

ri view

Investing heavily in electronics production
to meet increased demand and complexity in systems integration

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Rimaster and Huddig rebuilding tracked vehicles

Upgrading with new drive and new electrical systems

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A happy reunion

Our Master of Simplicity tour arrived at its final destination – Rimaster Ningbo

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rimaster

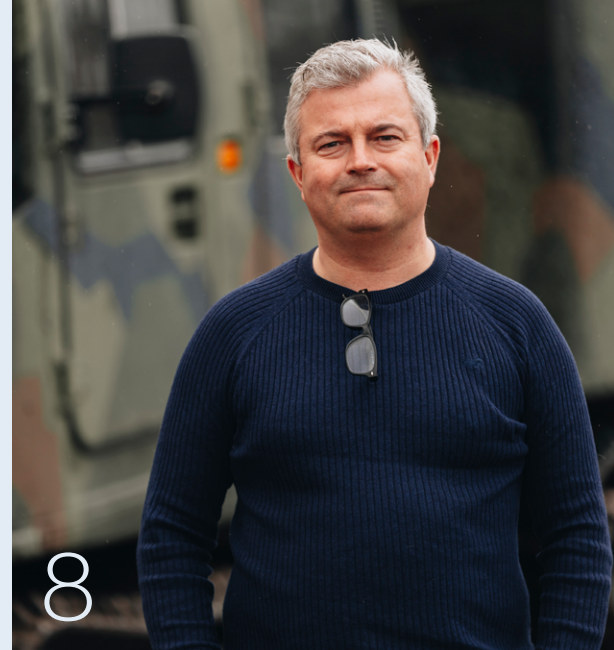


ri view

1/2024

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Rimaster is building for the future

Flexibility and adaptability to change are part of Rimaster's DNA. From the very beginning, our success has stemmed from us being a development-oriented company with the capacity to provide new technologies and products based on our customers' needs.

We are living in a time of rapid change. We are undergoing a radical technological shift driven by the necessary transition to a carbon-neutral society. The electrification of vehicles is moving at breakneck speed. At the same time, we also need to navigate a politically and economically uncertain world that can affect supply chains from one day to the next.

At Rimaster, we have built many long-standing customer relationships through which we have been able to help our customers take the next technological leap. With extensive experience in the transition from traditional to hybrid operation, we are now continuing on the electrification journey together with our customers and investing heavily in HV capability. With the goal of being the leading system supplier in our area, we are refining our expertise and increasing production capacity to work even more flexibly and solution-oriented in a market that still lacks industry standards. To meet the need for stable and local supply chains, we are further developing our units around the world, both in terms of capacity and quality.

One aspect of our ongoing change is the new organisation that is taking shape. After 15 years at Rimaster, Tomas Stålnert has chosen to move on to new challenges. During his time in the company, he has helped transform Rimaster Group into a strong global player. In conjunction with this management change, we are taking the opportunity to change and strengthen

our organisation for the future. We are privileged to have extensive expertise and a long-term perspective in our company and will therefore continue to work as usual while building the new organisation. The willingness of our employees to take great personal responsibility is part of the Rimaster culture, and we look forward to further refining that ability.

The power of personal and local engagement was confirmed when we conducted our Master of Simplicity tour across all of our units. We were highly impressed by the powerful development of the operations, as well as by the wonderful company culture that welcomed us. It is possible to be a family, even if the members are spread out all over the world.

Thank you for choosing to be part of the Rimaster family!



Jan-Olof Andersson, acting CEO
Rimaster Group

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→ rimaster.se/en/riview

Rimaster invests in high-voltage capability

“The secret lies in being responsive”

Electrification is accelerating. Rimaster is now creating a development and production process specifically for high-voltage (HV) system solutions.

Fredrik Larsson
Development Engineer
Rimaster Development



PHOTO: HELENA LARSSON



Ding 'Steven' Shi works with production solutions for HV-based systems.

