

# Bulletin

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2015

Robit®

By Robit Rocktools Ltd Customer Magazine

## Tampere lakeside tunnel excavation

Local presence is a bonus  
in big scale projects

## Fiberglass injection tubes

first time used on a  
European construction  
site, in Sierre, Switzerland

Stockholm harbour  
reinforced by 100 piles

# Introduction of a new patented measuring technology



## Good reason to celebrate – Robit turns 30!

2015 will be packed with amazing moments for all of us – this is a year of celebration for Robit, after all. When a company reaches a milestone anniversary, it is an important moment for all employees, because we would not have made it to this point without everyone's hard work. These efforts also show in Robit's result: growth last year was 13 per cent, despite the global economic situation. That's a great figure, and I want to thank everyone who helped us reach it.

In addition to figures, Robit's growth can also be seen in its geographical conquests. At the end of last year, we opened up a sales office in South Africa, and this year we will open up an office in South America, in Peru. The foundation has thus been laid for growing our result even more! With the help of these new offices, we will be able to reach our customers more easily and be right where they need us. It is important to bring our products within our customers' reach in order to make their choice as easy as possible – which is why Robit will be present once again at Intermat, the international construction exhibition in Paris. Some 250,000 construction industry professionals from around the world are expected to attend the exhibition, making it the ideal venue for Robit to launch its new products.

In Finland, our main event this year is the EuroMining trade fair for the mining industry in May. In connection with the fair, we will arrange an Open Day at our Lempäälä plant for our domestic customers, as well as training for our distributors from around the world. Our staff will get to take in some shows and enjoy good food and drink. There are also plans to arrange a weekend get-together to give distributors and staff the opportunity to meet face to face – because it's nice to be able to get to know the people you conduct business with. The fair weekend will culminate in a gala.

It's time to get excited for the coming summer and seeing Finland at its most beautiful! I hope to see as many of you as I can during this celebratory year!

**Jussi Rautiainen**  
CEO





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# Talents roll up their sleeves at Lempäälä

The first two people selected for the Robit Talent Programme, **Ville Pohja** and **Rasmus Sokura**, started their induction training at Robit in February. They will learn about production, customer service, sales and marketing at Robit's Lempäälä location during the spring, and also take part in site visits. More participants will be accepted to the program during the summer months.

A total of around 80 applications for Robit's Talent programme were received, and the jury was impressed by the high level of the applications. According to the jury, it wasn't easy to select four people from among all the applicants.

"The people chosen have an educational background that matches the job, international experience, the right level of motivation and clear goals for the future. And if you add good social skills, a spirit of salesmanship, and a background in both business and technology, they have everything it takes to make it into the programme," explains HR Manager **Terhi Mäkinen**, co-ordinator of the application process.

According to Pohja and Sokura, the application process was thorough and filled with excitement right to the end.

"It was great to hear that I was accepted, especially considering how tough the competition was right up to the last selection stage," says Pohja.

## Heading for foreign locations

After the two-month induction phase, Pohja and Sokura will move on to tasks specially tailored for them – the programme lasts one year, and part of it involves working in a foreign location.



*Ville Pohja (vas.) and Rasmus Sokura were firsts to start at Robit Talent Program*

"Since the purpose of the Talent programme is to give the participants the skills required to work in international business, getting to know our various business locations and working there will give the participants a good base for their future career in sales," says Mäkinen.

Both talents have rolled up their sleeves and are anxiously looking forward to tackling their various work tasks.

"I believe the programme will be a good opportunity for personal development. At the same time, I will get to show off my skills and what I have already learned. I have no doubt that the coming year will be an interesting time spent in good company," says Sokura. ✨



*New fibreglass injection tubes were used in a traintunnel project in Sierra, Switzerland for the very first time*



## **New injection tubes first time used on a European construction site, in Sierre, Switzerland**

# **Fibreglass injection tubes speed up tunnel construction**

Robit has developed a new method of tunnel construction and a means of efficiently and quickly supporting the ceiling and wall structures of tunnels that are in danger of collapsing: fibreglass tubes filled with cement or polyurethane. They are especially well-suited for excavating tunnels in soft earth, as the fibreglass injection tubes are quick to install and remove.

“With this method, tunnels can be excavated with a longer burden between rounds, which considerably speeds up the overall project. A regular drilling jumbo can be used to install the tubes, and they can be removed using, say, an excavator,” explains Group Executive VP **Mikko Mattila**.

