

# MEET #2-2020 SANDVIK

## BORN AGAIN MACHINES

Deep brain stimulation wire

## A TRADITION OF SOCIAL RESPONSIBILITY

Focus on the future

INTERVIEW: NINA ÅXMAN

# INDUSTRY 4.0

It's a revolution in the making. Sandvik puts focus on digital solutions for future success. PAGE 10

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**DISCLAIMER**  
Some images in the magazine were produced before the introduction of social distancing requirements.



## FOCUS ON THE FUTURE

**FOLLOWING A HIGHLY** challenging second quarter, the Sandvik Group's third quarter of 2020 was characterized by stabilization and a gradual recovery for several of our businesses. The strong margins delivered in the quarter are further proof to our resilience, and I am confident that we will continue to manage the situation effectively.

Looking ahead, we will take several steps toward increasing our focus on growth and offering future digital solutions – what is usually called Industry 4.0. On page 16, you can read more about how we reorganized our tool business and created a new business area segment with full focus on complementary digital solutions for the manufacturing industry. Continued growth within this area is particularly important, and it will require investments in companies with new competencies. Therefore, I myself will lead Sandvik Manufacturing Solutions for a year, starting in January 2021.

In October, we signed an agreement to acquire the American company CGTech, which is a leading supplier of software for numerical control (NC/CNC) simulation, verification and optimization. This is well in line with our strategy to grow within software solutions related to machining.

We also see other areas for continued growth and as of January 1, 2021, a new business area will be established: Sandvik Rock Processing Solutions, formed by the current Crushing and Screening division. The reorganization provides increased focus on growth and transparency – read more on page 19.

The coronavirus pandemic continues to affect us all, and we always prioritize the health and safety of our employees, customers and partners. So far, we have managed to navigate through these tough times and maintain our businesses, thanks to new creative ways of working and digital tools.

Being safe in the workplace is always our first priority. It is therefore with great sadness that I report that two of our employees lost their lives in an accident at our facility in Gimo in July. An accident like this should not happen. We are working together with authorities to investigate what happened and to make sure that it will not be repeated. I want to send my sincere condolences to the families, colleagues and friends of the deceased.

**Stefan Widing,**  
**President and CEO**





## BACK IN THE SADDLE

**AN ACCIDENT ONE** winter day in 2008 changed Mike Schultz's life. One of the top five snocross racers in the world, he had a bad start in a qualifying race and fell and injured his leg so badly it had to be amputated.

But Mike Schultz refused to give up racing. The problem was finding a suitable prosthetic, one that would not only help him compete, but actually allow him to win. He founded his own company and, with the support of Sandvik Coromant, began designing and manufacturing prosthetics for extreme sports.

Mike Schultz is one example of how

technology and medical innovations continue to improve and even save people's lives.

Sandvik has launched a branding campaign in which we showcase how Sandvik solutions have helped people with conditions ranging from Parkinson's disease and diabetes to hearing disabilities and lost limbs lead normal lives. We also look at the amazing possibilities that arise with powder technology and additive manufacturing, such as 3D-printing a tailor-made skull implant. ■

**Visit: [home.sandvik/life-changing-innovations](https://home.sandvik/life-changing-innovations)**



Watch the film and read the articles.

# NEWS

## MEET THE MATERIALS EXPERT

Listen to Dilip Chandrasekaran, Head of R&D at Kanthal, in our Meet Sandvik podcast series: [home.sandvik/en/stories/podcasts](https://home.sandvik/en/stories/podcasts)



# 100%

**of the slag from the rock-drill steel production can be recycled**, thanks to a Sandvik initiative. The slag is formed into concrete blocks, which are currently used as barriers and for material storage spaces.

## JOINING FORCES TO FIGHT COVID-19

**THE CORONAVIRUS** has had a huge impact on us all. Sandvik has been active in supporting society through a number of initiatives.

Sandvik divisions, such as Kanthal in Hallstahammar, Sandvik Coromant in Gimo, Additive Manufacturing in Sandviken and the production site in Svedala, all in Sweden, have 3D-printed frames for face shields and other protective equipment for delivery to local hospitals and elderly care homes. In addition, the Göranssonskas Technical school in Sandviken, in which Sandvik is the

majority owner, is 3D-printing frames for face shields. Several production sites have donated protective wear to hospitals, such as the ones in Sandviken and Svedala in Sweden, Neath in Wales and at Sandvik in Mongolia.

In India, the national lockdown not only put pressure on the health system but also affected millions of the most vulnerable, such as dayworkers and homeless people. Sandvik in India has distributed personal protective equipment, digital thermometers and ventilators to local hospitals. It has



also distributed food rations and hygiene kits and created awareness about the virus to families in Pune, Mehsana, Udaipur, Hosur and Patencheru. In addition, Sandvik has supported 2,700 vulnerable families in the Udaipur region and in Kadi Block, Mehsana, with food and hygiene kits. ■



## NEW VICE PRESIDENT INVESTOR RELATIONS

**LOUISE TJEDER HAS** has been appointed Vice President Investor Relations at Sandvik. She has more than 20 years of experience working with financial markets and has held investor relations roles in a number of companies and sectors, including Bonava, Ambea, Tele2 and SCA. Louise Tjeder joins Sandvik on December 1, 2020. ■



The motor nodes were made of the titanium alloy Osprey® Ti6Al4V.



## SUSTAINABLE E-BIKES WITH 3D PRINTING AND TITANIUM

**MOTOR NODES ARE** one of the most difficult parts to manufacture when it comes to premium electric bikes. When the Colorado-based engineering and design consultancy company GSD Global turned to Sandvik to investigate the possibility of 3D printing their nodes in titanium, they were thrilled to find out that they could get a lighter, more durable and more energy-efficient solution.

