

# *We are* **UMBRA GROUP**

## **ACTING FOR THE NEXT GENERATION**



The Voice of the CEO

**A Group approach for a focused,  
steady growth**

The point of the President

**Innovation, Respect, and Social  
Responsibility: the secret for  
building our future**

Martin Riegger

**My journey to be FIRST  
has just begun!**

# Summary

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Work and live to serve others,  
to leave the world a little better  
than you found it...

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# A Group approach for a *focused*, steady growth

**Matteo Notarangelo**  
CEO UMBRAGROUP

In times of great geopolitical and macroeconomic uncertainty, UMBRAGROUP has remained focused on its short- and medium- to long-term goals. The effects of the COVID-19 pandemic, combined with the war in Ukraine, have sent huge shocks to the stability of the global supply chain in 2022 and these early months of 2023, highlighting the need for greater resilience and risk mitigation in the strategic and operational management of our supplies.



Nevertheless, UMBRAGROUP has remained united, operating as a single Team, finding solutions to the operational challenges while at the same time concentrating on its strategic priorities. Today's ever-changing market requires agility and courage to respond to the changes in a structured, innovative way.

Thus, we can call 2023 a year of change, a change necessary for tackling the new challenges in an outstanding manner.

Starting with our American offices, it is with great pleasure that we welcome the arrival of Kathy Moodie as CEO of the US facilities. With her, the Team is enriched by an outstanding professional with a proven track record in aeronautics and manufacturing. Her style is characterized by a strong interoperability, excellent communication

skills, and strong focus on the Team's development, with a particular emphasis on diversity and inclusion.

At the parent company, also, there is no shortage of changes. UMBRAGROUP has opened its doors to Martin Riegger, the new Group Chief Operating Officer. He is committed to ensuring that the Group becomes an operational leader in the sector through talent development, use of digital tools, improvement of production processes, and creation of a better performing supply chain network. In addition to the specific skills he has gained in top companies, Martin adds a leadership style that is in keeping with our Group values, summarized in the acronym FIRST.

To support our Group on its growth path more and more, we were delighted to welcome Mark





Santo to the role of Group General Counsel. Mark brings with him a wealth of solid experience, leadership, specific skills and very high professionalism, gained in large and important companies.

Turning to the medium to long-term goals, we have defined and approved the new industrial plan for 2023-2027. The plan confirms the Group's growth ambitions and outlines the industrial path to be followed to achieve them, according to three main pillars: 1) growth with the creation of value, focusing on products, technologies, and new market segments; 2) operational excellence; 3) soundness of the organizational structure, increasingly conceived as a Group and based on the principles of sustainability. In fact, for the implementation of the last goal, we have charted an evolution of the organizational model at the Group level, capable of creating the proper synergies and coordination. On the operational level, there have been plenty of moments of great satisfaction and success. May brought us the Schaeffler Supplier Award for the Quality category, a recognition that rewards our

