

# SECO / SPACE

SECO/WARWICK'S NEWSLETTER

Double-digit revenue growth in 2024

SECO/WARWICK is increasing capacity in 2023

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Latest achievements

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# Welcome to SECO/WARWICK's world



## The SECO/WARWICK Group anticipates double-digit revenue growth in 2024

**SECO/WARWICK**, wrapped up 2023 celebrating a dynamic increase in vacuum segment sales, doubling global production capacity, and intensifying operational activities in Asia.

Today, the SECO/WARWICK Group includes companies located on 3 continents in 5 countries. The Group has delivered over 4 000 solutions implemented in 5 product technologies. The company employs over 850 employees, owns 2 [R&D centers](#) (in Poland and the United States), and serves customers from over 70 countries around the world. For SECO/WARWICK, 2023 was a time of large investments, which will translate into increasing profits and profitability in the coming years.

*„We have reviewed the first three quarters of 2023, and noted high customer activity in the titanium metallurgy, tool, automotive and aviation industries. We are favored by the good situation in the USA - the positive impact of economic recovery, reshoring, and the 'made in the USA' trend. In India, we have prepared to develop our assembly capabilities, and the Chinese company has expanded its offer with new product lines. Importantly, we have implemented a new strategy for the Group, which will allow us to achieve by 2026 a sales growth rate twice as high as in the 'organic' scenario“* - summed up Sławomir Woźniak, CEO of the SECO/WARWICK Group.

*„Thanks to strategic initiatives, it will be possible to achieve an increase in revenues by approximately \$90.5 million compared to 2022, including approximately \$ 45 million in additional revenues compared to the development scenario 'business as it is;“ - CAGR 2022-2026 revenues in the strategic scenario +12.1%. These are optimistic, but at the same time very realistic assumptions“*



**SECO/WARWICK is a leader in [vacuum technologies](#)**

SECO/WARWICK sold many vacuum solutions in 2023. Vector furnaces have been the SECO/WARWICK portfolio pillar for years. It is a proven, innovative, and reliable product. Vectors operate in 70 countries in all the key industries.

*„This is our flagship product. In line with the Group's 2022-2026 strategy, we anticipate at least a double-digit increase in revenues in each segment. A product gaining importance is the VAB solution, i.e., furnaces for vacuum aluminum brazing. This technology is attractive due to its environmental friendliness and process cleanliness, as well as the reliability and repeatability of the brazed joints results in a wide range of furnaces tailored to customer expectations and requirements,“* - commented Maciej Korecki, Vice-President of the SECO/WARWICK Group's Vacuum Segment.

## Production development – SECO/WARWICK investments

The SECO/WARWICK Group maintains its position as one of the leaders in the metal heat treatment equipment industry. Its solutions were selected in 2023 by outstanding companies like [Siemens](#), [Marle](#), [Skana](#), [Assan Alüminyum](#) and [PWR Australia](#) to name a few. These are not all of the Group's customers in 2023, many orders were from returning customers - customers representing global brands who, due to competition or industry sensitivity, must remain anonymous to the market. What is important is that SECO/WARWICK has delivered furnaces to five continents, often carrying out complex deliveries, sometimes manufactured in two or three of the Group's production locations and delivered to different locations for the same customer. This is a logistic and organizational challenge, demonstrating the global Group's strength.

## SECO/WARWICK development in Asia

*In the strategic plan for 2023-2026, the SECO/WARWICK Group assumes investments of over \$27.5 million, more than half of which will be allocated to strategic investments related to technology development and retrofitting production and assembly capacity.*

Last year was also important from the SECO/WARWICK Group Asian companies' point of view. The Chinese branch opened another production hall in the Xiqing Economic Development Area (XEDA) in Tianjin. The company specializes in the production of [CAB lines](#), vacuum furnaces, and [vacuum metallurgy](#) solutions.

*“Currently, we can produce 20 CAB lines, 5 vacuum furnaces, and 2-3 vacuum metallurgy furnaces per year. Both of our production plants are 13 500 m<sup>2</sup>, so we have doubled our production area. We are also systematically increasing employment to meet production challenges,”* - said Yedong Liu, Managing Director of SECO/WARWICK China.

The Indian company also recorded dynamic development. Later this year, they will start producing [continuous aluminum brazing lines](#). Ultimately, SECO/WARWICK in India will also produce vacuum solutions, meeting the demand for these furnaces in this part of the world.