"Handmade bikes are the type of product that goes straight to your heart," says Zach Krapfl, Head of GDS Global. "They are pieces of art. So if we can provide these high-end bicycle makers with a material that can make their bikes last ten to 20 years and is more energy-efficient, that's a game-changer to them." ■

## SUSTAINABILITY RECOGNITION

**SANDVIK HAS BEEN** reconfirmed as a member of the prestigious FTSE4Good Index Series in its 2020 semi-annual review. The index is designed to measure the performance of companies that demonstrate strong environmental, social and governance (ESG) practices. Sandvik has been a member of the index for 16

consecutive years.

"This is yet another piece of very positive evidence of the results of our continuous efforts in developing sustainability through our products, services and our own operations," says Håkan Sundström, acting Head of Sustainable Business at Sandvik.

Launched in 2001, the FTSE4Good Index Series is a series of benchmark and tradable indexes for ESG investors. The purpose is to provide a tool to identify companies that meet globally recognized corporate sustainability standards. ■ **FTSE4Good**





## US DISTRIBUTOR ACQUIRED

### SANDVIK HAS ACQUIRED

Allied Construction Products LLC, a U.S. distributor of hydraulic hammers to the construction and mining industries and a manufacturer of compactor plates and mounting brackets.

Sandvik was already a 21 percent minority shareholder of the company. In 2019, Allied Construction generated revenue of about USD 29 million with 38 employees. ■

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## TRAGIC ACCIDENT

**IN JULY, A TRAGIC** accident occurred at our plant in Gimo, Sweden, in which two employees lost their lives. Safety is of highest priority at Sandvik, and there is an ongoing collaboration with authorities to investigate what caused the accident. Our thoughts are with the relatives and close colleagues of the deceased. ■



With its compact size, the Digital Driller and its wheeled carrying case can be easily transported by one person anywhere it is needed.

## SUSTAINABLE DIGITAL DRILL SIMULATOR

**SANDVIK HAS INTRODUCED** a new version of its operator training simulator to safely train underground drill operators and maintenance teams. The new Digital Driller family significantly reduces the drill start-up period by ensuring that rig operators are fully familiar with the features and the capabilities of the relevant Sandvik rig from day one. This produces a shorter transition to using the real equipment, resulting in quicker familiarization and improved efficiency

and productivity. Additionally, since training is simulated, there is no risk of equipment damage, zero consumption of rock tools and fuel, zero emissions and no exposure of the trainees to risk as they become familiar with the new drill rig.

The use of the Digital Driller is estimated to produce a 5 percent increase in annual productivity due to increased rig availability alone. In addition, training costs are reduced by up to 35 percent. ■

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## ACQUISITION OF SOFTWARE COMPANY

**SANDVIK HAS SIGNED** an agreement to acquire U.S.-based CGTech, a global market leader in software for numerical control (NC/CNC) simulation, verification and optimization. The acquisition will enhance the Group's capabilities in machining intelligence, strengthen its software offering and facilitate an improved presence at key points in the customer value chain. CGTech is headquartered in California and has about 180 employees. In 2019, CGTech had revenue of about USD 54 million. The transaction is expected to close during the final quarter of 2020. ■

## NEW MEMBER OF THE EXECUTIVE MANAGEMENT

**NADINE CRAUWELS** has been appointed a new member of the Sandvik Group Executive Management. As of October 1, she is head of the newly formed business area segment Sandvik Machining Solutions. Since 2000, she has held several management positions within Sandvik Coromant, including as president starting in 2017. ■



Nadine Crauwels

## ADVANCES IN ADDITIVE MANUFACTURING



**LAST YEAR**, Sandvik acquired a 30 percent stake in the European additive manufacturing company Beamit. In September 2020, the Beamit Group acquired 100 percent of Zare, an additive manufacturing company focusing on high-end components for demanding industries such as aerospace, automotive, motorsport and energy. Combined, Beamit and Zare will become one of the largest independent additive manufacturing service providers. The companies will continue to operate under their respective brand names.

In addition, the Sandvik powder plant in Sandviken, Sweden, has recently received two certifications, one for producing titanium powder for medical applications and one for the aerospace industry. ■

## BRIDGING THE GAPS TO NEW OPPORTUNITIES

**SANDVIK HAD DEVELOPED** an all-new super-austenitic stainless steel alloy that bridges the material property gap between stainless steels and nickel alloys. Sanicro® 35, which offers exceptionally high strength performance, is designed for service in aggressive corrosive environ-

ments. It's the newest member of the brand Sanicro consisting of high-alloy, multipurpose stainless steels.

In addition, Sanicro® 35 is sustainably produced with more than 80 percent recycled steel in a highly efficient, fully integrated process using a Nordic fossil-free energy mix. ■



# FOCUS



# SMART FACTORIES AT THE CORE OF INDUSTRY 4.0

Increased efficiency, improved sustainability and easier customization are some benefits of the fourth industrial revolution – fueled by gains in digitalization and connectivity. What's it all about? →



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“The goal is the ‘smart factory,’ with cyber-physical systems capable of autonomously exchanging information, triggering actions and controlling each other independently. ”

**MUCH HAS CHANGED** in the manufacturing industry since the early days of industrialization. The factory employees of today are process operators and IT experts, and digital skills have replaced physical strength as the primary work tool.

Today data is the most important resource, and the rapid development in digitalization and connectivity has resulted in what is known as the fourth industrial revolution, or Industry 4.0. The term was first used at the 2011 Industrial Fair in Hanover and refers to a range of digital technologies and concepts within automation, industrial process IT and manufacturing.

**COMPONENTS AND TOOLS** used throughout the production chain carry information about where and how they are to be used. Thanks to connectivity improvements such as the Internet of Things (IoT), cloud computing and 5G, devices communicate with one another. Real-time production data and user experience fed into the loop allow for production to be continually optimized from a resource usage and sustainability viewpoint. The objective is pro-

duction with shorter lead times, fewer errors and increased flexibility without time-consuming coding.