The traditional automotive industry already has standardised solutions, such as batteries and cabling from the same supplier. However, in the special vehicles segment, this development has not been nearly as obvious. The High-Mix Low-Volume manufacturing approach has made it more difficult for customers to find good solutions. Rimaster has therefore taken the strategic decision to ensure the necessary capabilities in development and production for customers who need high-voltage system deliveries.

In the project, Fredrik Larsson works on development and design, while Ding ‘Steven’ Shi works on the production solutions.

“Our goal is to offer functional, quality-assured and cost-effective system solutions that meet our customers’ needs for flexibility,” says Fredrik Larsson, Development Engineer at Rimaster Development in Söderhamn.

Rimaster accelerating

“We see how more and more of our customers are choosing to switch from conventional diesel engines to electric motors since they are committed to sustainability,” says Jonas Dahlström, CEO of Rimaster in Söderhamn.

“Our customers have different conditions, which also means there are large variations in how quickly you can, and want, to handle the transition. Therefore, we need to offer support and solutions that suit their individual needs. We have extensive experience in helping our customers with the conversion to plug-in hybrids – from the very smallest machines to massive ones – and are therefore well prepared.

Essentially, it means we must continue what we have already been doing for a long time – maintaining our existing skills, monitoring the world around us, and recruiting the new skills needed for the transition to HV. We are accelerating.”

Early in the process

The challenges related to all-electric vehicles largely involve achieving the combination of traditional signal cabling with the powerful energy transfer between battery and motor. Rimaster develops and supplies power cables and signal cables with lower voltages, as well as more heavy-duty power cables.

“We want to be a complete system supplier regardless of the customer’s needs,” says Fredrik Larsson. “As always in development projects, it’s important that we get involved early in the process so that we can serve as advisors within Rimaster’s global development team.”

Mapping the production process

Ensuring that the technical solutions can then be quality-assured and implemented efficiently in production is crucial for delivery. “The diversified market is also the main challenge in the production phase,” says Ding ‘Steven’ Shi, the person responsible for Global Improvement Projects and who leads the study on HV processes at Rimaster in Rimforsa.

“Since there is no specific industry standard to follow, we need to develop our own expertise in the HV-related production process – from materials and components to assembly, mechanical equipment, and testing.”

Within the framework of the project, Rimaster will map its and its customers’ existing HV processes. A risk analysis will be carried out and verification methods and tests will be developed.

“We have also started working closely with our suppliers of production equipment and components to find the most suitable solutions.”

At present, production equipment able to meet the needs of HV is being evaluated based on Rimaster’s High-Mix Low-Volume model.

“In this, an EMPT (Electromagnetic Pulse Technology) crimping machine could be a key investment. It is a new technology to us, and in such cases, we need to specify how it will be used and whether it will supplement or replace our current crimping method. Furthermore, advanced AI inspection and traceability in the process to ensure that we do the right thing in key processes from the start can also be part of the requirements when we consider investing in new equipment.”

Safe together

For customers concerned about how they will cope with the transition, Steven and Jonas have a reassuring message.

“Rimaster has followed its customers through many revolutionary system changes. As our customer, you can always feel confident that we will find a solution together that suits the customer’s and the end customer’s unique needs. No matter the technology, the secret lies in being responsive,” says Jonas. ■



Huddig is one of the customers that has developed hybrid solutions in close collaboration with Rimaster.

Rimaster Development
investing heavily in

Electronics production

More and more customers are asking for system integration, and as the HV expansion increases, the complexity increases. As an experienced system integrator in High-Mix Low-Volume, Rimaster therefore opts to invest further in resources with a focus on electronics.

Jonas Dahlström is CEO of Rimaster Development in Söderhamn:

“Our system offering is based on the fact that we can integrate all customers’ needs into our production flow – from small enterprises to massive listed groups. Every day, we have an enormous breadth in our customer contacts and in our production. It’s part of our DNA and it’s also what guides our investments into the future.”