The new method was used for the first time on a European construction site last autumn, for the construction of a railway tunnel in Sierre, Switzerland. Robit delivered the drilling equipment to the site. Both steel and fibreglass tubes were used in the excavation of the Sierre tunnel.

“The entire length of the tunnel’s ceiling was in danger of collapsing, so it needed to be supported with steel tubes before the digging could begin. Since the earth where the tunnel was being excavated was quite soft, the end of the tunnel also required stabilisation to prevent inward collapse. For that, fibreglass tubes were used, because steel tubes would have been difficult and slow to remove,” says Mattila.

### **Over 20 metres horizontally**

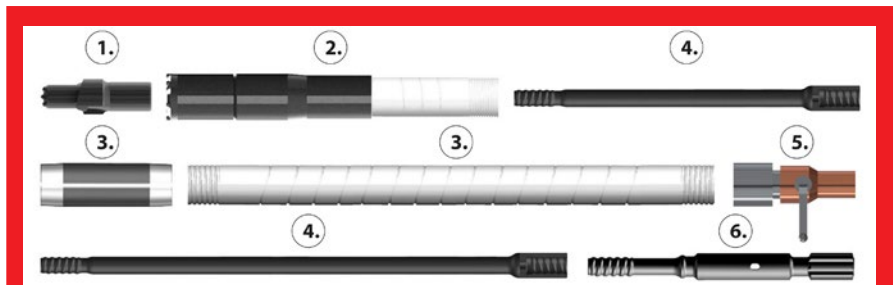
The excavation work at the site went excellently and was completed on schedule. It was a challenge drilling 21 metres horizontally using small equipment, but Robit’s high-quality drill bits met the challenge with no problem.

“The client has allowed a maximum deviation in hole straightness of half a metre along the more than 20-metre drilling length here, but achieving such accuracy has not been a problem – the same can’t be said of the self-drilling anchors,” says Mattila.

There was initially a minor delay in the delivery of the fibreglass tubes, as several hundred metres of tubes were

needed during the tunnel project, and the switchover to the fibreglass system happened in a short span of time. After blasting, the fibreglass waste is separated from the rock material, which also makes fibreglass injection tubes an environmentally friendly option.

“We are hoping for and expecting great success from this new method of building tunnels in soft earth,” Mattila sums up. ★



*Drilling components: 1. Robit® RoX+ GFRP 76,1/8 R32 pilot bit, 2. Robit® RoX+ GFRP 76,1/8 ring bit and 2700 mm starter casing, 3. Adapter and 3000 mm extension casing, 4. 3050 or 3660 mm R32 extension rod with fixed bushing, 5. Injection valve, 6. Shank.*

### *Reinforcing the tunnel face with fibreglass tubes with injected grout*







# Challenging bridge project under way in Norway

In the municipality of Askim, the E18 motorway is being extended by 6.5 kilometres between Knapstad and Hobøl. The project also includes the construction of 5 new bridges. The longest bridge, 'Hobøl eleven bru', is 300 metres and has three lanes. Most of the construction work is being performed on soft clay soil, making the project very challenging. Supporting the bridge, which stretches over a river, requires a total of nine piers, 91 steel piles, 1,000 metres of steel core drilling and 3,100 square metres of sheet piling.

Such challenging conditions demand high-quality equipment, and the company in charge of the construction work, Hercules Fundamentering AS, chose Robit as its partner.

"We chose Robit as our supplier on the basis of both price and quality. We have been pleased with our choice and our equipment has performed well, in spite of the difficult conditions," says Managing Director **Dag-Vidar Norberg**.

They did encounter some surprises during the construction work.

"Our own equipment was not suitable for drilling deeper than 50 metres, so we had to rent a machine that could handle the task from Germany," says Norberg.

Because of the uneven, clay-based

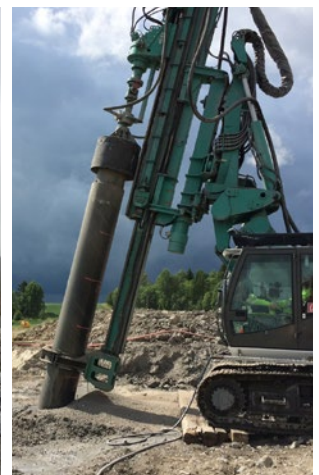
soil, many of the piles had to be installed at a 12-to-13-degree angle, which was demanding for the equipment.