“Data is the lifeblood of Industry 4.0 and companies should protect, treat and value it as you would any other business asset,” says Martin Waldén, Partner at consulting firm PwC, which has experience in advising companies on industrial IoT. “The potential use of data-driven insights and analytics stretches across entire value chains and product life cycles – from ideation, prototyping and development to production and maintenance and all the way to disposal and recycling.”

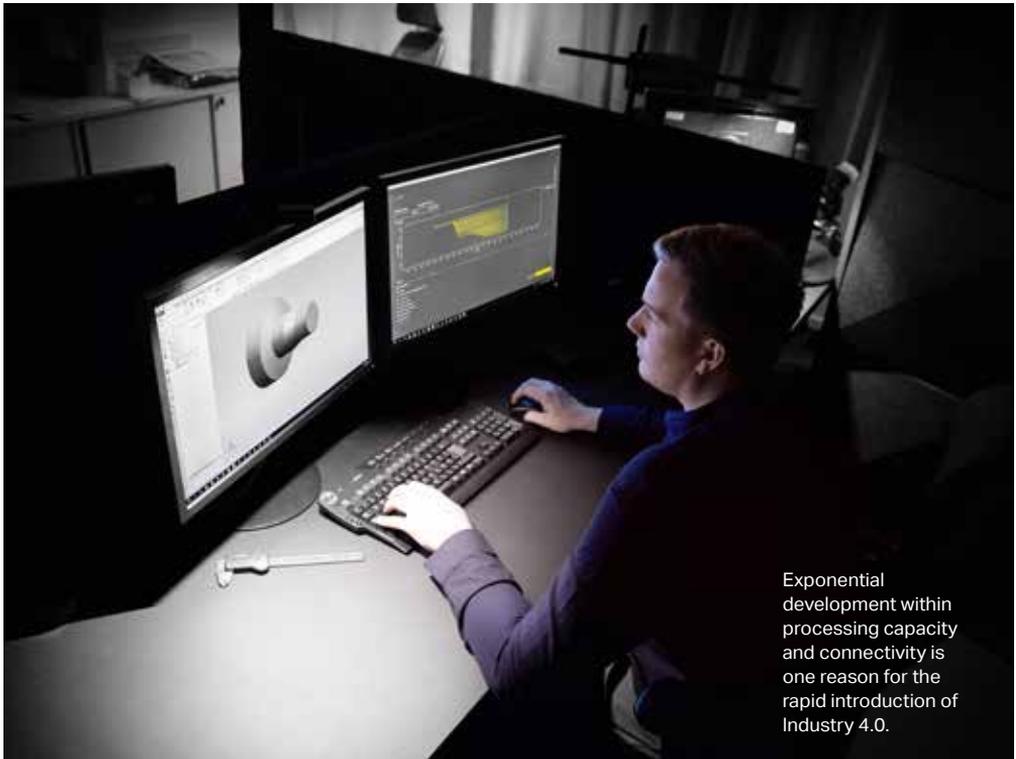
**ACCORDING TO** *IndustryWeek*, “Industry 4.0 is all about doing things differently. The goal is the ‘smart factory,’ with cyber-physical systems capable of autonomously exchanging information, triggering actions and controlling each other independently. This facilitates fundamental improvements to the industrial processes involved in manufacturing, engineering, material usage, asset performance and supply-chain and life-cycle management.”

Part of the reasoning behind the

rapid introduction of Industry 4.0 is the exponential rate of development within processing capacity and connectivity. And the current coronavirus crisis has served to further speed up the transformation, according to a recent report from consulting company McKinsey. Companies are emerging from the crisis into a world of workplace physical distancing, the report states. Recovery is forcing organizations to reimagine their operations for the next normal. Reconfiguring supply chains, production lines and digital-first customer journeys are some of the changes that will have significant

effects on the requirements for workforce skills and capabilities.

**SOME HAVE PREDICTED** that digitalization and automation would lead to massive job losses, but if anything, the trends highlight a growing need for retraining and reskilling – getting used to new “colleagues” such as AI-controlled robots that can handle tasks that involve heavy lifting, repetitive movements, high precision or hazardous work environments. Meanwhile, humans are free to focus on tasks that require creative intelligence, flexibility and an innovative mindset. →



**SO-CALLED SMART** factories are at the heart of Industry 4.0, implementing new technology to bring an evolution in the supply chain and production line that brings a much higher level of both automation and digitalization. Machines use self-optimization, self-configuration and even AI to complete complex tasks in order to deliver vastly superior cost efficiencies and better-quality goods or services.

“The use of digital twins to virtually represent a product or production system that mimics a company’s machines, controls, workflows and operating environment will have significant impact on a company’s productivity and organization, as well as revenues and customer and supplier relationships,” comments PwC’s Waldén. ■



The Gimo plant has been recognized as an advanced Industry 4.0 facility by the World Economic Forum.

## STATE-OF-THE-ART GREEN FACTORY

The World Economic Forum (WEF) has recognized the Sandvik Coromant production unit in Gimo, Sweden, as an advanced Industry 4.0 facility. The plant was added to a network of “Manufacturing Lighthouses,” state-of-the-art facilities that serve as world leaders in how to successfully adopt and integrate cutting-edge technologies, including automation, the Internet of Things, artificial intelligence and cloud computing. WEF points out how Sandvik has created a digital thread throughout its production processes that has significantly

raised productivity. One example is its “touchless changeover,” which allows design patterns to be changed automatically, even during unmanned shifts.

The Gimo plant is the world’s largest site for inserts and tools production. All Sandvik Coromant production units are part of its “green factory” vision. The aim is long-term sustainability through initiatives to achieve reduced carbon emissions, improved energy efficiency and work environment and increased recycling. ■

# PILOT TO GAIN KNOWLEDGE

Continuously developing competencies to meet future demands is one of modern industry's biggest challenges. Sandvik has participated in a pilot project called "Engineer 4.0" along with other companies such as Volvo, SKF and Veoneer. The goal? To gain the necessary knowledge to drive and thrive in the digital revolution, also known as Industry 4.0.