*“This year was a breakthrough for us when it comes to the Indian market because we are starting production in India. Already this year, the first CAB lines will roll off the Indian assembly line to reach new customers, and the world will soon learn about new, strategic contracts,”* - says Binoy Koshy, Managing Director of SECO/WARWICK India.

Around the world, the demand for battery coolers is increasing due to the increasing production of electric vehicles. SECO/WARWICK is a leader in the production of CAB lines. It cooperates perfectly with the automotive industry by providing solutions that help to develop electric vehicle production technology. Thanks to this, the company indirectly fits into the trend and obligation to reduce exhaust emissions and care for the natural environment.

*„We are one of the leading manufacturers of lines intended for brazing heat exchangers. It is thanks to our furnaces that radiators for passenger cars, delivery vans, agricultural machines and power generators used by leading automotive companies are created. The unflagging popularity of the technology is also reflected in the fact that the product for this segment has its own brand – EV/CAB, under which we designate solutions dedicated to electric vehicles,”* - explains Piotr Skarbiński, Vice-President of the [Aluminum](#) and CAB Product Segments in the SECO/WARWICK Group.

## Big brands among SECO/WARWICK customers

In 2023, SECO/WARWICK worked for global brands and recognized manufacturers.

In Europe, SECO/WARWICK supplied the knife manufacturer - [Yalman Knives](#) – with a Vector® vacuum furnace. In turn, SECO/WARWICK USA signed a contract in 2023 for the delivery of an Exogas™ exothermic atmosphere generator to Skana Aluminium Company in Wisconsin. For the PWR Advanced Cooling Technology concern, the Group will deliver two Universal Batch CAB furnaces and a continuous CAB line. The solutions will be intended for brazing aluminum heat exchangers. The three furnaces on order will be delivered to two continents - Australia and the PWR branch in North America – 3 furnaces, 1 customer.

ASSAN ALÜMINYUM, one of the world's leading manufacturers of aluminum products executed by continuous casting, ordered 4 more furnaces for annealing aluminum coil sheets in 2023, which are equipped with the even more efficient Vortex® 2.0 system.

These are just some of last year's projects. In 2023, companies belonging to the SECO/WARWICK Group produced 15% more solutions than in the previous year. This is the result of investment in production. So far, the Group started with 21 000 m<sup>2</sup> in production halls, and thanks to investments in China, India and the United States, this number increased to over 39 000 m<sup>2</sup>.

## Ecology under the SECO banner

In 2023, SECO/WARWICK signed a final agreement with GreenIron H2 AB for the delivery of a series of furnaces for processing metals from post-production waste without the use of fossil fuels. [The most unique project in the field of green technologies related to metal recycling is entering a decisive phase.](#) SECO/WARWICK furnaces may change the face of the metal processing industry in the future.

**SECO/WARWICK supports ecological solutions which make heavy industry environmentally friendly.** The solutions which will be developed in cooperation with GreenIron have not been available on the market previously and may potentially constitute a new line of furnaces. Their great value is the fact that they contribute to carbon dioxide reduction, as well as a significant reduction in the cost of recycling residues and post-production waste.

*“We focus on the green color, on smart, ecological innovations which not only protect the planet, but also allow us to achieve better efficiency. Cooperation with GreenIron is a natural way for us to develop this idea. We hope that the new furnace lines will become a new, independent segment in the future. The potential of using these solutions is huge - reduction furnaces will be available to industries using iron and other metals in production processes,”* - adds S. Woźniak.

Without a doubt, 2023 was a fruitful year for the entire SECO/WARWICK Group. Investments in increasing production capacity, innovative ecological projects and a new business strategy were the three major events of last year.

*The SECO/WARWICK Group is optimistic about the future and is ready for the challenges of the coming year.*

# SECO/WARWICK is increasing capacity in 2023



In 2023, its solutions were selected by top tier global companies including: Siemens, Marle, Skana, Assan Alüminyum and PWR Australia. SECO/WARWICK delivered furnaces to 5 continents, often making deliveries to several locations from different [production](#) halls.

