

magazine #4

World of Royal Eijkelkamp

SPECIAL EDITION

30 Years of **Sonic**



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looks back on 30
years of innovation

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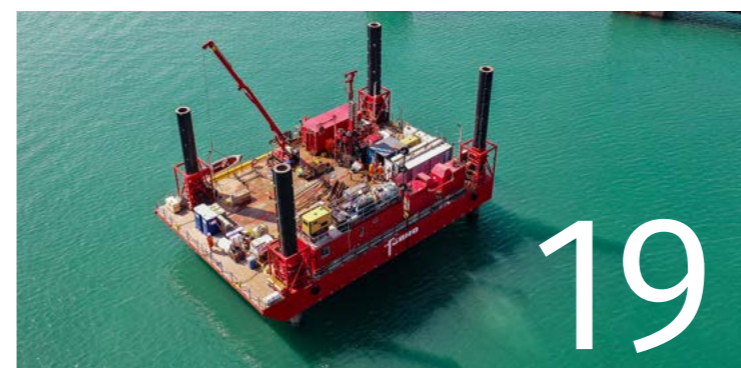
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30 years of sonic development and innovation at Royal Eijkelkamp

Welcome to this special edition of our magazine. We want to take you back to where it all started and then take a look at the future of Royal Eijkelkamp's True 150 Hz innovations. Whereas sonic drilling was the odd one out in the '90s and early '00s, nowadays it is a trendsetter in many drilling applications. We are proud of our established clientele base, with over 1200 sonic rigs around the globe.

It is not easy to develop a reliable technology that rotates and vibrates at the same time, at 9,000 revolutions per minute and a frequency of 150 Hz. However, we made it happen with the passion and commitment of our team and the feedback from our customers. I like to summarise it as:

“Innovation, attitude, effort and integrity equal success”

We look forward to that success continuing with all of you in the coming decades. Thank you for your continued business. Enjoy reading!

Huug Eijkelkamp

Colophon

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"I believe that standing still is going backward. Our products are reliable and successful now thanks to the innovation we did 10 years ago."

"The great thing is that Sonic continuously develops along with the market; contrary to conventional drilling which is already 50-100 years old."

"This is the benchmark moment. From now on, the focus will also be on data, with Monitoring While Drilling and our future vision for self-learning and automated drilling."

30 Years of Sonic INNOVATION AND TECHNOLOGY

30 Years of Sonic at Royal Eijkelkamp: an anniversary to celebrate. Although SonicSampDrill was founded in 2005, development of sonic drilling started much earlier. Just like we constantly innovate to respond to market challenges today, that is also how we first explored this technology. CEO Huug Eijkelkamp and his father Fons, head of the Board of Directors, look back on the early years and how Sonic was built into what it is today.

Huug - I believe that standing still is going backward. Our products are reliable and successful now thanks to the innovation we did 10 years ago. I will never say that we are done; there are always new techniques and materials that you can use and we invest in that every year. This is our key to success. We always look beyond a customer's request: how can we continue to develop? And that is how Sonic was ultimately born at Royal Eijkelkamp.

Fons - In 1992 the Nederlandse Aardolie Maatschappij, a Dutch producer of natural gas and oil, approached us with the question of whether we could offer a less destructive alternative for seismic shothole drilling. We recommended our percussion hammers and lost points. This worked like charm in the soft peaty soils, but in harder clay and sandy soils, more power was needed. We received a grant to conduct worldwide research. In North America we found the technology of Albert Bodine, among others; he built very large machines with equally large power requirements. But the idea of resonance drilling was born. We brought it back and then developed our first small drill head.

Huug - Then I joined Eijkelkamp to represent Sonic. I was assembling, servicing, and selling machines, and doing training all over the world.

Fons - We supplied the full package, including training. Our people flew all over the world, visiting even the most difficult places to drill. They would return with stories and experiences that we could use for optimisation of the drill head, as well as the drill rod, bit, tooling and accessories so they could withstand the forces of rotation and vibration.

Huug - Drilling in all those different geologies provided us with a lot of knowledge that helped us to create the multi-purpose product that we have now; that can truly drill anywhere. In 2005, we identified a market demand for larger machines and founded SonicSampDrill to develop them.

Fons - We deliberately chose to focus on that drill head. There are already so many machine builders out there, we wanted to leave that to others. In 2008, we found the ideal partner in Fraste, who could build according to our specifications.

Huug - I dare say that 50% of our innovation is driven by customer demand, 50% by proactively anticipating the market and technology. An example is ManipAll. Before, customers would use cranes and winches to manually carry rods to the machine. So we thought: this needs to change.