IT-based technologies have changed the manufacturing industry profoundly, and to stay competitive companies need to increase their expertise in digitalization and smart production. To meet this new demand, 13 Swedish universities and colleges have developed eight training modules that include topics such as additive manufacturing, cyber physical systems, digital twins, human robot collaboration, connectivity and 5G.

**"OUR CURRICULUM** needs to adapt to the changing conditions," says Bengt-Göran Rosén, project leader and Professor at Halmstad University, Jönköping University and Chalmers University of Technology. "That's why we've developed these training modules. When we saw the need to also address industrial companies, we realized we had to adapt the training to their requirements. The answer was a digital version that users can take when they have the time."



Bengt-Göran Rosén



Abhinandan Chiney

The target group for the training modules comprises people with a technical background, and each module will take two to three days to complete, ending with a quiz. The pilot ran during the summer of 2020, and once the pilot is evaluated eight new modules will be introduced, including some that are more in-depth.

**SIX SANDVIK** employees from different business areas and parts of the world participated in the pilot.

"The content is very relevant to the work we perform at R&D in Pune, India, and it is great to access state-of-the-art information from experts in academia," says Abhinandan

Chiney, lead scientist working at Sandvik Materials Technology in India. "The training involves using modeling, simulation and big data analytics to optimize and diagnose production processes, which fits right into what we do." ■

# INCREASED FOCUS ON DIGITAL SOLUTIONS

Digital, connected and automated manufacturing and mining provide major benefits when it comes to sustainability, quality and the work environment. Sandvik is now reorganizing its tool business to further strengthen its position within future digital solutions, also known as Industry 4.0.

**THE SMART FACTORY** is the heart of Industry 4.0. Thus Sandvik is carrying out a reorganization with the aim of expanding digital technology to make customers even more productive and sustainable. Sandvik Machining Solutions, the business area for metal-cutting processing, has changed its name to Sandvik Manufacturing and Machining Solutions and has been divided into two separate business area segments: Sandvik Machining Solutions and Sandvik Manufacturing Solutions.

The Sandvik Machining Solutions business area segment includes the traditional tool business and brands such as Sandvik Coromant, Walter, Wolfram, Seco and Dormer Pramet. Sandvik Manufacturing Solutions will focus on related technologies and digital solutions, including the divisions for Metrology, Additive Manufacturing (3D printing) and Design and Planning Automation. Common to these is that they are expected to grow strongly and that current providers of these

services are often not Sandvik's existing competitors.

"One of the purposes of the reorganization is to create new business opportunities," says Stefan Widing, CEO of Sandvik. "The new Sandvik Manufacturing Solutions segment strengthens our position within digital manufacturing and contributes to our market-leading position. These areas need a dedicated focus and to some extent a different direction. They are often smaller, with characteristics of software companies, rather than the manufacturing industry. To run them successfully, a different governance model is required."

**TO EMPHASIZE ITS** strategic importance, Widing will himself lead Sandvik Manufacturing Solutions for a year, starting on January 1, 2021, in parallel with his role as CEO. He explains: "This is because it is a very important area for the future. It is broad and complex and will require investments through acqui-



"Our focus is to grow within the digital area," Sandvik CEO Stefan Widing says.

sitions in areas such as metrology, planning tools, tool data management and 3D printing. If and when we find the right company, we must be able to act quickly."

**DIGITIZATION CONTINUES** to be a focus area for the core business as well.

"Our core business in metal cutting is on a journey from only providing tools to providing complete solutions, including everything from sensors and connected tools that exchange data via the cloud to digitized planning tools," Widing says.

"We have long had a business model where we are a world leader in helping customers choose tools and process components efficiently. That knowledge is in the heads of employees. Now we need to capture that knowledge and build it into digital tools in an

information loop that can constantly improve processing in real time."

Digitization means that experiences and knowledge from manufacturing are shared in real time, both internally and externally and between people and machines.

The growth ambitions in the digital area are high, within both Sandvik Manufacturing Solutions and Sandvik Machining Solutions. The 2025 target for the business areas segments is to have total sales of SEK 5 billion connected to digital solutions and services.

"It is not a big number for Sandvik as a group, but it is an important area for the future and partly a new position for us," Widing says. "We have a history of innovation, so this is a natural extension of our heritage in engineering."



**What are the growth opportunities?**

“We already have a broad customer portfolio,” Widing explains, “so it’s more about selling more to existing customers than finding completely new ones. Sandvik Machining Solutions should be able to grow as fast as the market organically, and with acquisitions we should be able to grow faster than the market.”

**What are the main challenges for Sandvik to succeed in Industry 4.0?**

“The availability of good acquisition prospects, and the battle for both skills and acquisitions will be fierce,” he says. “We have a strong balance sheet that allows us to be offensive and a profitable core business that provides a good foundation. When we acquire and create new businesses, it is important to take care of them and make them grow. We need to understand the dynamics and how to manage and reward that type of business to create growth.”

**How will the two new business area segments work together and benefit from each other?**

“Their main task will be to grow their respective businesses,” he says. “They must work together and find synergies where it is logical and where both feel that it is positive. It could, for example, be about handling tool data, where there is a business benefit. Connecting tools with metrology is still quite unusual, but we believe in it and it will gradually happen, say within five or ten years. This industry takes time to change.”

Part of the transition to Industry 4.0 is about attracting employees with the right skills.

“We have a flat organization structure and

a modern way of working that is attractive for that type of talent. Therefore new, agile ways of working have come very naturally to us.”

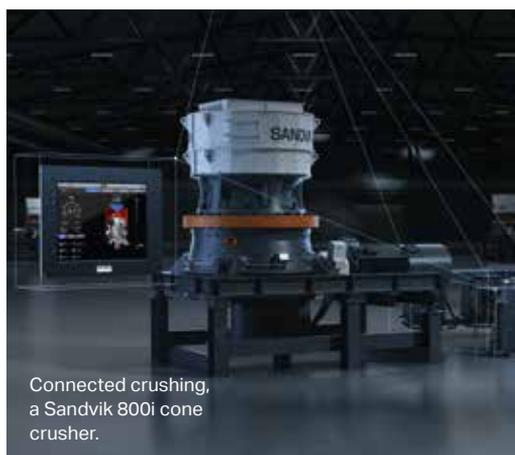
**SANDVIK HAS BEEN** around for almost 160 years. With that legacy – and given Sandvik’s size – is it possible to be as fleet-footed as is required in a digital world? Is it possible to be “both old and new”?

