comments on his experience as follows:

"Assessing dam safety is a complex business. I have created a dam safety folder for Tampereen sähkölaitos (the City of Tampere Electricity Utility) and I have provided consulting on dam safety for the town of Seinäjoki."

"There are few specialists in dam safety in Finland," states Mikko.

Dogs and basketball occupy free time

"I come from Tampere. I live with my girlfriend and two large dogs. Our hobbies are closely connected to the dogs. One of our Leonberger dogs is a Finnish champion. Both dogs can be used for water rescue, and this we practice with them. Our dogs are also used in therapy, for example in youth rehabilitation, which is the field in which my girlfriend works," says Mikko.

"Basketball is the sport close to my heart. I have my own basketball team, and have been running this for more than ten years. Our team competes in a local amateur league. I'm also involved in the organization that runs the league.

"As well as playing I have also coached the C age group girls at the Tampereen Pyrintö club. In their first season the girls won the league bronze medal."

[1]EPC = Engineering, Procurement and Construction

[2]EPCM = Engineering, Procurement and Construction Management

Comatec Group and SFM Mining carry out mining projects

During the past few years Comatec Group has worked with SFM Mining AB on several projects for the mining industry. In these projects, Comatec has for example been responsible for sourcing arrangements, for various supervisory tasks, for logistics and for organizing worksites.

TEXT: POHJOIS-SUOMEN YRITYSMAAILMA 3/2013

"A couple of years ago we worked together on Boliden's Aitik mine in Gällivare, northern Sweden, where we carried out all the installation work on the grinding mills supplied by Metso Minerals. We had previously worked on the same worksites in Kiiruna and Gällivare, so we were used to working together," says project manager Eero Vento.

Boliden is one of the leading European mining and smelting companies. The autogenous grinding mills built in Aitik were the largest grinding mills ever supplied by Metso. Swedish installation company SFM was responsible for the installation and Insinööritoimisto Comatec Oy for supervision of the installation project.

Metso Minerals supplies iron ore concentrator plant in Pajala

SFM Mining AB is a company based in the Norrbotten region of Sweden that specialises in assembly work and consulting for the steel and mining sectors. The company has operations in Sweden and Finland.

"Most recently we worked together preparing and carrying out the iron ore concentrator plant project for Metso Minerals in Pajala in Sweden. We worked on the Tapuli project for mining company Northland Resources for 15 months. The concentrator plant is a major project for SFM Mining: the Kaunisvaara mine is probably the first new iron ore mine to be opened in Europe for 100 years," says Eero Vento.

"We took part in planning the project and Comatec's project personnel worked during the project at SFM Mining," adds Tuomo Lekkerimäki.

Eero Vento says that cooperation between Comatec and SFM Mining has been flexible and effective.

"We have worked together for years, so we are both familiar with the way the other works and with each

other's skilled personnel. Long-term cooperation and personal contacts increase creativity and build trust."

Comatec Group is an expert organisation

Insinööritoimisto Comatec Oy, parent company of Comatec Group, started operations in Tampere in 1986. Today Comatec Group is the leading expert organisation in its field, specializing in engineering design for machinery and industrial equipment. Its lines of business include mobile machinery and special vehicles, industrial production plants, and boilers and power plants.

Comatec is a partner for the mining industry

Comatec has participated in many mining projects.

"We have carried out design work for Metso, Sandvik and Outotec, for example, who supply machinery and equipment to mining sector companies. We have also been involved in concentrator plant projects. Comatec's role is that of an expert organisation. Oulu-based engineering office Oucons Oy also belongs to the Group, and has many years' experience in the mining industry, especially of conveyor system deliveries," report Comatec representatives.

Comatec has also long had indepth expertise in technology for mining and construction equipment. The company provides expert design and consulting services for the entire life cycle of this equipment. The latest services have been developed for the early phases of the life cycle, increasing knowhow in modelling, simulation, motion control and hydraulics.

"Comatec possesses a high level of knowhow and extensive experience in its main lines of business, ie. engineering design of machinery and equipment. This is also very useful in projects for the mining industry."

Change of material improves electro-magnetic compatibility

A project was carried out for Millog Oy to develop an aluminium rear cab for the Finnish Sisu NA-110 tracked vehicle to replace the original fibre glass cab. The change in material aimed to substantially improve the electromagnetic compatibility (EMC) of the cab without weakening its other properties. Hannu Sarajärvi was in charge of the project for Millog Oy.