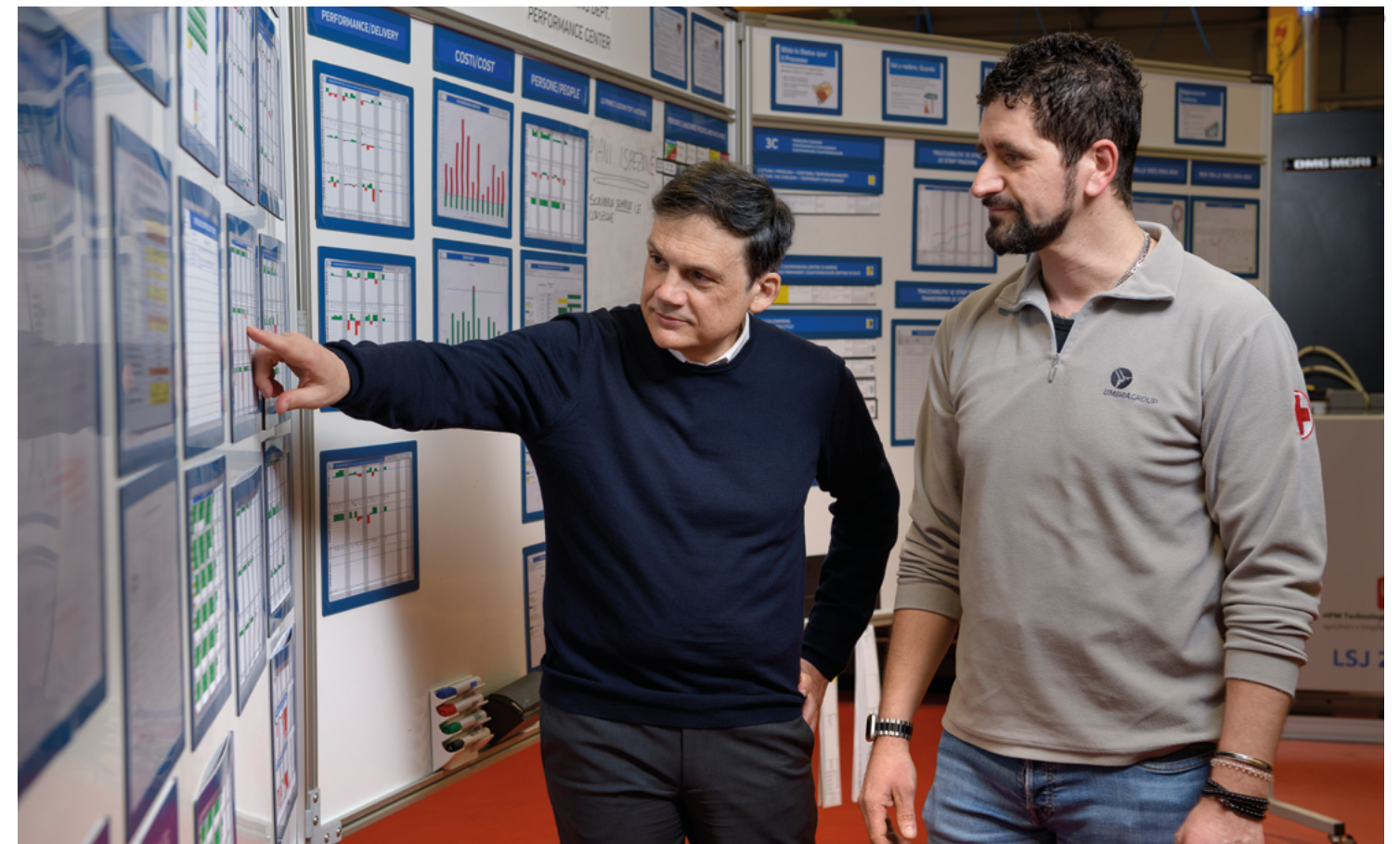
longstanding spirit of cooperation and partnership with Schaeffler. We will always continue to work with a focus on trust, transparency, flexibility, and proactivity toward our customers.

And it is with Schaeffler, in both Germany and Italy, that we are exploring new opportunities for cooperation on existing products in new segments or on totally new product families.

From the commercial standpoint, we have developed important partnerships: with Parker for the development of new products and technologies in both the Industrial and Aerospace areas; with Hyundai Supernal for the development of the new electric vertical take-off and landing vehicle [eVTOL], with a view to a future electric mobility. Also in this area, we are cooperating with Heart Aerospace on innovative technologies for the development of the new regional hybrid aircraft. Continuing to innovate products, technologies, materials, and processes remains a priority, which is why our commitment to research and development continues with the launch of new programs and the commitment to complete those already under way.

We have also had fundamental moments of programmatic alignment at the people level. The year 2023 marks the holding of the Technical Meeting, the event which, this year, was titled: "The Technical Path in the Human Journey". In addition to providing an important team building activity for Engineering, it also offered the opportunity to exchange ideas and opinions on the technical innovation path we are building.

Along this path, the central element remains people, their motivation, their ability to work as a team, and their willingness to contribute to this evolutionary path tagged UMBRAGROUP.