“This is why we are pushing so hard for increased decentralization, where each decision-making unit can act as an independent smaller company,” Widing says. “At a group level, we have already come a long way in delegating responsibility locally.

“We have also come far with digitization in many areas and are at the forefront of the digitization of mines. Another example of how we use new digital technology to become even more efficient and more flexible is our facility in Gimo, which has been named a pioneer in Industry 4.0 by the World Economic Forum.”

**THE DIGITAL SOLUTIONS** linked to smart factories and Industry 4.0 have great potential to change industries other than manufacturing, Widing says. The mining industry, for example, which is so important to Sandvik, is undergoing major changes with the automation of mines, self-driving autonomous machines, electrification and connected equipment. The result is a huge productivity boost that also benefits the surrounding environment and employees’ situation.

The process and energy industries benefit from digitized, connected solutions from the Sandvik Materials Technology business area, including intelligent tube systems that provide self-diagnosis and send data via the cloud. ■



Connected crushing,  
a Sandvik 800i cone  
crusher.

Anders  
Svensson



## “EXCITING GROWTH POSSIBILITIES”

**SANDVIK HAS DECIDED** to establish a new business area, Sandvik Rock Processing Solutions. The new business area will comprise the current Crushing and Screening division, which today is part of the Sandvik Mining and Rock Technology business area.

Crushing and Screening is addressing separate parts of the value chain and facing different competition than other Sandvik Mining and Rock Technology divisions. While its focus is on rock extraction, Crushing and Screening is a market leader within rock processing, which is the next step in the value chain.

“Our Crushing and Screening division is a well-performing business with exciting growth opportunities,” says Stefan Widing, President and CEO of Sandvik. “The business today is already operating quite independently from the rest of Sandvik Mining and Rock Technology, with its own manufacturing, sourcing and aftermarket. By establishing Rock Processing Solutions as a business area we will improve transparency and strengthen our growth ambitions within the area.”

Anders Svensson, President of the Crushing

and Screening division since 2016, will become President of the new business area. He will also become a new member of the Sandvik Group Executive Management as of January 1, 2021, when the new organization will become effective. Svensson joined Sandvik in 2008 and has previously had several management positions within Sandvik and at Metso Minerals (today Metso Outotec).

**“WE WILL CONTINUE** to work with our strategic focus areas – safety, sustainability, automation, digitalization and a life-cycle approach,” says Svensson. “We are moving from a focus on stabilization and profit margins into an increased focus on growth, both acquisition-based and organic.”

In 2019, the crushing and screening business had about SEK 7.4 billion in sales, a 15.9 percent operating profit margin and about 2,000 employees.

Business area Sandvik Mining and Rock Technology will continue to be led by Henrik Ager and as of January 1, 2021, will change its name to Sandvik Mining and Rock Solutions. ■



A neurostimulator has given Andrew Johnson back his quality of life.

## A PACEMAKER FOR THE BRAIN

At age 35, New Zealander Andrew Johnson was a successful lawyer, a devoted husband and father. Then, out of the blue, he was diagnosed with early-onset Parkinson's disease. Eleven years later, Johnson has regained his quality of life thanks to deep brain stimulation surgery and neurostimulation implants.

**"IT STARTED WITH** a small tremor in my right hand that got worse as I tried to feed my infant son," Andrew Johnson says, looking back on the year he spent seeing doctors before eventually being diagnosed with early onset idiopathic Parkinson's disease (PD).

"Idiopathic, meaning of no known cause, and early onset, meaning prior to 60 years of age," he says. "It was a real shock because there was no family history or exposure to environmental toxins, both of which are well-known risk factors."

Originally treated as a motor disorder, PD is

now known to affect the entire brain and body, slowly and progressively shutting down the autonomic nervous system, which acts largely unconsciously and regulates bodily functions such as the heart rate, blood pressure and digestion. It can affect anyone from their 20s onward, impacting a wide range of skills and functions, from cognitive skills to gastrointestinal and motor function, and can cause speech dysfunction, vision changes, pain, urinary and sexual dysfunction, body rigidity, tremors, muscle contractions and cramping, apathy, depression and more. Parkinson's is among the

most common neurological disorders globally, second only to Alzheimer's disease.

**IN THE YEARS** following the diagnosis, Johnson's life changed completely. He had to leave his job as Senior Legal Counsel at ASB Bank Limited – one of New Zealand's "big four" banks – because the cognitive challenges were becoming insurmountable.

Johnson struggled to find a treatment that would allow him to live a relatively normal life. At times, he would either be rigid and stuck, unable to move quickly, or flailing wildly around with uncontrolled, involuntary movements known as dyskinesia. He was also experiencing serious motor difficulties and having trouble dressing and feeding himself.

"We eventually moved to a one-level property after I'd fallen down the stairs a couple of times," he says. "I was so incapacitated that my wife and I agreed I shouldn't be left alone with our son and daughter, who were then aged 5 and 2. It was rough and there were some very dark days indeed, but with professional treatment I managed to get through it."

**APPROXIMATELY TWO YEARS** after his diagnosis, Johnson's neurologist raised the possibility of deep brain stimulation (DBS) surgery. While people had previously not been considered for DBS until at least ten years post diagnosis, more recent research indicates that having DBS earlier rather than later may prolong the longevity and efficacy of treatment in early onset PD.

In 2012, Johnson was approved for DBS surgery and bumped to the top of the list due to the severity of his disease.