Fons - The great thing is that Sonic continuously develops along with the market; contrary to conventional drilling which is already 50-100 years old. It turned out to be much more than I expected, but I always believed in it. It just delivers the best samples.

Huug - For companies that cannot fully exploit the benefits of Sonic, due to the market or geology in which they operate, we have developed the DUO Sonic rig: in addition to sonic, it also has a 1,000 rpm rotary head. This is how we help customers to secure their current output when purchasing a Sonic machine. I am most proud when Sonic helps a customer achieve a goal they could not with conventional drilling, such as drilling in a difficult geology, and are globally successful with the machines we build.

Fons - I am most proud of how Huug has grown into his role. I kept the place running while he travelled the world, visiting companies.

Huug - Now, after 30 years, our sonic technology is better than ever, and we have a customer base of over 1200 machines worldwide. We mark this moment with a colour change. This is the benchmark moment. From now on, the focus will also be on data, with Monitoring While Drilling and our future vision for self-learning and automated drilling. But it doesn't stop with drilling. Royal Eijkelkamp offers more than Sonic and we are also implementing the colour change for those products. This is our way to show that we truly are a one-stop shop for soil and water projects.

SEE PAGE 8

1992 - 2023 30 Years of Sonic



1992

First investigations into a less destructive, more efficient drilling method



2000

First prototype of the CompactRotoSonic drill head: a small head that could vibrate and rotate



2005

Founding of SonicSampDrill



2009

The start of an exclusive collaboration between Eijkelkamp and Sonic Drill Corporation



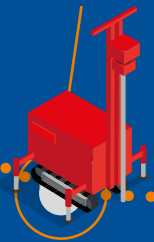
2013

Development of the new line of SmallRotoSonic drilling heads



2018

The SWORD project: Sonic WireLine Operated Remote Drill, for drilling in the seabed up to 3000 meters below sea level



1992-2000

Development of the CompactSonic technology. It could rotate or vibrate, but not both



2004

The first CompactRotoSonic drill head mounted on a tractor



2008

Development of the first Eijkelkamp-Fraste machine



2012

The CRS-V technology revolutionised alluvial diamond exploration in Angola.



2016

Start of the SOLSA project: Sonic OnLine Sampling Analysis for on-site sample analysis



MORE ABOUT SOLSA ON PAGE 23



Now

Launch of the Royal Eijkelkamp Monitoring While Drilling: the next step in data and efficient drilling campaigns



Development of the ManipAll 200 RC, for extra safety on the drill site

Introduction of the MRS 200 sonic rig: with a 40K drill head that closes the gap between the CRS and LRS drill head



New look, familiar quality



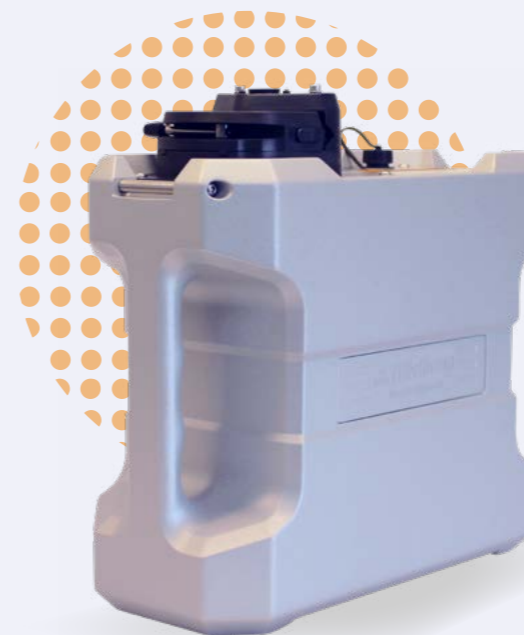
We are marking 30 years of Sonic with a colour and name change for our drill rigs. The rest of our product portfolio is changing along with it, so that our complete range of total solutions is recognisable as Royal Eijkelkamp.

Discover our one-stop shop for all your soil and water-related projects and challenges.



The future Penetrologger with new design

Old name	New name	Drill head	DUO	HP
SRS PL	PRS 70	PowerRotoSonic 22K	-	70
SRS ML	SRS 120	SmallRotoSonic 34K	yes	120
SRS-T	SRST 110	SmallRotoSonic 34K		110
CRS XL 140	CRS 140	CompactRotoSonic 34K	yes	140
CRS XL 170	CRS 170	CompactRotoSonic 34K	yes	170
CRS-V	CRSV 170	CompactRotoSonic 34K	-	170
-	MRS 200	MidRotoSonic 40K	yes	200
MRS XL Max	LRS 275	LargeRotoSonic 50K	yes	275
LRS FS 300/350	LRS 355	LargeRotoSonic 50K	yes	355



The new Peristaltic Pump PRO





The Eijkelkamp-Fraste rig:

15 YEARS OF COLLABORATION, INNOVATION AND FAMILY BUSINESSES

The Royal Eijkelkamp sonic drilling rigs (previously SonicSampDrill) are the product of an exclusive collaboration between two mammoths in the industry: the Dutch Royal Eijkelkamp and the Italian Fraste. What makes this collaboration so unique, and successful?