"The drill pipe broke during the work, probably as a result of both the atypical drilling angle and the excess stress. It wasn't easy getting the hammer and pilot up from a depth of 40 metres, but we did it," says Norberg.

Construction work on the bridges is now in the final stretch, with more than 2,500 metres of steel piles already in place. The final amount will be roughly 3,200 metres, which is expected to be completed by this May. Minor finalisation work will be carried out until the end of the year. \*

## ROBIT EQUIPMENT BEING USED:

- Pilot Robit DTH-RoX + 711/19mm
- DTH 18" - Nurma 180
- Shock absorber heavy duty
- Hammer sleeve
- Drillpipe OD 610 x 6000 hex 180
- Drillpipe OD 610 x 3000 hex 180





80-metre-long wall structure fights tide and erosion

# Stockholm harbour reinforced by 100 piles

Keeping up the condition of Stockholm's very active harbour is a constant battle against erosion. The major pile project that started last autumn in the harbour basin will be ready sometime in March.

One of the companies working as a subcontractor on the pile project is Peab Grundläggning AB, who relies on Robit's solutions.

"We have used Robit's complete drilling system – for example an 18" N180 hammer, shock absorber, 457 mm drill tube and SR N180 pilot. We have also used the 610/16 SR XL2 ring system with a casing shoe," says Peab Grundläggning AB's site manager **Henrik Norlin**.

The approximately 80-metre-long retaining wall structure will consist of a concrete beam at the top and Ruukki's 610 mm RD pile wall. The wall structure will be filled with stones. A total of 97 piles will ensure that the structure will remain in place also in the harbour's soil. Norlin says the project has been proceeding on schedule.

"The winter conditions haven't affected our work at all. We have used underwater welders when the sea level has been high, and the ice hasn't been a problem," he says.

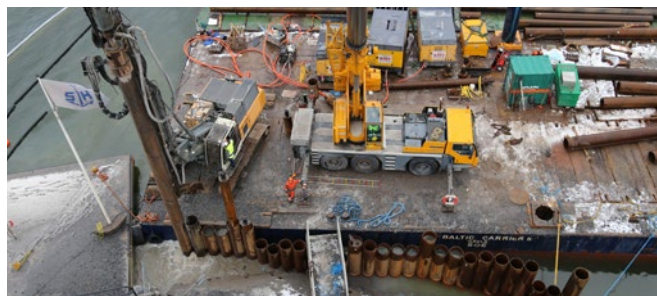
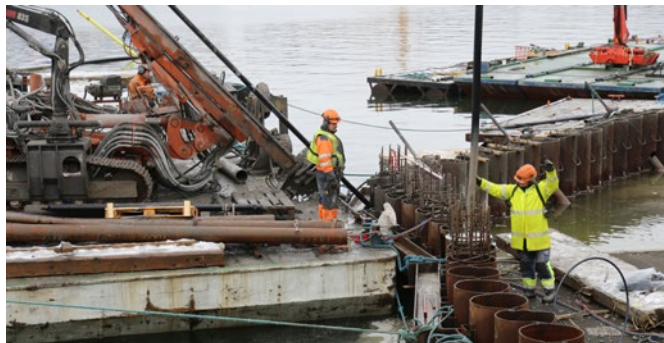
## Robit is an agile partner

The construction project, which started in October, has reached the final stages of completion. At the moment, stone anchors to support the wall structure are being drilled at the construction site. According to Norlin, the biggest challenge has been to optimise the time it takes to unload the piles and to minimise the time it takes to join piling, since overtime is not an option.

"We can only work between 7 am and 7 pm, because of the noise restrictions in the area," Norlin points out.

The tight schedule is one reason why they chose Robit: short delivery times and previous experience working on very successful pile wall projects were important considerations.

"We were initially a bit worried about using the SR system with a loose ring bit when drilling in water, but it was no major problem," Norlin sums up. \*





PT Indocement Tunggul Prakarsa Tbk. was established on 16 January 1985 through the merger of six cement companies, which at the time owned eight plants. Indocement is a cement manufacturer company, which also owns several subsidiaries that produce ready-mix concrete (RMC), as well as manages aggregates and trass mining.