It also means that the company does not exclude anyone. Some customers are ready for full electrification, others see hybrid solutions as optimal, and in some areas, traditional engines are still preferred.

“We are working broadly right now in order to be accessible and to follow the market’s development,” explains Jonas. “It also means that we must build capabilities for the future. Since there is currently no industry standard regarding HV, it’s important to have as flexible a production process as possible.”

New investments

The investments include new production assets in the form of a new, fully automated surface-mount line where a robot places the components on the printed circuit boards, which are then soldered in the oven. An SMT furnace is also included in the new machinery for additional capability.

“We have also invested in potting technology for the encapsulation of electronic components and connectors. The components are cast in a two-component casting compound, which makes them highly resistant to external influences and vibrations. The result satisfied very high sealing requirements.”

In parallel, a new business system is being rolled out throughout the Rimaster Group, which means that by the end of the year, all units will be working in Monitor G5.

“Connecting our processes directly to production gives us additional opportunities to refine them,” explains Jonas Dahlström.

High capacity

“We have an even more efficient process where we can handle larger volumes. The capacity covers both customer-specific solutions and our own products, for which we are also seeing increased demand. Among other things, we are manufacturing the all-new version of our own power distribution unit, riFuse 2.0, here, as well as the standard riCon battery connector and the over-moulded connectors in the riInforced family, all of which are part of our focus on system integration. Rimaster has the expertise, resources, components and experience to offer customers assurance in their development projects.” ■



Readying components for selective soldering of printed circuit boards.

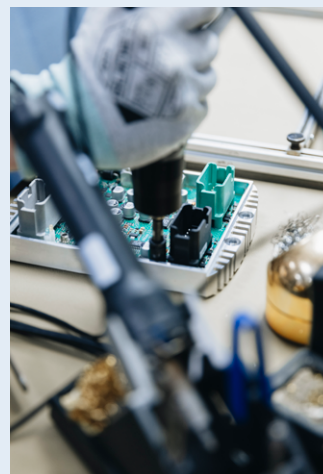


Jonas Dahlström
CEO Rimaster Development

A new SMT oven for circuit board soldering is a part of the new machinery.



Potting technology for the encapsulation of electronic components and connectors.



Per Söderström
Designer Huddig

Rimaster and Huddig rebuilding Swedish tracked vehicles



Huddig and Rimaster have worked together for a long time, and Rimaster therefore has in-depth knowledge of Huddig's production.

It has now been announced that Huddig and Rimaster are being tasked with the rebuild and upgrade of tracked vehicles through Nordic Terrain Solutions. In total, around a thousand tracked vehicles will receive new drives and new electrical systems.



The procurement was won by the business cluster Nordic Terrain Solutions, which includes Huddig, along with owners Staffare, SPI and others. Rimaster will serve as a subcontractor to Huddig.

"It was a given that we would partner with Rimaster," says Per Söderström, Designer at Huddig in Hudiksvall. "We've worked together since the '80s and really know each other very well. Furthermore, we have carried out several advanced development projects together.

"Among other things, we worked closely together on the development of completely new backhoe loaders based on hybrid technology, where we were something of a pioneer in the industry. If there's something we're good at, it's thinking innovatively and rebuilding."

"Very solid foundation"

The customer is the Swedish Defence Materiel Administration (FMV), who

have requested 800 tracked vehicles to be rebuilt, with an option for a few hundred more. The Swedish Armed Forces' tracked vehicles 206 and 208 were acquired from the Swedish manufacturer Hägglunds in the late 1970s and are now in need of renovation to extend the operational life and improve the performance of the vehicles.

"These are excellent vehicles of the highest quality, but they are in need of a new powertrain, engine, transmission, and electronics. This is an exciting project, but it's also smart and sustainable since resources are being conserved," says Per Söderström, who also appreciates the project from a personal perspective: "I'm familiar with these tracked vehicles from when I did my military service and have travelled around in them a lot. So, it's a lot of fun to work on this project."