In DBS surgery, electrodes are implanted in the brain to deliver impulses to the nerves and an electrical pulse generator, or neurostimulator, is implanted to produce pulses of electrical stimulation. The neurostimulator can be likened to a pacemaker for the brain. The electrodes

and the neurostimulator are connected using minute conductive wires, such as high-quality Exera® fine medical wires from Sandvik.

"DBS surgery was life changing," says Johnson. "It gave me control over my body again. The way my motor symptoms were going, I think I would have had to be in full-time care if it wasn't for the DBS. I try to take advantage of the time I have been given and live life like I really mean it." ■



## EXERA® MEDICAL WIRE

Exera fine medical wire is specially developed to transmit, sense or stimulate signals within the body. It is employed in modern neurostimulation devices such as those used in deep brain stimulation surgery. This complex procedure has proven to be effective in controlling movement disorders such as those that arise in people suffering from Parkinson's disease. Exera medical wire and wire-based components are made from stainless steel, precious metals and cobalt chrome alloys and are available with a wide selection of coatings and surface treatments. The Exera medical wire portfolio includes more than 200 alloys and it also offers custom-made alloys. In October, Sandvik announced plans to expand its operations of precision medical wire and wire-based components to Tucson, Arizona, in the U.S.

**BEFORE:**

A major intervention at the optimum rebuild interval, between 12,000 and 16,000 engine hours...



## BORN AGAIN MACHINES

How can mining and construction companies remain cost-conscious while meeting normal fleet maintenance requirements? By getting a new lease on life for their worn-out equipment through comprehensive rebuild services.

**A ONE-MAN** trenching business and a multinational mining company are in many ways worlds apart. But today's fierce marketplace and cost-cutting pressures force fleet managers of any size to weigh their investment decisions carefully.

Historically, an exhausted piece of equipment has simply been replaced by a new one, but in current market conditions this is becoming increasingly difficult. Sandvik Reborn is a planned, full-scope rebuild concept that uses pre-assembled kits, and the actual assembly is

carried out by local Sandvik experts, supported by global standards. Considering that awaiting delivery of a new machine can take significantly longer than rebuilding one, a refurbished old unit often saves both time and money, while also reducing an operation's environmental footprint.

**BUT CAN REBUILT** equipment match the quality of a new piece? Will it perform as well as new? And what about the warranty?

Naturally there are preconditions. The original

**AFTER:**

... Reliable life of the equipment extended to more than 30,000 hours and at a fraction of the price of a new unit.



machine must be durable and of high quality. The basic design must facilitate repairs and upgrades. New, improved components must be available to make upgrades sensible. Finally, there must be a service provider capable of reliably carrying out the repairs and upgrades as specified.

As the original equipment manufacturer, Sandvik is in control of all these preconditions, and rebuild processes are systematically fine-tuned to improve efficiency and quality.

**OPERATORS TODAY** demand more out of their capital equipment, so by giving new life to used machines, Sandvik displays global leadership by adding value to its equipment for customers and in promoting sustainable development. ■

**SANDVIK REBUILD BENEFITS**

- Extended equipment life at a fraction of new equipment cost
- Lead time shorter than for new equipment
- Equipment inspection by qualified expert, assuring highest quality
- Refurbishment or replacement of main components with exclusively original parts
- Systems and safety upgrades
- Improved equipment performance and reliability
- Modifications possible for equipment used in new environments
- Carried out by local Sandvik experts, supported by global standards
- Sandvik warranty and support.



Watch the film



## ONE GREAT LADY

Sigrig Göransson, granddaughter of Sandvik founder Göran Fredrik Göransson, encouraged the company to focus on social responsibility and improved conditions for the workers at a time when that was rare. Her name has also been given to a sustainability award, created to drive environmental, economic or social sustainability.

**SIGRID GÖRANSSON** was born on February 23, 1872, in Sandviken, granddaughter of Göran Fredrik Göransson, founder of Sandvik, and daughter of Anders Henrik Göransson, CEO of Sandvik.

When she was still young, Sigrig Göransson joined her father on his inspection of the ironworks and the housing, which gave her insights into the living and working conditions of the employees. In the growing

community of Sandviken, there were major problems in terms of housing, welfare, schooling and health care.

**SIGRID GÖRANSSON SAW** what was needed to provide the workers and their families with better living conditions. She was appointed to the company's management team and made an inspector of the company's social institutions. She made Sandvik focus on social conditions at a

time when that rarely happened.

One of the first measures was to get doctors and hospitals into the community. After studying health conditions in Switzerland and other countries, Sigrig Göransson took the initiative to establish a sanatorium in Sandviken, one of the first in Sweden. For the benefit of the community, a gymnasium and warm bath house, a large laundry facility and a domestic school for girls and younger women were



Sigrid Göransson

established. One of the company houses became a library and reading rooms, and an educational committee was set up to organize lectures and discussions.

Sigrid Göransson took an active part in the establishment of nursing homes and orphanages, and when the municipality took over the social services, she was for many years a member of the Poverty Alleviation Board and other municipal committees. At home in the evening, she often gathered members of the municipal boards and others interested in studying new regulations in the social field. Other evenings were devoted to

discussions about newly published literature and current social issues. Through these gatherings, the spirit of consensus between different parties and points of view was promoted.

During World War I, Sigrid Göransson formed a women's food committee, which helped housewives to make use of the groceries available and find substitutes for missing ones. After the war ended, this association was transformed into a housewives' association. Her foundation is still making a significant contribution to society. Study delegations from elsewhere in Sweden and from abroad traveled to Sandviken for inspiration and ideas for similar activities.

**HER WORK WAS** also recognized at a national level. In 1914 she was awarded the "Illis Quorum" medal by the Swedish King for outstanding contributions

to Swedish culture, science and society. Sigrid Göransson was also a member of the National Social Council for Work Safety and Labor. As a person, she was down-to-earth and natural, generous and warmhearted, always ready to intervene and find solutions. ■



Watch the film about Sigrid here.



Read more about Sigrid and the award here.