## CASE STUDY: Indocement, Marton and Robit

During its 40 years of existence, Indocement continues to increase the number of its plants, which currently stands at 12. Indocement has continued to increase its production capacity and today is one of the largest cement producers in Indonesia. Most of these plants are located in Java. Nine plants are located in Citeureup, Bogor, West Java, a facility which has become one of the world's largest cement factories. Two plants are located in Palimanan, Cirebon, West Java, and another is located in Tarjun, Kotabaru, South Kalimantan. On 9 October 2013, Indocement started the development of Plant 14 in Citeureup, Bogor.

As of 31 December 2014, Indocement's annual installed design capacity amounted to 20.5 million tons of cement, and as of 2013, 4.4 million cubic meters of RMC, with 40 batching plants and 648 mixer trucks, as well as 2.5 million tons of aggregates reserves. Indocement's shares are listed on the Indonesia Stock Exchange (INTPJK).

In addition, the planned development of two new cement factories in Central Java and outside Java has entered the phase

of final study. Each plant will have a production capacity of at least 2.5 million tons of cement per year. Another significant development was the growth of the ready-mix concrete (RMC) business line, pursuing a major focus of the Company during the previous years. Through the concentrated efforts of all RMC employees, and capital expenditure that had been allocated for 2012 and 2013, Indocement successfully increased the sales volume of RMC by approximately 26.0%, going from 3.5 million cubic meters in 2012 to 4.4 million cubic meters in 2013.

In addition, to significantly drive the performance of Indocement in the coming years, in early December 2013, the Company signed a long-term contract to purchase slag from PT Krakatau POSCO, and acquired an aggregate quarry from PT Tarabatu Manunggal in West Java. The operation of the new crusher machine of PT Mandiri Sejahtera Sentra also increased our aggregate capacity.

PT. Marton Tekindo Abadi, as the Robit Exclusive Distributor, and Junjin Hydraulic Drills units in Indonesia had been supplying Indocement since 1988 in three different site locations, in Citeureup, Palimanan and Tarjun.

Indocement uses Robit Drilling Tools T38, T45 and T51 in their different drilling units with 3.5", 4" and 4.5" bit sizes. The ground conditions at Indocement's sites are mostly fractured and quite challenging for drilling. For the production of limestone and clay, Indocement drills to a hole depth of 15 - 18 metres.

Robit's highly experienced expert Mr. Lasse Niemi has also visited the mine site in 2013 to ensure the right bit for their application. The bit with side flushing holes performs better when drilling in soft and broken rock.

With the long relationship between Marton and Indocement, close and continuous cooperation is an integral part of the operation strategy that ensures the outstanding performance of Robit products. \*







# Lubambe copper mine in Zambia relies on Finnish know-how

**In hot and humid Africa, mineral and metal mining equipment is really put to the test. The Lubambe copper mine in Zambia is the perfect example of such a challenging environment: conditions in the more than 300-metre-deep mine shafts include tropical humidity and an even temperature of 31.7 degrees Celsius. Only the best equipment can withstand tough wear under such conditions.**

“Lubambe is a fully automated mine that uses Robit products and parts supplied by Recore Drilling Supplies. Our company was founded in 2014, and our goal was to be a distributor of high-quality products offering smooth customer service. Then we discovered Robit, and although our collaboration started out very small, it has already expanded to several hundred-thousand dollars a month. And further growth is in sight,” says **Barbara Chadwick**, owner of Recore Drilling Supplies.

Chadwick’s company last November concluded a two-year agreement covering the delivery of all top hammer rock tools to the mine. The agreement involved quality control tests, which Robit’s products passed with flying colours.

## **New name inspired by indigenous people**

The mine used to be called ‘Konkola North’, but in 2012 it was changed to Lubambe. The name means ‘eagle’ in the language of the local Bemba tribe. The mine’s goal for 2015 is to produce 45,000 tonnes of pure copper, which requires the extraction of 1.8 million tonnes of ore. The average copper content of the mine’s ore is roughly 2.3 per cent.

“The goal is also look into the mine’s southern land areas, some six kilometres from the current mine. Preliminary analyses indicate the presence of copper deposits, which could help boost the mine’s production to as much as a hundred thousand tonnes of copper a year,” Chadwick points out.