High demands on the electrical system

Huddig is involved in the rebuild design process, and Rimaster will produce the electrical system. Rebuilding a tracked vehicle is not the same as rebuilding a passenger car.

"No, it's challenging in many ways. There are technical requirements that differ from the products we usually work with. For example, FMV has extremely strict electromagnetic compatibility (EMC) requirements for the electrical system. The tracked vehicles have sensitive radio equipment that must not be disrupted."

The rebuild will be carried out over three years at Huddig and SPI's facilities, and Huddig is working to complete a brand-new facility for the rebuild.

"At the same time, we will of course continue to develop and produce our backhoe loaders as usual." ■



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It's time to take the next step. We want to improve our quality in partnership with our different companies.

Christer Eriksson
Head of Quality Rimaster

Rimaster invests in

Global quality work

As electrification increases, demands for quality are becoming even higher. Christer Eriksson is Rimaster's new Head of Quality with global responsibility: "It's time to take the next step. We want to improve our quality in partnership with our different companies."

What is your background?

"I have extensive experience in quality and Lean. I have led courses in automation, production, quality and Lean at various universities and colleges. I have also been part of the Volvo Cars Lean Academy. My most recent position was in the automotive industry."

Why have you chosen Rimaster?

"I appreciate Rimaster's values and the sense of community. I also think it's incredibly fun that the company operates globally. I have previously worked internationally with Lean in the automotive industry, where I travelled and supported various units around the world. I'll be doing the same thing now, but with more of a focus on quality."

Is there something that we, in the special vehicle sector, can learn from the wider automotive industry?

"At Rimaster, we work with vehicle manufacturers that have high flexibility and low volumes, while the traditional automotive industry is characterised by high volumes. When it comes to quality development, I think we can benefit greatly from the knowledge that exists in the traditional automotive industry – even if the solutions cannot be copied outright and need to be adapted to our and our customers' unique conditions."

What will the role as Global Head of Quality entail?

"Together, we will take quality work to the next level. My main task will be to create global coordination for quality work. Instead of working internally in each company, we will collaborate more efficiently. We will use the resources,

skills and experience that exist in the companies so that everyone can benefit from them. If one of our factories has developed and implemented a procedure that works, the way of working should be spread to the rest of the organisation. When visiting Rimaster's various facilities, I have seen many good examples. Quality work is very much about promoting good behaviours."

How will you work?

"We will set up a long-term plan with the goal of zero defects. Together with each organisation, we set new quality goals for the coming years. We are working to conduct an analysis based on historical data, which will serve as the basis for the goals we set. We will also lend support in the process in the form of resources, training, workshops and goal follow-ups. Working goal-oriented is crucial for successfully implementing long-term improvements. Following up on the quality outcome month by month generally does not lead to any changes, but it offers an overview of the effect of activities. To reduce the number of complaints that cover larger groups, you have to work systematically."

How is quality work affected by the industry's transition to high voltage and fully electrified vehicles?

"Here, too, it's important to have a structured way of working to validate the new processes, with clear procedures and instructions. It is not about individual articles, but about ensuring a process approach. A simplified way of working with a focus on doing the right thing from the start." ■



Master of Simplicity On Tour



After the delay caused by the pandemic the Master of Simplicity tour arrived to Rimaster Ningbo.

中国的各位同志大家好！

Hello all colleagues in China!

Long time - no see! When our Master of Simplicity tour arrived its final destination, Rimaster Ningbo, it was a happy reunion.

”To us, it was an important acknowledgment that we are part of the Rimaster family, says Yong ”Jonas” Shen, managing director of Rimaster Ningbo.