When Sonic became a buzzword in the drilling industry around the year 2000, Fraste's General Manager, Vittorio Fracca, began to explore opportunities in the market. "I was in touch with a couple of manufacturers, but we didn't find the right people and none of the products seemed reliable."

Royal Eijkelkamp, meanwhile, had been doing pioneering work on Sonic drill heads since the early nineties. They were looking for a partner to produce a drill rig that would meet the requirements of the SonicSampDrill drill head. Huug Eijkelkamp tried partnering with several rig manufacturers but did not find the quality he was searching for: "Our Sonic drill heads operate at 9,000 rpm. This requires very special hydraulics and cooling." Vittorio continues: "Then, in 2008, we were contacted by Royal Eijkelkamp. And the rest is history."

"Innovation is in the DNA of both our companies."
Huug Eijkelkamp

The first Eijkelkamp-Fraste rig was delivered to a customer in Indonesia in 2009. Huug recalls, "it was on an island in 38 degrees Celsius, running 12 hours a day, six days a week, on bad quality diesel, operated by local people. And the machine just worked, and worked, and worked. That's when I realised: this is a very good quality machine, built according

to our specs." It was the start of an exclusive collaboration. And yes, that first rig is still operational.

"We offer the best of both worlds: Royal Eijkelkamp specialises in sonic drilling technology and Fraste in rig building."
Rutger van Goethem

THE TECHNIQUE IS THE BEGINNING

The first challenge was to make the Fraste drilling rig compatible with the Sonic drilling head's technique. The hydraulic system had to be adjusted, the electrics, and even the frame. In the machine in its current form, everything is fully coordinated. "The most indicative of our success is how these machines perform. How they are built today is better than ever before: it's the sum of all the details that add up to make the machine so easy to operate," says Richard Gussinklo, Rig Engineering Manager at Royal Eijkelkamp.

The companies' technical departments work closely together; Richard visits Fraste at least once a month. To test new machines and discuss the technology, but also to discuss special requests from customers. To reduce delivery times, the companies are working towards standardisation; most machines are

available in a Pro and Royal version, which are kept in stock.

But that doesn't rule out customisation. A special request comes in every week. Fraste's Technical Manager, Igor Visentini, and his team immediately get to work. "We first analyse on paper and then make a quick study in our software. If the design is approved, we will start construction. Sometimes a request seems impossible at first. But, if we try to answer it, we might come to a different solution. In some cases, this has led to an improvement of the entire machine line."

TWO BRANDS, ONE PRODUCT

It is important for both companies to show that we represent the Sonic rigs together as one team, so at trade fairs you will often find Royal Eijkelkamp and Fraste sharing a booth. This allows customers to talk to specialists from both sides and also to discover the differences between sonic and conventional drilling. The sales teams are proud to represent these machines. Our Sales Manager Rutger van Goethem remembers well the challenges of selling separate drill heads. "You can't just convert a conventional drill rig to a sonic one by putting a different drill head on it. Now we offer the best of both worlds: Royal Eijkelkamp specialises in sonic drilling technology and Fraste in rig building."

The customer with a seemingly impossible request is never immediately turned down:



Eijkelkamp & Fraste event
Fraste and Royal Eijkelkamp often share a big booth together at trade fairs.

if they are prepared to compromise, a lot is possible. Federico Saporito, Sales & Consultancy specialist at Fraste, explains: "The Arctic machine is a good example. It was made on specific request, for use in a specific country under certain weather conditions. It was a challenge, but we did our best to fulfil the request and the customer was 100% satisfied."

"The most indicative of our success is how these machines perform. How they are built today is better than ever before."
Richard Gussinklo

DRIVEN BY INNOVATION

Motivated by the customer's demand for continuous improvement, Royal Eijkelkamp and Fraste constantly push the boundaries of technological innovation. It is a characteristic of the collaboration and is in the DNA of both companies. You can expect a lot more from these Sonic machines in the future.



Huug Eijkelkamp and Vittorio Fracca are happy with their successful fifteen-year long collaboration.



Igor Visentini and Richard Gussinklo continuously push the boundaries of technological innovation with their teams.



The proud sales team: Federico Saporito, Rutger van Goethem, and Cristiano Marchioro (Fraste Sales Manager).