*"This year was crucial for us due to the increase in production capacity. We focused on development which will provide us with production freedom in the coming years. We will be able to fulfill orders from all over the world faster and more efficiently. We currently have production halls with an area of 12 000 m<sup>2</sup> in Europe. In Asia, we have expanded the production space to 13 500 m<sup>2</sup>, similarly in the United States - to 13 000 m<sup>2</sup>. To sum up, our production plants today consist of halls with a total size of 39 000 m<sup>2</sup>, exactly as much as 5 full-size soccer. The effects of these investments were already visible last year. We increased production by 15%, and in my opinion, this is just the beginning. We are ready to fulfill a larger number of orders and, what is extremely important, we are also very well prepared logistically to handle them,"* - said Sławomir Woźniak, CEO of the SECO/WARWICK Group's Management Board.

## Surprising production facts

In 2023, the SECO/WARWICK Group produced equipment for leading companies in the aviation, automotive and commercial heat treatment industries. Among the historically completed orders, there were many solutions that could aspire to be entered in the Guinness Book of World Records.

For example, one of the vacuum furnace chambers, manufactured for the nuclear industry, measured 32 meters long. The furnace is used for the heat treatment of stainless pipes. The furnace chamber length is equal to the longest bus in the world, carrying as many as 350 passengers.

Another furnace manufactured by the SECO/WARWICK Group for purifying 5G graphite, was designed to reach a record temperature of 2400°C. If we were to reach for other records, in the experimental SECO/WARWICK thermonuclear reactor, a single charge (and it was a coil) weighed as much as 120 tons, which is exactly as much as 40 Indian elephants.

*"Two R&D departments (in Poland and the United States) are constantly working on improving solutions and technologies to adapt solutions to customer needs. With well-developed product standards, we have an excellent base of experience which allows us to implement unusual projects, which are often not undertaken by other manufacturers,"* - adds S. Woźniak.

SECO/WARWICK celebrated 2023 as a year of growth with an expansion of production capacity. The Group produced 15% more solutions than in the previous year, and invested in production capacity development, expanding its plants by as much as 60%. During the same period, employment in the Group increased by over 6%.



SŁAWOMIR WOŹNIAK  
CEO of SECO/WARWICK Group.

*"This is a response to market needs and the growing number of orders. In addition to significantly increasing production space, we also opened new offices in India, China, and Poland. Our development is also associated with an increase in employment. Last year, we employed 860 people worldwide, over 6% more than in 2022. Our data shows that after the pandemic and a temporary recession, industry is rebuilding. We are optimistic when it comes to forecasting sales and an increased demand for our furnaces"*

## North America – SECO/WARWICK's three strong pillars

The SECO/WARWICK Group includes three companies operating on the [American market](#) - [SECO/VACUUM](#), [RETECH](#) and SECO/WARWICK USA. **RETECH** (celebrating its 60th anniversary last year) **expanded its production and office space by over 100%**.

## SECO/WARWICK development in Asia



EARL GOOD  
Managing Director of RETECH

*"RETECH's new production facility is in Tonawanda, New York, a suburb of Buffalo. This is a very advantageous location, just 20 minutes from the current office. The facility will be used for furnace assembly and factory testing. Additional R&D furnaces will be installed soon to help test innovative solutions. We started the moving process in December last year, and we are currently waiting for crane installation, which should take place in the coming days. We will start production immediately. In the first phase, we will produce spare parts, electrical components for our furnaces and furnaces for R&D purposes"*

Last year was also important from the SECO/WARWICK Group Asian company's point of view. The Chinese branch has opened a completely new production hall in the Xiqing Economic Development Area (XEDA) in Tianjin. The company specializes in the production of [CAB lines](#), [vacuum furnaces](#), and [vacuum metallurgy](#) solutions.



YEDONG LIU  
Managing Director S/W CHINA

*“Currently, we can produce 20 CAB aluminum brazing lines, 5 vacuum furnaces and 2-3 vacuum metallurgy furnaces per year. Both of our production plants are 13 500 m<sup>2</sup>, so we have doubled our area. We are also systematically increasing employment to meet production challenges”*

The **Indian company** also recorded dynamic development. Later this year, it **will start producing continuous aluminum brazing lines**. SECO/WARWICK in India will also produce vacuum solutions, meeting the demand for these furnaces in this part of the world.