The mine currently consists of a south limb and east limb. They lead to an estimated copper ore body of roughly 2.5 million tonnes. Such a large body of ore means that mining operations will be sustainable on the site for some 30 years. \*



*Workers at Lubambe copper mine work in tropical conditions, in extreme heat and humidity*



# PRODUCTION EMPLOYEES OF THE YEAR

Every year, the company likes to give recognition for the good work carried out by Robit's skilled staff. This year, Robit's Production Employees of the Year are Anssi Lehtinen, who works in Lempäälä, Finland, and Man Su Lim, who works in the South Korean plant.



## ANSSI LEHTINEN – a pillar in production

**Anssi Lehtinen** started working in production at Robit's Lempäälä plant in 2011. He works with ground drilling products, and his tasks include inserting carbide buttons and pressing and operating the blackening line.

Anssi likes having diverse job roles.

"My diverse tasks and nice colleagues are definitely the best part of my job. The most challenging is managing my sleep cycles in three-shift work," says Anssi.

In his free time, he goes fishing, plays billiards and grows chili peppers.

Anssi considers Robit a reliable and flexible employer, and he was happy to be chosen as Production Employee of the Year.

"Of course it's nice to hear that my efforts at work are appreciated," he says.

"Anssi is conscientious and reliable, and he handles his tasks professionally. He is also not afraid to speak his mind when necessary and can give constructive feedback," says Production Manager **Kari Sivula** from Lempäälä.

## MAN SU LIM - master of CNC programming

**Man Su Lim**, a CNC operator of the ROD line, graduated from MuKho High School in Donghae and has worked at Robit Korea since 2010. His job mostly involves ROD products, thread machining, hole drilling after friction welding, and ensuring good machining conditions.

"I'm happy that I got exactly the job that I wanted. I'm interested in learning more about the programming for CNC machining, and my goal is to be a master in CNC programming," Man Su says.

According to Man Su, Robit is a good employer. He thinks the communication between people is good and everyone does their best. The new production worker of the year is happy that he was selected.

"I do my best at work every day, as do all of my colleagues. That's why I think anyone else could have been chosen as well," says Man Su.

In his free time, Man Su usually plays football or baseball, which he finds makes him feel healthy and cleanses his spirit – the way some might feel from meditating, he says.

"Man Su has a positive attitude and is highly skilled. When it's his shift, the machines run at the best possible capacity. He also helped make 2014 a record year in drill rod production," says **Mikko Heinonen**, Production Director, South Korea.





# Staff News



## Denis Samarets

*Vice General Director Denis Samarets has worked at Robit Russia since February 2014. He is responsible for all operative management. Denis is a graduate of the Moscow Power Engineering Institute.*

"I spend most of my working time with potential and existing customers. I also work with service suppliers, for instance in logistics, warehousing and accounting. In a typical day I also communicate with colleagues abroad and teach our new employee.

"The most interesting thing about my job is that I am responsible for everything, including sales, marketing, pricing, planning, finance, preparation and circulation of documents and finding service suppliers. The most challenging is what I'm working on right now: developing OOO 'Robit' from zero, with everything being done in manual mode. Among other difficulties, I would say are local peculiarities, such as double paperwork and the well-known economic issues. I'm very grateful to my dear colleagues in Finland and Korea, who are always ready to give me a hand. I can't help mentioning the trust, care and support I receive from Oleg Ivanov, Natalia Tverdohleb and our new colleague Nikita Ratsimor.

"In my spare time I like to read books by my favourite author Ken Follett, visit the gym, and go to the countryside on weekends."



## Yong Woo Jeon

*Sales Engineer Yong Woo Jeon works at Robit Korea. He has studied at Pukyong National University and in the UK.*

"I studied civil engineering at Pukyong National University in Busan for 4 years. On the final year, I passed the exam to be a qualified civil engineer and also achieved an office automation license. I also went to the UK to do a master's course to learn a wide range of problem-solving skills and methods to improve decision-making in the construction industry. My master's program was Construction Management and Economics.

"After graduating from university, I worked for a construction company for about 4 years. My main roles were in R&D, construction management on and off sites and maintaining excellent relationships with clients in technical sales. One of our successful projects was to develop a tunnel reinforcement grouting method. The method was awarded as New Excellent Technology by the government.

"Whenever I have free time, I like to travel, because I really enjoy meeting new people and experiencing new food and cultures. I have already visited several countries such as Czech Republic, France, Singapore and UK."