Enhancing Drilling Efficiency

ROYAL EIJKELKAMP'S SONIC RIGS WIN HEARTS AT PRO-DRILL

By Russell Sherwin, Director of Pro-Drill



At Pro-Drill, we take pride in our commitment to innovation and efficiency in the drilling industry. As a leading company in the field, we strive to equip our employees and managers with cutting-edge tools that not only simplify their tasks but also yield remarkable results.

One such invaluable addition to our arsenal is the Royal Eijkelkamp Sonic drill head - a revolutionary technology combined with the industry-leading Fraste drill carrier platform - that has captured the hearts of our team, making drilling projects smoother, faster, and more productive than ever before.

THE POWER OF SONIC DRILLING

Traditional drilling methods were effective, but they had their limitations. Enter the Sonic rigs, a game-changing solution from Royal Eijkelkamp. Unlike conventional techniques, sonic drilling uses high-frequency vibrations to break down soil and rock formations while maintaining the collected sample's integrity.

This non-invasive, non-destructive approach has proven to be a game-changer for Pro-Drill.

EIJKELKAMP SONIC RIGS: LOVE AT FIRST DRILL

From the very first project we undertook with Royal Eijkelkamp's Sonic rigs, it was evident that we had something special on our hands. Our employees and managers instantly fell in love with the technology and quickly adapted to its user-friendly features.

WHAT WE LOVE MOST ABOUT THESE MACHINES?

1. Unparalleled Speed and Efficiency

One of the most significant advantages of Eijkelkamp's Sonic rigs is their remarkable speed and efficiency. The high-frequency vibrations allow the drill to penetrate challenging formations swiftly, reducing drilling time significantly. This means more projects can be undertaken in a shorter timeframe, enabling us to serve our clients better and take on more contracts.



With the introduction of the DUO drill head for Sonic rigs, we can now have our cake and eat it too. Taking one rig to a site that can cover all geologies in New Zealand has increased efficiency even more. This takes our drillers to the next level as they can call on multiple skill sets when a borehole requires rotary and sonic methods to get the job done right - no matter the geology.

Then there is the cherry on top with the Drill'n CPT unit. Adding this has completed the puzzle of one-rig-fits-all. Being able to turn up to a site, CPT to refusal, sonic drill through the refusal zone, continue CPT again and then rotary core to prove rock at the bottom, all with one establishment, one rig and one crew? That puts a smile on the face of our clients from the speed, productivity and low cost. It's priceless.

2. Minimal Environmental Impact

Environmental stewardship is a core value at Pro-Drill, and we are committed to

minimising our ecological footprint. Sonic Drilling aligns perfectly with this objective, as its non-invasive nature reduces the overall environmental impact of drilling operations. The absence of drilling muds and cuttings decreases waste generation and allows for cleaner, greener drilling practices.

3. Enhanced Safety Measures

The safety of our employees and clients is paramount. Eijkelkamp's Sonic rigs are designed with advanced safety features that protect our drilling teams from potential hazards. This ensures that our projects are not only efficient but also conducted with utmost care and security.

A WINNING COMBINATION

Royal Eijkelkamp's Sonic rigs have undeniably transformed how we approach drilling projects at Pro-Drill. With unparalleled speed, sample quality, and adaptability, these rigs have become an indispensable asset for our employees and managers. Moreover,

their eco-friendly approach aligns perfectly with our commitment to environmental responsibility.

As we continue to embrace innovation, we are excited about the future possibilities that sonic drilling technology can bring to the industry. With Royal Eijkelkamp's and Fraste's leading engineering and technology by our side, we are confident in our ability to take on more challenging projects, provide superior service to our clients, and contribute positively to the advancement of the drilling sector.

In summary, Pro-Drill, Royal Eijkelkamp, and Fraste exemplify the essence of family-owned and operated businesses, harnessing their shared heritage to lead the drilling industry with unwavering dedication, quality-driven solutions, and a strong sense of community among employees and customers alike.

All about Sonic drilling

Sonic drilling was invented in 1913 by George Constantinesco. Following developments by various manufacturers resulted in large-dimension sonic heads with heavy power requirements. Royal Eijkelpkamp started to explore the sonic technology in the early nineties and was the first to invent the SmallRotoSonic and CompactRotoSonic series. These drill heads allowed the utilisation of compact and more affordable rigs, for smaller diameter and shallower holes.



Sonic is a fast and efficient technique in all overburden formations, but especially useful in conditions that are difficult to drill in, glacial till, mixed formations including boulders, gravel, landfill, weathered rock, alluvial, and more.

WHAT IS SONIC DRILLING?