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*Our actions have been, and will always be, focused on the future of the company and the people making it up.*

UMBRA GROUP has always concentrated on three factors: Innovation, Quality, and People. We are committed to enhancing the community in which we operate by training, attracting, and motivating people. In this sense, we have been pleased to include new employees in our offices and in production: key resources capable of ensuring growth in our business. We are constantly investing in technology, digitalization, and sustainability, adopting a Group approach, which is increasingly organized and compact.

Our actions have been, and will always be, focused on the future of the company and the people making it up.

A firm promise: Acting for the next generation!



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# Innovation, Respect, and Social Responsibility:

*the secret for building our future*

**Reno Ortolani**

Chairman of the UMBRAGROUP Board of Directors

My letter of December 2022 ended with these sentences:

*“With the support of all of you – employees, customers, suppliers, and institutions – UMBRAGROUP intends to continue along its path of growth. Through our passion and innovation, we will continue to be FIRST, and we will not cease working to make the world in which we operate a better place for us and our families.”*

Six months later, I am proud to confirm that every member of the great UMBRAGROUP family, in Italy and in other countries, has represented the spirit of that message in full, through their work. We’ve seen it in a number of different activities. One is the business plan from 2023 to 2027, approved by the Board of Directors in January 2023. It’s a plan that lays the strategic foundations not just for the near future [the five years starting from 2023], but mostly of all for the next 50 years. Yes, because in the Aerospace business, which today represents around 55% of the Group’s turnover, the important programs [i.e. the types of planes] have extremely long lives. Like the Boeing 737, for example: the first aircraft was delivered in 1968, and is still in production, albeit with versions that have changed over time.

The B737 was “born” 55 years ago, and will live for many years to come.

Just think: a supplier who entered with the first plane and continues to be able to meet the customer’s needs would be able to work for who knows how many more years. Surely someone has done it. We want to be like the best of them. Indeed, the industrial plan showed a strong will to invest in programs for the future, and we went into it with great confidence in our capabilities. Perhaps not everything will come to fruition, but in the meantime we are sitting at the tables that matter, and some opportunities will surely materialize.

While the industrial plan is forward-looking, we must not forget that we have a historical customer base that must be maintained, indeed expanded. These are the customers that guarantee a turnover high enough to permit investments. Just to mention one: Schaeffler Gruppe. Our relationship with them started on April 1, 1972. [At the time they were called FAG Kugelfischer.] We were their suppliers, then a company of the FAG group, and then suppliers again, for over 50 years. And for that very reason, after 50 years, they have awarded us an official recognition of our merits. On the SCHAEFFLER SUPPLIER DAY, we were awarded first place in the QUALITY category, and the motivations given were

indeed of great satisfaction to us: “... *the quality and sustainability of solutions are emphasized, as well as a strong sense of proactivity and ability to adapt quickly to market changes.*”

I mentioned an example concerning the future and one considering our history.

Very often in my talks, I’ve emphasized that two great values of our FIRST form the roots of our success: the R of Respect and the S of Social Responsibility. But today I have to add another: the I of Innovation. I firmly believe that, combining these three extremely powerful weapons, no one will be able to stop us. We will no longer be our customers’ suppliers, but their partners. We’re writing UMBRAGROUP’s distant future right this very moment. With the men and women we have, with those we will have [and who will have to EMBRACE our values], and with a little “healthy madness at the top” [which is necessary if you want to be an entrepreneur], the successes will arrive. I’ll conclude by quoting the closing of my letter of July 2022: “*Come on, we have the wind at our back!*”. I’ll confess that I was uncertain whether or not to write this small concluding sentence.

There were still many clouds in the sky and the sun on the horizon was definitely hazy. But I said to myself, “Reno, but what are you afraid of with the team you have? Are you afraid to go to war alone and fight by yourself? No, they’ll be there together with you through to the end, in both successes and failures.” And so the sentence was written, black on white, no longer erasable. And everything really did go well. And the confirmation is in the numbers: 87 people hired during the year and revenues which increased by 10.4%, to touch almost 190 million euros. It’s just too bad about the insane increase in electricity costs that hurt our net income, thus preventing growth compared to last year. Today I can say the sun is now shining again. It is only up to all of us to continue on the path we have taken.