BINOY KOSHY  
Managing Director S/W INDIA

*“The new assembly hall in India is located 30 km (about 18.64 mi) from the center of Pune and is in close proximity to our main suppliers, partners, and subcontractors. In India, we will focus on the production of vacuum equipment, CAB lines, as well as service and parts. We will soon launch CAB line production. The finished solution should leave our hall in the third quarter of 2024. The first Indian-made vacuum furnace will be delivered to customers at the beginning of 2025”*



According to the report *Interact Analysis*, the report forecasts that in the next five years (2023-2028), machine production will grow faster than the entire production sector. In both Americas, vehicle production growth rates are expected to average 3.8% compared to just 2.4% for industrial production. In Asia, both sectors will grow by 3.9% and 2.9%, respectively, and in Europe by 3.6% and 2.4%. Although vehicle production may show negative dynamics in 2024, a rebound can be expected in 2025, followed by sustained growth until 2028.

*This is a good growth prospect for the machinery manufacturing sector in the coming years. The industry is rebuilding and there is an increasing demand for metal heat treatment equipment. Hence, the SECO/WARWICK decision to dynamically increase production space and, consequently, production capacity, is promising. SECO/WARWICK estimates that the trend related to increased demand for metal heat treatment furnaces will continue in 2024.*

## Retech has been pioneering in powder metallurgy

**After years of success in their traditional domain, rather than rest on their laurels, Retech has also been pioneering new domains in powder metallurgy**

Retech, a SECO/WARWICK company, has been a leader in vacuum metallurgy for over 60 years. Their recent successes are built on a foundation of strong leadership and long-established excellence in melting technology. Their latest innovation in Plasma Gas Atomization goes far beyond incremental improvement, positioning them to offer technology that substantially broadens the possibilities for industry leaders in manufacturing and enables large-scale production of additive manufacturing.

### History, and the Success Strategy on Which Retech Was Built

Retech has been manufacturing melting equipment for reactive and refractory metals for over 60 years. Their solutions have always played a critical role in national defense strategies, and as such, these projects are seldom disclosed to the public domain and we rarely hear about the successes in those particular industries. The necessity of this discretion, combined with the nature of a business that produces large, complex melting equipment, requires that **their business model, and their success, always prioritize a focus on the customer rather than the price**. This practice seems to resonate with customers who value a partnership toward success rather than a more arms-length approach.



### Recent Successes and Current Trends

Over the last few years, Retech has continued to grow along with its customers and has commissioned more furnaces each successive year. Between 2018 and 2021, Retech relocated all of their US-based manufacturing and most of their office space from Ukiah, California, to Buffalo, NY. During the move and subsequent upstaffing, it continued to meet orders through careful planning and a deep bench of dedicated employees, suppliers, and fabricators.

Prudent risk avoidance allowed them to continue to support their customers, most of whom were considered essential U.S. manufacturers, throughout the crisis.

Emerging from the global crisis, it became apparent that Retech's business was strong enough that they required another new facility in Buffalo, in addition to the one they had just moved into three years prior. In 2021 Retech had a record sales year, despite the lingering ripple-effects of the crisis, and in 2022, they topped their 2021 numbers. Bookings for 2023 were even stronger than the prior year, allowing the company to post a third consecutive record year.

After a long search, the company was able to secure their second Buffalo facility just in time for their 60<sup>th</sup> anniversary celebration in the summer of 2023.

*"When we moved into our new Buffalo headquarters, we anticipated an upward trajectory, but this really exceeds expectations. This move puts us at 113 000 total square feet of R&D, manufacturing, assembly, and storage space, which allows us to stay ahead of that growth instead of catching up to it,"* - said Earl Good, Retech Managing Director / President.

The upward trajectory Earl spoke of was largely coming from Retech's strongest performing product categories in recent years, which include:

- Electron Beam (EB) melters, ideal for melting and refining reactive and refractory metals that require a vacuum process.
- Plasma Arc Remelt (PAM), best suited for melting reactive or refractory metals being alloyed with lighter, lower vaporization temperature metals than the primary alloying metal. As Retech's highest power furnace, many customers have ordered multiple units and come back for repeat orders.
- Vacuum Arc Remelt (VAR) systems, the workhorse of reactive/refractory metal ingot production for later rework in mills.
- Vacuum Induction Melting (VIM), used in the mass production high-value materials.
- Niche sales in small scale atomizers and other custom specialty equipment with lower sales volume, but still of critical importance for certain metallurgical processes.
- Powder Metal and Ribbon production equipment.