Sonic drilling is a technique that significantly reduces friction on the drill string and drill bit by using energy resonance to affect the soil structure where it contacts the drill string. This combination makes penetrating much easier for an extensive range of soils. Sonic drilling is most often used when the drilling is difficult, and the integrity of the core sample is essential.

WHAT MAKES SONIC DRILLING WORK?

The high-frequency low-amplitude vibration, or resonance, helps to reduce friction and advance the drill string and bit through the soil. Surrounding particles are either liquefied (in loose materials) or fractured (in hard rock). True 150 Hz is used simultaneously with rotation.



PRINCIPLES OF SONIC DRILLING

- Resonance energy is generated inside the sonic drill head, with two eccentrics.
- The eccentrics are mechanically synchronised and turn in the opposite direction with a maximum of 9,000 revolutions per minute.
- Resonant frequencies are proportionally adjustable. The driller controls the energy generated by the Sonic head's eccentrics to match the formation being encountered to achieve maximum drilling productivity.
- When the resonant Sonic energy coincides with the natural frequency of the drill string, resonance occurs. This causes the maximum amount of energy to be delivered to the face of the drill bit. At the same time, the friction of the soil immediately adjacent to the entire drill string is substantially minimised. This allows faster penetration rates, less use of drilling fluids, and completely dry drilling if necessary.
- This high frequency eases retrieval of the drill string, even in quick, expanding clays or boulders and other difficult drilling conditions.

HOW SONIC ENERGY AFFECTS THE SOIL

Sonic vibrations cause liquefaction (or fluidisation) of alluvial soils just right at the point of contact where the soil encounters the drill head and entire string. This minimal effect enables excellent and continuous soil sampling through difficult layers such as overburden and other unconsolidated soils.

HOW DO YOU DRILL WITH SONIC?

Typical steps for sonic drilling include:

1. Core Barrel Advancement – the core barrel is advanced using sonic frequencies. This step can typically be performed using no fluids, air, or mud. As the sonic energy increases, resonance occurs with the formation adjacent to the drill string, reducing sidewall friction and increasing the amount of energy placed at the face of the bit.
2. Once the sample is contained in the core barrel, the casing is sonically advanced over the core barrel, protecting the borehole against cave-in in softer formations.
3. The core barrel is retrieved, producing a relatively undisturbed sample with nearly 100% core recovery.
4. These steps are repeated to depth, producing a continuous core sample even through unconsolidated formations.

Sonic coring in rock has an excellent return on investment on mixed layers containing boulders, for example. However, for large amounts of coring in rock, Royal Eijkelpkamp supplies the DUO Sonic rig where normal diamond coring is applied through the sonic casing in the bedrock below. Diamond coring for large volume coring has a better ROI.

Royal Eijkelpkamp has developed several sampling systems for Sonic:

- Single Wall core barrel
- Dual Wall core barrel
- AquaLock
- Wireline



Drill up to four to six times faster, with no evaporation or loss of contamination.



Discover the full range on our website:



SAMPLING WITH 150HZ SONIC:

- High quality, full recovery
- Sampling of all unconsolidated formations



Luuk Eijkelkamp
the fifth generation
arrives



Luuk Eijkelkamp is the son of Huug Eijkelkamp and the fifth generation to work for the company. He was introduced to the drilling profession at the early age of fifteen and thus continued a generation-long tradition. Does he see himself following in the footsteps of his father and grandfather?

“Did I know as a child that I wanted to do this work? No, I actually wanted to be a farmer! But something immediately clicked when I joined the drilling group on my first project. The best thing about this profession for me is that when we sell a product, we get the chance to train the customer on site. It’s great to see when they start to get the hang of it.

The best tip I’ve gotten is to keep a cool head when something goes wrong. And most importantly, never lie to the customer but tell them honestly what’s going on. My father didn’t teach me to drill, but he is the one I call for advice. He has so much experience!

In the coming years I’d like to stay with the drill team first, then maybe try something different. I’ve already worked with the blacksmith and assembly department. But Service and Marketing also interest me, as well as Inside Sales. Talk to the customers, find out what they want, and arrange it for them.

It’s fantastic that I get to work here, everyone is so driven. As a fifth-generation Eijkelkamp, I am proud of who we are and what we do, and that the company of my great-great-grandfather has grown into what it is today. But I think we can grow even further, we’re so innovative. I’d say the best development now is the ManipAll 250 RC, which has been developed for even more safety by keeping people away from the work area completely.

My father also started as a driller and gradually got where he is now. My path won’t be exactly the same, but I hope I get to do it that way one day. I’m working towards that 100%.”



Lessons
from a
master driller



Wim Kooij is one of our first drill masters and has gained experience with the technique since 2007. First in the workshop, then in the field. He has drilled all over the world and trained dozens of drillers.