When Rimaster celebrated 40 years in 2022, we conducted a large internal tour called ”Master of Simplicity”, where we visited all of Rimaster’s production units around the world. We also had representatives from our local customers at each and every ”Master of Simplicity” event arranged. The purpose was to clarify our offer as a supplier of total solution deliveries and also to give all Rimaster employees

an insight to the company’s operations and what makes us so unique. However, due to the pandemic, the final visit to China was delayed, but now it was finally time. And what a success it was!

From 16 to 150 employees

The Rimaster operations in Ningbo was set up in 2008 and the last big event was held in 2012. Since then a lot has happened.

”Actually, we have grown from 16 to 150 employees, growing our revenue turnover from 6 million (RMB) to 160 million. This had never been possible without Swedish support. The fact that we are a part of a Swedish family-owned company with family values has given us a lot of advantages and opportunities in forms of investments and knowledge sharing”, tells Yong ”Jonas” Shen.



1. Per Carlsson, founder and owner of Rimaster. 2. Focused Rimaster employees taking a quiz.
 3. A miniature exhibition took place during the event, here a cab is displayed. 4. Ding "Steven" Shi displaying Rimaster's own product riFuse.

“It was incredibly well executed and I really enjoyed how the event had been planned in order to include and enthuse all employees.”

”To many of our employees it was the first time they had the opportunity to see the entire scope of the Rimaster family with its different parts and activities. As we only produce harnesses here in Ningbo, the miniature exhibitions displaying electronics, cabs and other solutions produced by Rimaster's facilities in Europe, were very appreciated. The meet and greet with the management and the possibility to ask questions was a huge hit as well. We also had great support from our 'local' customers Konecranes and Dynapac who participated in the event”, says Yong ”Jonas” Shen.

”Fantastic commitment”

On the other hand, the Rimaster management enjoyed meeting an organization sparkling with enthusiasm. The company's founder and owner Per Carlsson enjoyed meeting both familiar and new faces together with his daughter and part owner Linda Kajelm.

”Some of the employees we met this time on the Master of Simplicity stop in China have been with us for 14 years, and to me that is a fantastic proof of commitment. I experienced a genuine interest in the operations at our other units and nothing makes me happier than the joy to be a part of our Rimaster family”, says Per Carlsson.

He was impressed by the event and how it was conducted:

”It was incredibly well executed and I really enjoyed how the event had been planned in order to include and enthuse all employees.”

Linda agrees:

”Actually every Rimaster organization we visited have put in a lot of time and effort to make the Master of Simplicity tour as interesting as possible, to each other and to our customers. I think this once more shows and clarify what we in the Rimaster-family offer in our cooperations internally and with external parts - commitment, joy and well-planned work. I am

really happy and proud that we have this kind of engagement.”

A global contribution

So, what can we expect from Rimaster Ningbo in the future?

”Our aim is to develop and strengthen our customer relations on a local and global level, including North America. We see a lot of opportunities to offer global customers a strong international supply chain from Rimaster's facilities in Europe and China”, says Yong ”Jonas” Shen. ■



Rimaster in brief

High Mix - Low Volume

Rimaster is a leading supplier in the field of integrated systems solutions and special vehicle's expert. This is why we have developed effective, highly adaptable processes at all our facilities, from design to production and final testing.

1,300

Number of employees in 2023

1,388

Turnover in 2023 (SEK million)

1982

The year Rimaster was founded in Sweden

11 units

In development, production, and sales around the world

Market segments

Rimaster's focus is on global industrial OEMs in two market segments.

Special Vehicles

- Material handling
- Mining
- Forest and agriculture
- Road and construction

Industrial Systems

- Automation and control systems
- Renewable energy





Rimaster is a leading supplier of electrical systems, wire harnesses, electrical cabinets, electronics and cabs for special vehicles and industrial systems.

We are a global group founded and headquartered in Rimforsa, Sweden. Rimaster currently has around 1,400 employees working in ten companies worldwide. We have an organisation for sales, design, development and production in Sweden, Poland, Belgium, France, Germany, China and Serbia.

Welcome to our world of Simplicity.

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