#### What's next for Retech?

Retech will continue as a global leader of controlled atmosphere melting technology for their traditional markets like aerospace, automotive, energy, and biotech, including many projects already in development. In addition to that, Retech is also about to turbocharge the Powder Metallurgy (PM) sector with their latest breakthrough in [Plasma Gas Atomization](#) (PGA), and the timing couldn't be better.

*Earl points out that, "At Retech, we are too busy commissioning new furnaces, and trusted by customers with too many trade secrets and defense clearances, to be able to boast of our accomplishments much, so it is a delight to have a new innovation in PGA that we can shout from the rooftops!"*

Plasma Gas Atomization is not new for Retech. What is new is the development of an integrated system, informed by our customers, that maximizes versatility in nearly every metric allowing for:

- Scalability, achieving atomization rates greater than 10 times the rate of currently available technologies
- Atomization of any metal or alloy suitable for plasma arc melting (PAM)
- Utilization of most feedstock format, including sponge, compacts, recycled scrap, ingots
- Ultra-pure inclusion-free powders
- Continuous processing enabled by air-lock style feeder system that does not interrupt melting to recharge
- Elimination of clog-prone nozzles, improving reliability and simplifying cleaning and product changeover

While Retech's suite of melting technologies is capable of melting a wide range of reactive and refractory elemental metals and alloys, titanium melting

in particular serves as a reliable bellwether.

Companies are finding more and more uses for titanium in their products, even consumer grade products, but in addition to finding use, they are finding appeal. It certainly helps titanium producers when titanium is perceived as a prestige product, with that prestige even spilling over into products that are not even particularly reliant on titanium, like cell phone cases or fancy camping gear. But now titanium is used as a product name for car models, and even as a luxury signifier for the credit card tier above platinum.

Put more simply, titanium is cool now. And not just with consumers, but in the investor class too.

Which means big titanium producers and small titanium additive manufacturers alike can now attract more investment dollars more easily.

So, just when investors are more eager to invest in titanium, and additive manufacturers are more eager to get their hands on titanium powder, Retech's PGA is about to take the cost of Titanium Atomization and move the decimal point to the left.

#### Talk about turbocharging!

Kicking off this chain of investment, and serving as further validation of [Retech's](#) success, is a recent investment in Retech itself - secured by their parent company, SECO/WARWICK - in the form of a \$10 Million subsidized loan awarded to Retech ([link to story](#)) for the expansion of their PGA equipment manufacturing capabilities and other advanced technologies so that they can meet the growing demand for their new PGA systems. The \$10 million loan comes from the Foreign Expansion Fund 2 FIZ AN managed by PFR TFI, which offers companies co-financing of their foreign investment projects through financial instruments tailored to the scale of the project and the capabilities and needs of the Polish investor.



*"This dovetails perfectly with our recent membership in America Makes, the National Additive Manufacturing Innovation Institute ([link to website](#)). Sure, I look forward to what the big players will do with the less expensive powder metals Retech will enable, but they already have access to the material and technology, but what really excites me is the opportunity to see what creative young minds can do with this once Retech makes it accessible enough that they can afford to have fun with Ti AM in a garage-tech sense. Take bold steps without fear of mistakes. It is not so much about making the existing tech less costly, the excitement is in the fields where titanium will become a feasible option, where it was not before." - Earl Good continues.*

*"I'm confident our proudest success will be something beyond my imagination that one of these young innovators will create in the next five or ten years. If we can offer them the materials, our bottom line will take care of itself" - Sławomir Woźniak, CEO, SECO/WARWICK Group goes on to conclude.*

# LATEST ACHIEVEMENTS



## Retech receives purchase orders for 2 high-volume Plasma Gas Atomizers

Retech, a division of SECO/WARWICK Group, has received a purchase order for two of the largest Plasma Gas Atomizers (PGA) they have produced to date. That is a fantastic start to the year.

Slated for use in a proprietary technology, the destination and application are under wraps, but the versatility and capacity of Retech's [PGA300](#) means that they could be put to use atomizing any of a wide variety of refractory and reactive alloys, amorphous metal, or superalloys, and do so at production rates that will redefine powder metallurgy industry expectations.