WHAT DOES A ROYAL EIJKELKAMP DRILL TRAINING LOOK LIKE?

We will train you to work properly with our machine and specific parts, such as the ManipAll and SPT hammer. But we also teach people how to work together as a team on the job site. After the training, we are available for support. We must have seen about 90% of the possible technical issues, so we can help you quickly.

WHAT SKILLS AND CHARACTERISTICS DOES EVERY DRILLER NEED?

You need to have a flexible attitude. Planning schedules tend to change and you might have to deal with setbacks. An open mind is also important, to new things and other cultures. It helps if you have a certain level of technical knowledge, but this is not a requirement; we train people from all backgrounds.

WHAT TIPS DO YOU HAVE FOR NEW AND ASPIRING DRILLERS?

Make sure you gain a lot of experience in the field. Work with different drill masters for a while, because everyone has their own way of drilling. Be proactive, ask if you can be at the controls yourself, show interest. And remember, it’s your business. You’re not just in charge of the drilling, you have to manage everything - including the people around you.

Also be aware that it is a tough profession, physically and mentally. Workdays are long and you’re often away from home. On the other hand, you get to travel, see a lot of variety, technical challenges, and new developments, and have lots of different experiences.

WHAT DO YOU THINK IS THE FUTURE OF SONIC DRILLING?

I foresee a focus on data and predictions, for example for preventing damage, improving the quality of the samples and identifying the geology based on the behaviour of the drill. Our new Monitoring While Drilling system will play a major role in this!



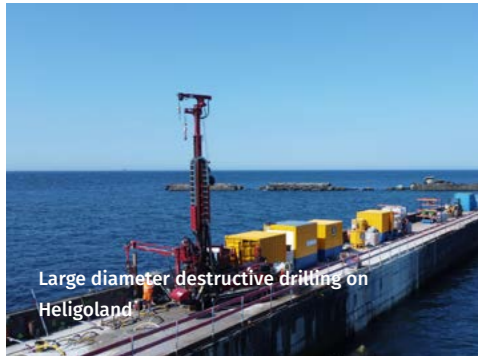
Drilling in icy Greenland with the SRS-T



The special 'Arctic' LRS operating at -70 °C



Sampling in Chile with the MRS XL MAX



Large diameter destructive drilling on Heligoland

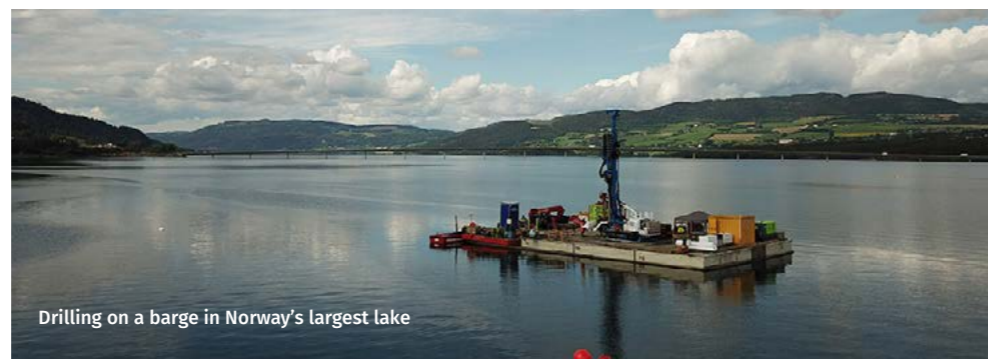


CRS XL 140 DUO in the Scottish Highlands

Our rigs are used all over the world, in the most special places.



Sonic drilling in France



Drilling on a barge in Norway's largest lake



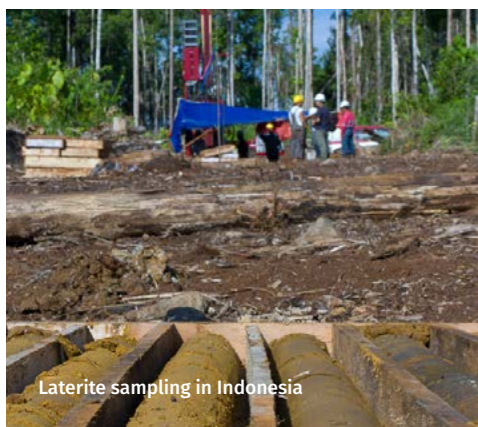
SRS ML in snowy Germany



Rainbow sample from Cameroon



Sampling with the AquaLock in Indonesia



Laterite sampling in Indonesia



Drilling monitoring wells in Sri Lanka

A Journey of Success and Innovation in Data Acquisition

SONIC DRILLING REVOLUTIONISES FUGRO'S OPERATIONS: A TESTAMENT TO EIJKELKAMP MARKET LEADERSHIP

By Simon Brobson, Head of Operations for Fugro UK and Drilling Centre of Excellence (CoE) for Europe and Africa

"Collaborating with Royal Eijkelpamp has proven to be the right choice."