## SUSTAINABILITY AWARD

In Sigrid Göransson's name, Sandvik has launched an annual sustainability award to celebrate the best innovations within Sandvik. It is an internal award praising our heritage of sustainability and community involvement. The prize goes to a solution that has had a measurable and lasting impact on environmental, economic or social sustainability at Sandvik or in local communities. "The Sandvik Sustainability Award in Memory of Sigrid Göransson" was handed out for the first time at the Annual General Meeting 2020 in Sandviken.



Future leader Nina  
Åxman.

# “YOU CANNOT PREDICT BUT YOU CAN PREPARE”

Nina Åxman joined Sandvik in January 2020, assuming the role of Vice President of Global Operations at the Rock Tools division. Two months later, the coronavirus pandemic swept across Europe. This has not prevented her and her team from implementing a major organizational change. In May, the Swedish trade union Ledarna included her in its list of Future Women Leaders 2020.

**Tell us about the Future Leaders award.**

"Ledarna has worked with this initiative for many years to highlight role models in modern leadership, and it is a huge honor to receive this award. I'm especially pleased that they chose a leader within the manufacturing industry since it is important for us to challenge stereotypes to improve diversity."

**How would you describe your leadership style?**

"I want to demonstrate a positive, forward-thinking leadership that stands for trust and transparency. Together with my team, I work for a culture that includes everyone and promotes courage and creativity, where it's natural to explore new ways of doing things and make decisions based on facts. I try to be accessible, have high engagement and challenge my team for them to develop and have fun at work."

**How do you manage your daily workload as a leader?**

"We talk a lot within the team about ensuring a sustainable work pace as individuals, about work-life balance and acting accordingly. It's about not expecting everyone to always be available, not even me. Everyone needs space for sleeping, relationships outside of work, to exercise and do other things they enjoy. And to be completely disconnected during holidays. You can do this by delegating and having a strong team around you."

**Why did you choose a career within engineering? What attracted you?**

"My interest in technology started when I went to ABB's technical high school in Västerås, Sweden. Through internships and summer jobs, I got caught up in production and logistics. It is a fun field with a fast pace and concrete problem-solving, and in order to get good results you need to be just as good at working with technology as with people."

**What originally made you choose a technical high school?**

"It was a reputable high school that opened up many opportunities. Sandvik also runs secondary schools with high standards and close collaboration with the company, which attract students with high academic results. I recently joined the board of one of these schools as a representative of Sandvik, and I see this as an important piece of the puzzle in how we work with diversity in the long term."

**How should Sandvik attract new talent?**

"By showcasing the exciting technology and products we work with – how they contribute to society and the breadth of skills we need – and emphasizing that we are a global organization that wants to have a positive impact on the outside world with our advanced technology."

**Why is diversity important?**

"Diversity is part of creating a more dynamic team that is better at solving problems, is more innovative and helps each other with different perspectives."

**You started at Sandvik last January. What attracted you to the company and the role?**

"Sandvik attracted me with its leadership philosophy: a decentralized leadership where decisions are made as close to the customer as possible. There is a balance in leadership issues where creating the right conditions for people and culture can take up just as much space as driving results and the business. The job's global reach was also incredibly enticing, as well as the technical and logistical complexity of simultaneously driving changes to our work methods and structures. Being able to shape those conditions from the ground up was a very attractive proposition."



“Diversity is part of creating a more dynamic team that is better at solving problems, is more innovative and helps each other with different perspectives.”

**What does the role entail?**

“It involves responsibility for Rock Tools’ supply chain: planning, purchasing, production, storage and distribution. We have six factories and 1,300 employees in ten countries and serve customers in 130 countries.”

**And what does the change journey entail?**

“We have merged two earlier organizations – Planning & Logistics and Production & Purchasing. Both organizations have a good history of development, but we have been completely unsuccessful in optimizing the supply chain and balancing service levels and inventory needs with a steady production load based on capital and cost efficiency.”

**You assumed the role just two months before the coronavirus pandemic hit Europe. What has the crisis demanded from you as a leader?**

“We had to quickly switch to working long-distance and having employees go on work-time reductions. We needed to set new priorities and track how people were feeling, and at the same time manage the business through the crisis. It has been a very turbulent period, with closed borders and various other restrictions affecting our operations. We have worked under the motto ‘you cannot predict but you can prepare’ and worked with scenario management. And even though we have been isolated in our respective home offices around the world, the crisis has brought us very close to each other. Many have worked hard and creatively, and we have managed to serve all our customers throughout the crisis.”

**What lessons can you take from being a leader during a pandemic?**

“That you must stick to a decentralized leadership in a crisis. There must be a mandate to make decisions quickly within the organization. Another lesson is how far we can actually go when we develop digital working methods.”

**You’re interested in sharks. Have you learned anything from them that has helped you professionally?**

“I have not tried to draw any parallels. My fascination with sharks is an extension of my interest in nature and diving. And diving is the best way for me to clear my head – there is no room to think about anything else.” ■



**NINA ÅXMAN**

**Education:**

ABB Industrial High School, Master of Engineering from University of Lund, Sweden.

**Business experience:**

Bombardier, Sandvik

**Nationality:** Swedish

**Born:** 1986

# GRADUAL RECOVERY

## 3 QUESTIONS for Tomas Eliasson, Chief Financial Officer (CFO) for Sandvik.

### How would you summarize the report for the third quarter?

"It was a quarter in which we saw stabilization and a gradual recovery for several of our operations, after a very turbulent and challenging second quarter that was marked by concerns about Covid-19. While the mining industry has remained stable and the automotive market recovered during the quarter, we can see that other sectors, such as aviation and energy, are still weak. The fact that even in this tough climate we have been able to deliver strong margins – with an adjusted operating margin of 17.3 percent during the quarter – is further proof that we are a more flexible and resilient company today. It is thanks to the strong measures we put in place early this spring that we have succeeded in this."