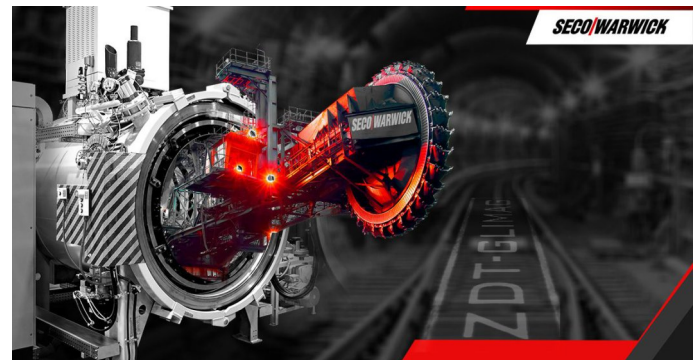
Alternate powder production technologies each run up against limiting factors when trying to scale up the process. [Retech](#) has developed an atomizer die technology that can achieve far greater atomization rates compared to competing technologies.

The PGA 300 can atomize titanium at rates exceeding 1500 kg/hour! Paired with the reliability and versatility of plasma melting, the PGA uses a versatile feedstock process to allow for any feed formats suitable for plasma hearth melting, which include loose sponge, compacts, scrap, and ingots. Elemental feed can also be used, and alloying can occur directly in the hearth during the melting process. Paired with material feeders, this turns the operation of the PGA into a semi-continuous process that only pauses for melting of a fresh charge, rather than having to open the furnace and restart the whole process every time the feedstock is consumed.

*"I would say that the PGA 300 is our largest offering today, but the benefit of this platform is that we can further scale this technology. We have installed larger plasma melting equipment for our customers and we want to utilize this proven technology to continue to scale the PGA platform"* - said Earl Good, Retech Managing Director / President

Retech's advances in atomization dies also allow for a narrower Powder Size Distribution (PSD), and a better d50 average powder size selectability than alternative powder production methods. Exact PSD, d50, and rates differ depending on the alloy.

With a production capacity of a thousand tons per year, the PGA300 may be the largest high temperature alloy atomizer Retech has built so far, but their experience indicates that the scalability is only limited by a customer's demand, finally taking inert-atmosphere powder production to a truly industrial scale.



## ZDT GLIMAG will use a SECO/WARWICK furnace to produce innovative mining technology

A SECO/WARWICK Vector® vacuum furnace was purchased by ZDT Glimag, an entity providing services in the field of vacuum heat treatment, laboratory tests and production of parts for mining machines.

The partner already has 2 furnaces from the SECO/WARWICK's vacuum family. The Vector vacuum furnace on order is a design with an operating space of 600x600x900mm. The furnace will be equipped with numerous options that will allow ZDT Glimag to carry out a wide range of heat treatment processes for a large number of steel grades.

*"ZDT Glimag is a long-term Partner, as evidenced by the fact that our solutions have been operating in its plants for 30 years. It is a center very well oriented in the metal heat treatment industry, constantly testing new, innovative solutions that in turn make the mining industry more efficient. The new Vector will introduce revolutionary changes in the hardening plant, introducing innovation and a very wide range of precise processes. SECO/WARWICK will provide a furnace which has numerous options and is not afraid of working even in the most demanding conditions to conduct an appropriate test or a complex trial,"* - says Maciej Korecki, Vice-President of the Vacuum Furnace Segment in the SECO/WARWICK Group.

### Vector for the research industry

The [Vector® line](#) vacuum furnaces can be used in most standard vacuum carburizing, hardening, tempering, annealing, supersaturation, and brazing processes. At the same time, the solution can be adapted to the recipient's individual requirements, and therefore to a specific industry. This design is also perfect for research centers testing innovative solutions for external customers.

The solution's characteristic features are convection heating, i.e., a system improving the heat transfer efficiency when heating at lower temperatures, and directional cooling, which allows complex, flimsy, and long elements to be cooled in various ways, minimizing their deformations. An additional advantage is the vacuum carburizing option, which allows users to carry out precise processes to increase the steel surface hardness (carburizing) during the entire thermal process.

*Most importantly, we are glad that SECO/WARWICK presented its offer in response to our needs and thus joined the common, exciting process of creating innovation.*

*„This decision was certainly a consequence of many years of cooperation and mutual trust. We understand each other perfectly because we have been dealing with heat treatment processes for decades. A common passion has resulted in a long-term partnership"* - explains Beata Kowalewska, President of the Management Board - Financial Director of ZDT Glimag.



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