"Sonic drilling empowers us to obtain samples in challenging unconsolidated formations."



technology for Geo-data gathering four years ago. Royal Eijkelpamp brings the expertise, experience, and development capabilities necessary to ensure the success of our strategy. Their commitment to driving technology development in sonic drilling is evident, and we continue our journey together.

As the drilling landscape continues to evolve, technological innovation plays a crucial role in driving performance. We observe how advanced technologies significantly impact and shape our industry. At Fugro, we collaborate with other industry leaders to shape safety and operational excellence.

Our collaboration with Royal Eijkelpamp allows us to deploy and shape sonic drilling technology in our operational areas, supporting our Geo-data gathering operations.

COLLECTING GEO-DATA MORE EASILY

Fugro is renowned for its commitment to spearheading technological innovation and providing clients with effective and efficient options for Geo-data collection. Recognising the need to expand our offerings, we strategically embraced sonic drilling as a transformative

COLLABORATION TO DRIVE INNOVATION

Sonic drilling empowers us to obtain samples in challenging unconsolidated formations. This technique minimises environmental impact while overcoming geological complexities, enabling us to access valuable data previously inaccessible through traditional drilling methods. Looking ahead, we are actively collaborating with Royal Eijkelpamp to drive innovation in sonic drilling.

In conclusion, collaborating with Royal Eijkelpamp has proven to be the right choice. Together, we are shaping the future of drilling, unlocking new possibilities, and contributing to a safer and more sustainable world.



Troy Chipps

CEO Eijkelkamp North-America



"I got into Sonic when I was president of the American company AMS, which was my grandfather's company. We manufactured a direct push rig that used hammer percussion to hit rods in the ground. I met Huug Eijkelkamp in the early 2000s when he approached me to put a Sonic head on our direct push rig, which we did.

Years later, after I'd left the family business, Eijkelkamp decided they needed a bigger footprint in the United States. Huug called me and said "Let's open a North America office!"

Until then, it had been a challenge for Eijkelkamp to offer service to American drilling clients. Eijkelkamp North America was founded in 2015 to solve that problem. As a plus, the customer now also gets specifications in imperial units and there are no exchange rates, duties and taxes to worry about.

After eight years of ENA, we see that people here are starting to want the advantages of the Eijkelkamp Fraste rig. They love innovation. Eijkelkamp is ten to fifteen years ahead of the American market with things like the safety cage, ManipAll, rod handling and other safety features. We offer the complete package; a strong Sonic head, a compatible rig, specialised tooling and good training. And the Sonic technology will continue to develop fast: providing data to our customers through Monitoring While Drilling, even better safety, more rod handling and hands-free options.

What I like most about working with Eijkelkamp is that we're never satisfied. We're constantly pushing boundaries to reach that next level. As long as we continue to listen to our customers and understand the market, I think there's a whole lifetime of opportunity ahead."

Fun facts

- Eijkelkamp North America is located in a 37,000 square feet warehouse on, believe it or not, Netherlands Drive in Wilmington, North Carolina.
- My own grandfather actually developed an auger to map the United States in 4 and 8 foot depths and started manufacturing soil augers with AMS in the 50s. So our families are very similar. Huug and I would have loved for our grandfathers to have met.



I worked with Eijkelkamp and Fraste from 2013 to May 2019, selling rigs for the previous UK distributor. When I made the decision to leave that business, Huug offered me a position with Eijkelkamp. A short time after leaving, Huug suggested we fly to Italy and propose that Eijkelkamp and Fraste go into business together and start a joint venture in the UK.

Eijkelkamp and Fraste recognise the UK and Ireland as very important markets for future sales and more importantly, to provide support for those customers using our rigs.

So the decision was made, and we started working in June 2019, registering the company in September 2019. I felt honoured and proud to be asked to build a UK business with Eijkelkamp and Fraste, as I had known both family companies for many years and I knew that both were committed to producing and supplying top quality products.

The interest in Sonic rigs in the UK was a little slow to begin with. Fortunately, this has now changed and the demand for rigs is increasing every day. The reason for the increase is the DUO drill rigs with dual heads and the true 150 Hz Sonic. A technique that has made it possible to recover samples that were previously believed impossible.