## Nancy Wittes

*Office Administrator Nancy Wittes has worked at Robit since October 2014. Her responsibilities include customer service, quotes and invoicing, among other things. She is currently doing her 3rd level Degree in Business Administration at Unisa and completing her Management Assistant Diploma.*

"My workday is very busy, but interesting at the same time, as I learn new things on a daily basis. The most interesting thing about my job is the many challenges I face every day at the office. Sometimes I have to drop everything and play the role of receptionist, welcoming visitors and offering them coffee or tea.

"The most challenging thing is when customers call and request a quote, but they're not entirely sure of what they're asking for. Then I'll ask some questions regarding the product in question and try to find an answer. That is the most challenging for me, especially when the technical sales staff is not available and the customer needs information urgently.

"In my free time I read, sing and train myself as a motivational speaker."



## Juha Niskanen

*Sales Director Juha Niskanen joined Robit's Korean sales team in October 2014. He has long experience working in various engineering and mining companies.*

"Before Robit I had the chance to work in service, marketing and sales positions in various engineering and mining companies for some decades. During those years, I gained experience working, for example, as a driller, drilling supervisor, drillmaster, service engineer and manager in Finland and several overseas' locations.

"As we who were born in Outokumpu and have worked for Outokumpu like to say, the path runs to Lappeenranta Mining Engineering studies', like it did in my case. Since then, I have spent most of my time abroad, for instance in Seoul, Korea where my work field covers the Asian market. When it comes to my hobbies, I go fishing every chance I get."



# Tampere lakeside tunnel excavation making good headway

The excavation of Tampere's lakeside tunnel (Rantatunneli) has been progressing well and is even ahead of schedule. Robit's drill bits have also been handling their task superbly – the full service has been delivered to the construction site according to schedule, and the consumption of drill bits has been more than a third lower than anticipated.



*Quarrying of Näsinkallio, Santalahti and Naistenlahti has proceed without problems. Aggregate of the area is perfect for Robit's rocktools.*



Excavation of the lakeside tunnel began in December 2013 and is progressing smoothly in the Näsinkallio, Santalahti and Naistenlahti construction sites. Five jumbo drill rigs are currently in use at the sites. The project has stayed nicely on schedule – in fact, it’s even a bit ahead of schedule. Breakthrough is expected in late May or early June.

“The project has been going very well, and there have been no major surprises. The bedrock has been consistent and has responded in line with what had already been achieved in the test drilling. Hopefully we reach the finish line just as easily,” says **Pasi Salonen**, foreman from Lemminkäinen Infra.

Lemminkäinen has been part of the project team called the Alliance, which

includes the City of Tampere, the Finnish Transport Agency, Saanio & Riekkola Oy and A-Insinöörit Oy.

### **Durable and effective drill bits**

Robit delivers its drill bits to the tunnel construction site as a complete, turnkey service that includes bringing the products to the site, and sharpening and maintaining them. Satisfaction with the drill bits has been high, as they have withstood wear and tear better than expected. The bits have lasted even a third longer between regrindings, and overall even longer than originally estimated.

“Robit’s drill bits have resisted wear superbly. Of course, in addition to the

high quality of the drill bits, the type of rock material is also an important factor: it has been very compatible with Robit’s equipment,” says **Jari Redsvén**, maintenance manager from Lemminkäinen Infra.

The regrinding service has saved Lemminkäinen’s maintenance personnel several working hours every week, allowing them to focus on other areas and securing a consistent regrinding result. The regrinding crew visits the tunnel site numerous times a week.

“The regrinding result has been excellent throughout and, overall, the service has proved to be a cost-effective and highly functional solution. In an undertaking of this size, turnkey service is very important,” says Redsvén.



# Local presence a bonus

Robit’s location near the tunnel project makes collaboration with Lemminkäinen Infra easier. Meetings are easy to arrange whenever necessary, and Robit’s representatives sometimes make site visits to see how the drilling is progressing.

Drill bits can also be delivered on short notice, although there has been no need for it. Salonen praises Robit’s forecasting abilities.