### How does the Group's financial stability look after this turbulent period?

"It is very favorable. Our financial net cash amounted to SEK 8 billion at the end of the third quarter, and our net debt/equity ratio decreased to 0.05. This is the result of a strong focus on cash flow, early measures to counteract the downturn in the market and the board's decision not to propose a dividend during the spring. Our strong balance sheet gives us the flexibility to handle tough periods such as the one we are now going through and at the same time be able to be on the offensive and make acquisitions in areas where we see that it is strategically right to grow."

### Sandvik Materials Technology will continue the process toward stock exchange listing in 2022. What does this mean for the current shareholders?

"The decision is based on the board's view that both Sandvik and Sandvik Materials Technology can be developed more favorably on their own and that a listing will increase the long-term shareholder value. In the short term, the decision in practice does not mean any change at all for Sandvik's shareholders. The change will only take place when Sandvik Materials Technology is listed and then shareholders in Sandvik will be allocated shares in the new listed company in relation to the ownership interest they already have in Sandvik. However, a stock exchange listing will only be made if the circumstances are deemed to be right at the time and it must first be approved by Sandvik's shareholders at an annual general meeting." ■

## TOWARD SEPARATE LISTING OF SANDVIK MATERIALS TECHNOLOGY

**THE SANDVIK BOARD OF** Directors decided at its meeting on October 16, 2020, to proceed with preparations to distribute and stock-list Sandvik Materials Technology following the completion of the internal separation of the business area. The Board intends to propose the distribution and

listing of the shares at a shareholders' meeting in 2022, provided that the circumstances are deemed right at the time. The intended distribution of shares is expected to conform to Lex ASEA rules and is subject to approval by Sandvik's shareholders. ■

# SANDVIK AT A GLANCE

Sandvik is a high-tech and global engineering group offering products and services that enhance customer productivity, profitability and safety. In 2019, the Group had approximately 40,000 employees and sales of SEK 103 billion in more than 160 countries.

## BUSINESS AREAS



### SANDVIK MANUFACTURING AND MACHINING SOLUTIONS

A market-leading manufacturer of tools and tooling systems for advanced metal cutting, expanding in additive manufacturing and digital manufacturing.

**SHARE OF REVENUES 40%**  
**SHARE OF ADJUSTED OPERATING PROFIT 47%**



### SANDVIK MINING AND ROCK TECHNOLOGY

A leading supplier in equipment and tools, service and technical solutions for the mining industry and rock excavation within the construction industry.

**SHARE OF REVENUES 43%**  
**SHARE OF ADJUSTED OPERATING PROFIT 45%**



### SANDVIK MATERIALS TECHNOLOGY

A leading developer and manufacturer of advanced stainless steels, powder-based alloys and special alloys for the most demanding industries.

**SHARE OF REVENUES 15%**  
**SHARE OF ADJUSTED OPERATING PROFIT 9%**

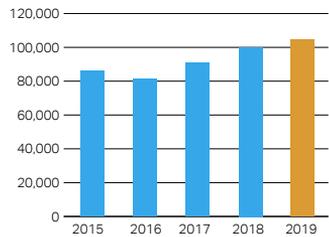
## INDICES AND MEMBERSHIPS

MEMBER OF  
**Dow Jones Sustainability Indices**  
 In Collaboration with RobecoSAM



## THE GROUP

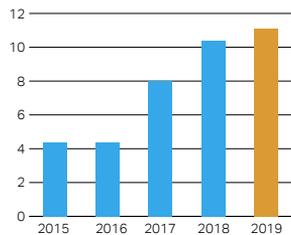
### Revenues, MSEK



### Adjusted operating profit, MSEK and adjusted operating margin, %



### Adjusted earnings per share, Group total, SEK



**MAIN CUSTOMER SEGMENTS****MINING**

We deliver drill rigs, rock-drilling tools and systems, mobile and stationary crushers, load and haul machines, tunneling equipment, continuous mining and mechanical cutting equipment, as well as various solutions to increase automation, safety and customer productivity.

**SHARE OF REVENUES 37%**

**ENGINEERING**

Our tools and tooling systems for metal cutting as well as advanced materials and components are used in engineering industries worldwide, improving productivity, profitability, quality, output, safety and environment. Sandvik is also a global leader in high-alloy metal powder for different applications.

**SHARE OF REVENUES 21%**

**ENERGY**

Sandvik offers solutions for all forms of energy production, including clean and renewable energy. We supply high-alloy products, such as seamless stainless steel tubes, as well as tools and tooling systems to satisfy the industry's metal-cutting needs.

**SHARE OF REVENUES 12%**

**AUTOMOTIVE**

Our tools and tooling systems for turning, milling and drilling in metals raise productivity when manufacturing such components as engines and transmissions. Our stainless and high-alloy products are found in, for example, airbags and air conditioning.

**SHARE OF REVENUES 11%**

**CONSTRUCTION**

We offer products and services that increase safety and customer productivity in the breaking, drilling, tunneling, crushing and screening niches of the construction industry.

**SHARE OF REVENUES 8%**

**AEROSPACE**

Sandvik works closely with the world's aerospace companies. As they apply new materials to manufacture airplanes that are lighter, safer and more fuel-efficient, advanced tooling solutions and lightweight materials from the Group are critical.

**SHARE OF REVENUES 7%**



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## **THE OBJECT** | The world's fastest pizza

The art of making an authentic Neapolitan pizza is included on UNESCO's intangible cultural heritage list. Strict rules state that it should be baked for 60 to 90 seconds at 430 to 480°C (800 to 900°F). That's pretty hot and fast, but could it be made hotter and faster? That's the challenge engineers at the Sandvik Kanthal division set for themselves.

The team constructed a prototype oven running at a temperature of 900°C (1650°F). To ensure tastiness, they partnered with Oskar Montano, co-owner of a renowned pizza restaurant in Stockholm that specializes in Neapolitan pizza. After a series of attempts, the team finally managed to bake a pizza in 37.55 seconds – what we believe to be a world record.