Eijkelkamp has invested millions of euros in developing the rigs and they continue to work on new technology, much of which has come from listening to customers. The 150 Hz Sonic is very important and we encourage customers who are considering investing in sonic, to understand why. The dual heads are the result of customer feedback, as is the ManipAll, which came from requests for assistance with manual handling.

This is the dream job for me, working with two family companies who I respect and trust, offering quality drill rigs in the UK and Ireland. I encourage all customers to visit Eijkelkamp and Fraste, to see the quality for themselves and witness the commitment from both companies to provide high quality rigs now and for many years to come.

David Nevey

Managing Director of Eijkelkamp Fraste UK Ltd



More efficient drilling campaigns thanks to data insights

DISCOVER MONITORING WHILE DRILLING AT ROYAL EIJKELKAMP



There is no doubt that the future of Sonic drilling lies in data collection. Our customers are asking for it, and it is indispensable for optimising the machine and the drilling process. Our new Monitoring While Drilling system is designed to meet this need.

While the on-site driller is busy controlling the machine, the project manager at the office can monitor the rig's performance in real time. Interactive graphs, showing the data in relation to depth and time, appear in an online environment designed to monitor drilling campaigns remotely. While existing MWD systems measure depth, ours also tracks performance over time.

WHAT CAN YOU EXPECT FROM THIS NEW DATA SOLUTION?

- Much more efficient drilling campaigns. Everything can be planned and monitored remotely. You can plan boreholes within a campaign. The GPS on the rig recognises when it is in the correct location and records the drilling data automatically. Once finished, the system marks the campaign as completed and the progress can be followed online. This facilitates communication between the field and the office considerably.
- In addition, it will eventually be possible to make predictions for geology. During the first phases of this system's use, a database of data is created that relates the machine's behaviour to the soil layers being drilled. In the long term, this data and the conclusions drawn from it can help to develop an autonomous drilling system.
- Moreover, the system offers continuous insight into the performance of the machine. This makes it easier to predict required maintenance and prevent unexpected technical problems.

Royal Eijkelpamp's MWD system is a complete data solution consisting of a set of sensors and status dashboard mounted on the machine. The data collected with the Monitoring While Drilling system is hosted on our new Internet of Things (IoT) data platform.

Monitoring While Drilling is now available for both Eijkelpamp and third-party drill rigs. Get in touch via sales@eijkelpamp.com for more information.

More about Monitoring While Drilling:



ManipAll Twist Assist

Twist Assist is a new addition to the ManipAll 200 and 250 rod and casings handler. With Twist Assist you can tilt the arm at the touch of a button. The arm firmly holds its position and all positions between horizontal and vertical are possible, which greatly facilitates drilling at an angle.

Twist Assist guarantees maximum control and much easier movement of the casing. This new functionality will be added to all new ManipAll handlers and is suitable for the same familiar range and lengths of casings.



SOLSA: Sonic OnLine Sampling Analysis

Can mineral exploration be made faster, simpler, and more sustainable? That's the question at the heart of the SOLSA project: Sonic OnLine Sampling Analysis.

At SOLSA, our mission is to develop cutting-edge techniques that enable efficient retrieval and real-time analysis of soil and rock samples, eliminating the cumbersome process of sending samples to the lab and awaiting results.

Royal Eijkelpamp is spearheading the development of several ground-breaking advancements:

REDEFINING SAFETY

We are introducing a radar-based safety system that instantly halts the machine when it detects the proximity of a human. It will replace the conventional safety cage, ensuring utmost safety for our operators.

EMPOWERING DATA-DRIVEN INSIGHTS
We are pioneering a sophisticated monitoring system that comprehensively tracks the drilling process and collects valuable data. This data-driven approach allows for deeper analysis and empowers informed decision-making.

INTRODUCING SONICWIRELINE
Our SonicWireLine technology promises to revolutionise sonic drilling, making it faster, simpler, and more cost-effective.

ABOUT SOLSA
The project is currently running in France, in cooperation with partners BRGM, Eramet Ideas, HIT - Hub Innovazione Trentino, Università di Trento, and Inel Innov.



Look towards the future



We are working hard on a reliable **SonicWireLine system** that can make the production process three times faster.



We want to combine more **in-situ testing equipment** with Sonic to monitor the results of the drilling in real time.



We are also working on a solution for drilling in difficult locations, for example with a **heli-portable rig** that can be transported in parts by helicopter and quickly assembled on location.



To contribute to more sustainable drilling, we are investigating the possibilities of alternative renewable energy sources: **hydrogen and electrification**.



Tooling plays an increasingly important role and is continuously optimised.

COMING SOON: THE TRACK 'N GRAB 250 Can you guess what it is?

Keep an eye on our social channels and enter our competition.



 **Eijkelkamp**
Meet the difference

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