“We have had so many spare drill bits available the entire time that there has never been any danger of running out, which has happened at times with other suppliers. The location of the construction site is not in itself so significant, considering that at our Oulu site we never had any problems with Robit’s deliveries either. With things going this smoothly, it certainly sets the stage for long-term co-operation with Robit,” says Salonen. ❖



# Robit launches patented measuring technology

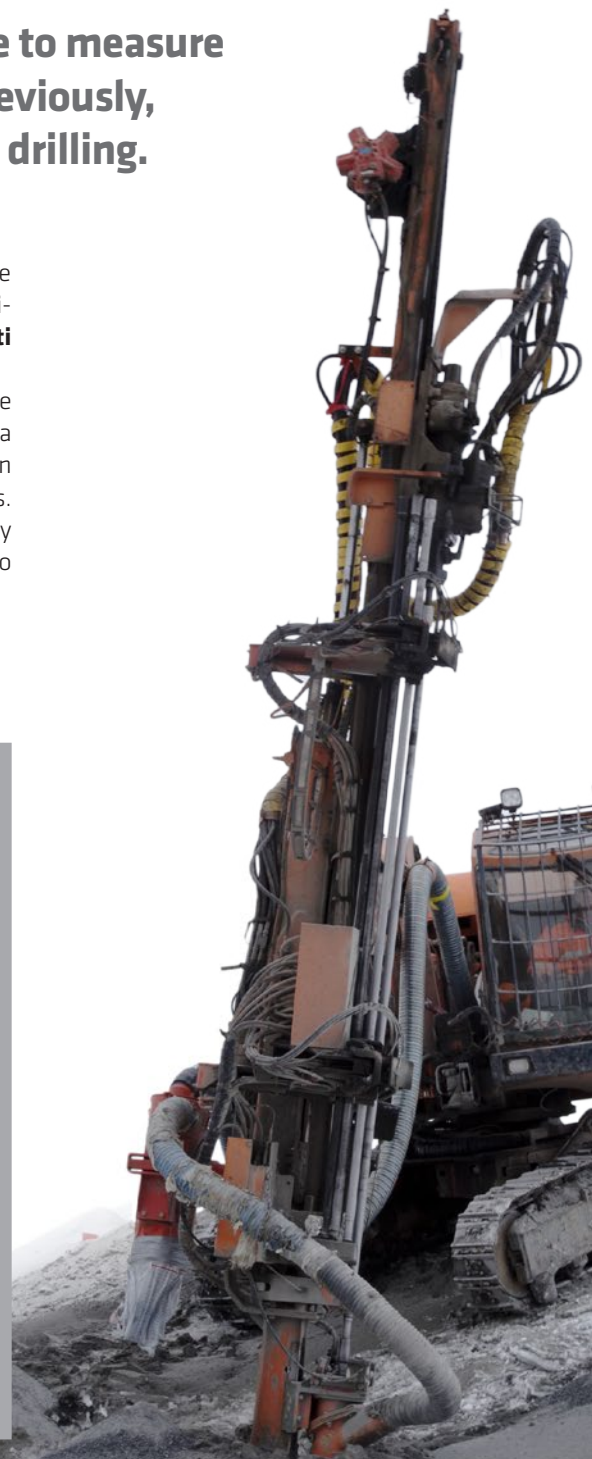
**Robit's new measuring system makes it possible to measure the straightness of a drill hole during drilling. Previously, straightness had to be measured manually after drilling.**

Robit is the first in the world to introduce an entirely new measuring technology intended for measuring the straightness of a drill hole in connection with drilling. The patented technology produces a 3D model of the hole pattern that can be rotated on a touch screen.

“Previously, the straightness of a drill hole had to be measured manually. This meant getting the data only after the fact, and the measuring and data analysis required the resources of at least one

worker. With this new technology, the results can be used immediately to optimise blasting,” says R&D Manager **Antti Leino** from Robit.

Determining the straightness of the hole is crucial, because in deep drilling, a deviation from the desired direction can end up being as many as several metres. And deviations not only reduce efficiency on the site – in the worst-case scenario they can increase the risk of accidents.





# "With this new technology, the results can be used immediately to optimise blasting"

## Customer benefits in many ways

Robit's new measuring technology is suitable for use on nearly all drill rigs, in both new and older models. The first version of the new technology was developed especially for surface drilling, which typically uses at least a 70-mm drill bit. The system can be used with all rock types and even in areas with magnetic interference. The benefits are substantial.