TEXT: TAINA SYRJÄNEN

"At first the project must have seemed a bit confusing since to start with we didn't even know what all the requirements were. As we got into the project we became more ambitious regarding the requirements, and ended up making quite a few changes," says Sarajärvi.

Guaranteed Safety

Since this was a vehicle for transporting people, safety had to be guaranteed. The strength of the aluminium cab, how it was fixed, how the seats and seat belts were fixed, and ventilation were some of the aspects that had to comply with the requirements laid down in legislation and regulations.

Off-road properties had to be maintained

On the other hand, the structures could not be made too massive, or this would increase the weight too much and weaken the off-road driving properties of the tracked vehicle. In other words, a typical challenge in product development, having to achieve a balance between conflicting properties.

EMC protection poses extra challenges

The special structures and seals needed for electromagnetic compatibility (EMC) in the openings such as doors and hatches provided a little extra challenge for the development work.

"We didn't have much previous experience of EMC and implementing this, but we still made good progress in the work, and the measurements taken also showed that the end result was a success," comments Hannu Sarajärvi.

3D CAD model a big help

The work started by listing the requirements for the new cab. A considerable amount of time was spent on drawing up the specifications, since the goal was to improve other user properties as well as EMC. The use of 3D CAD models made it easy to visualise the changes and pick the best of the different models proposed. The 3D CAD model also provided an excellent basis for the strength calculations. The model provided a quick means of testing the safety of the cab, if for instance it turned over.

"The end user was very satisfied with the computational analyses we carried out," reports Hannu Sarajärvi.

Once the prototype for the aluminium cab had been built, the next phase was measuring the EMC. The first measurements revealed small leaks in the hatches, but a change was made to the lock mechanism and the cab then complied with the requirements. The cab was put through a test drive, using a strain gauge to ensure the accuracy of the level of the estimated strain. The end user is satisfied with the new cab.

"Our cooperation went smoothly and the changes that occurred during the project were carried out in a good spirit and with mutual understanding," concludes Hannu Sarajärvi.

Comatec Group:

TAMPERE
Insinööritoimisto Comatec Oy
Kalevantie 7 C, FI-33100 TAMPERE
Tel. +358 29 000 2000

Rantotek Oy
Kalevantie 7 C, FI-33100 TAMPERE
Tel. +358 29 000 2090

VANTAA
Myyrmäentie 2B, FI-01600 VANTAA
Tel. +358 29 000 2020

JÄRVENPÄÄ
Sibeliuksenkatu 18, FI-04400 JÄRVENPÄÄ
Tel. +358 400 675 778

HYVINKÄÄ
APK-Ohjelmointi Oy
Kehäkuja 6, P.O. Box 26, FI-05831 HYVINKÄÄ
Tel. +358 40 5563 299

LAHTI
Askonkatu 10, FI-15100 LAHTI
Tel. +358 29 000 2030

TURKU
Pitkämäenkatu 11, FI-20250 TURKU
Tel. +358 29 000 2040

HÄMEENLINNA
Teknologiakeskus Innopark,
Terminaalitie 10, FI-13430 HÄMEENLINNA
Tel. +358 29 000 2050

JOENSUU
Hiiskoskentie 9, FI-80100 JOENSUU
Tel. +358 29 000 2060

KUOPIO
Microkatu 1, FI-70210 KUOPIO
Tel. +358 44 7414 440

IMATRA
Insinööritoimisto Metso Oy
Vuoksenniskantie 97, FI-55800 IMATRA
Tel. +358 29 000 2070

LAPPEENRANTA
Insinööritoimisto Metso Oy
Kauppakatu 61, FI-53100 LAPPEENRANTA
Tel. +358 29 000 2070

VARKAUS
Rantotek Oy
Wredenkatu 2, FI-78250 VARKAUS
Tel. +358 29 000 2090

OULU
Oucons Oy
Kaarnatie 14, FI-90530 OULU
Tel. +358 400 542 547

TALLINNA
Comatec Estonia OÜ
Laki 16, 10621 TALLINN, ESTONIA
Tel. +372 5685 0845

SOLUTIONS. PROJECTS. EXPERTS.

BRAIN POWER FOR ENGINEERING

COMATEC www.comatec.fi · INSINÖÖRITOIMISTO METSO COMATEC GROUP · RANTOTEK COMATEC GROUP · OUCONS COMATEC GROUP · COMATEC COMATEC ESTONIA OÜ

APK-OHJELMOINTI OY
COMATEC GROUP
www.apk-ohjelmointi.fi