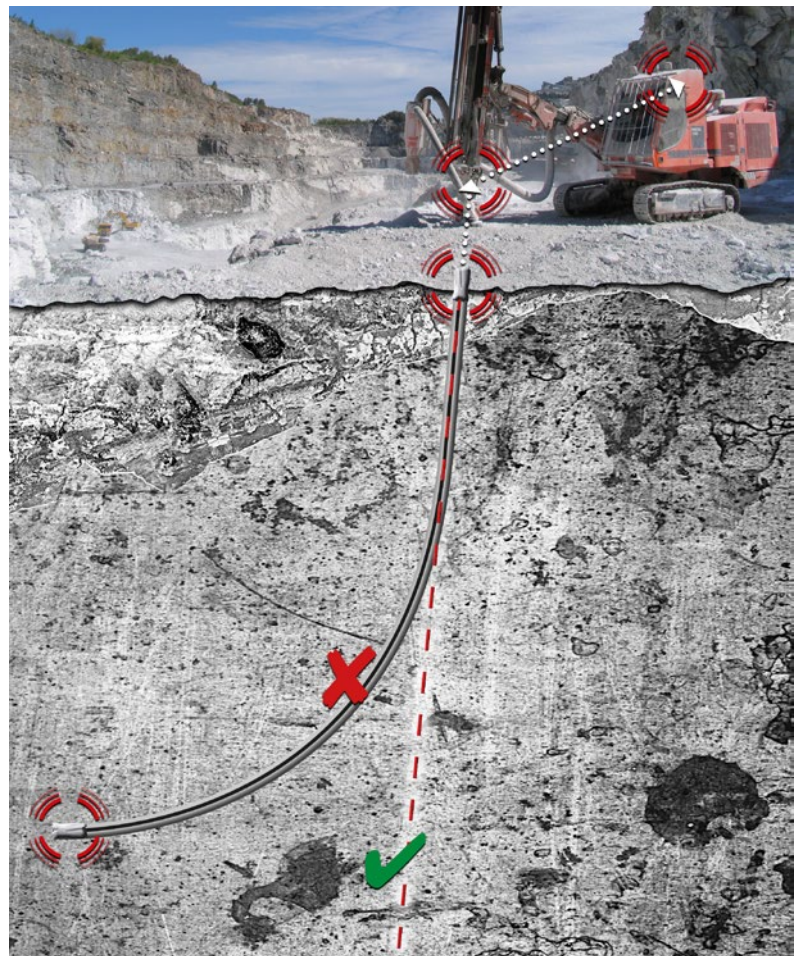
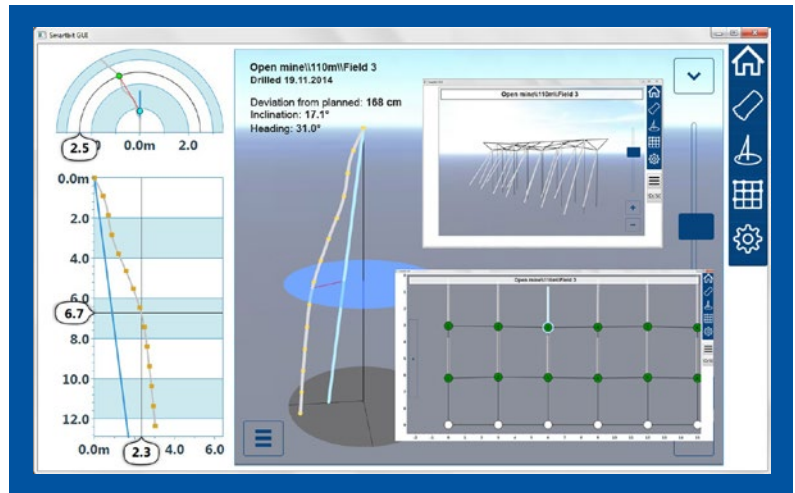
"The size of the aggregates remains optimal and the blasting is safe, thanks to the controlled blasting process. Other advantages are lower explosives and fuel consumption, a higher equipment utilisation rate, and better overall efficiency for the site, to name a few," says Leino.

The new technology was thoroughly developed over a period of seven years before it was launched.

"We developed the new system in co-operation with many other partners, including universities, research institutes and expert companies, both large and small, from various fields of technology. Funding granted by Tekes, the Finnish Funding Agency for Innovation, has enabled the company to carry out the project, which is extensive considering the size of the company and challenging in terms of research.

The system has also been tested by our Finnish customers in variable conditions for more than a year,"

Leino concludes. \*







2011



2010



2001



1994



1985

# Robit<sup>®</sup> 30 years

1985 - 2015

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