Our team is capable of playing on fields anywhere in the world.

Be proud to work with this company, with our company, and above all to be a beacon for the entire community of which we are a part.

Thank you all.





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# My journey to be *FIRST* has just begun!

**Martin Riegger**

Group Chief Operating Officer UMBRAGROUP

First of all I want to say thank you for the warm welcome in the UMBRAGROUP. I joined UMBRAGROUP in May this 2023 as the Group Chief Operating Officer. When joining the company, looking at our industrial plan, I immediately recognized the potential for growth in the business. I continue to be impressed by the people at UMBRAGROUP. I have met a Team with a very strong commitment to be FIRST.

I bring a strong passion for operations, technology, and innovation. I started my career in the automotive industry as a mechanic. Later I held operations leadership roles in different businesses. In the aerospace industry, at Rolls Royce plc, I was involved in the launch of the XWB engine for the Boeing 787. In the industrial business I worked for Bosch Rexroth building factories for Gear Boxes for the Wind energy business. In the automotive industry I worked for GKN Automotive running a network of plants for Constant Velocity Joints for Cars and Trucks. With GKN we also won a TPM [Total Productive Maintenance] Award in Germany in 1996. In the Green Energy business, I worked for Vattenfall, leading a large engineering Team to build offshore wind farms in the North Sea. I look forward to utilizing my experience to contribute to the success of the UMBRAGROUP.

What will I do? Initially I will focus my time on implementing the industrial plan, continue to develop the operations Team and working

with them to develop standards & processes. I look forward to meeting people in the businesses and regions. I think one of our strengths is the ability to focus. I believe we have to continue the activities that work well, start activities that are useful and stop activities which do not add any value.

I also believe in the power of diversity of people and cultures. I have spent most of my professional career in the USA, Canada, Italy, England, and Germany. I think we have a huge opportunity to utilize the strength of our cultures. One of the concepts I would like to use is the principle of minimum standards. That means we use a standard and we can adapt to local needs and circumstances. An example would be that we all drive the same car but would have to obey local traffic rules.

I am a big believer in Teamwork. I think this comes a lot from my time spent in rowing Teams and

as a rowing coach. I still enjoy doing sports in teams in the rowing boat, cycling or running. In each sport you measure performance. It is the same for any business activity. I am a strong believer in measuring performance on Safety, Cost, Quality, Delivery and People. Working with a set of KPIs [Key Performance Indicator] helps us to have a good conversation on our current performance and a good sense of what we need to do to improve.

I started with a first and I want to finish with a FIRST. Again, I am looking forward to working with this great Team to be FIRST, together!



Marting Riegger, the new Group Chief Operating Officer





UMBRAGROUP and Supernal at the Paris Airshow at Paris-Le Bourget Airport, at the booth organized together with the Umbria Aerospace Cluster

# In full sail, always *FIRST!*

**Beatrice Bandinelli**  
Communication Officer UMBRAGROUP SpA

The year 2022 has come to an end, leaving us very satisfied and with low energy levels! It was a busy year, a year in which all of us and our 50 years of history were the protagonists.

What do you think, did the year start out quietly for the Marketing & Communication office? We won't reveal the answer right away, but will first tell you about the novelties of this 2023!

The first months immediately buried us in the organization of the trade fairs of both the Aerospace and Industrial sectors. We started out with a number of international fairs scheduled in March and April: the HAI HELI-EXPO 2023 in Atlanta for Aerospace, the MECSPE in Bologna for the Industrial sector, and the MRO Americas, also in Atlanta. But that's not all! For the Aerospace world, 2023 is an exceptional year with a calendar full of dates. In fact, this past March 28, 2023 all of Italy

celebrated the 100th anniversary of the Italian Air Force. This historic anniversary was celebrated with a multitude of events in which UMBRAGROUP had the honor of participating, including as a sponsor.

From the opening of the festivities in Piazza del Popolo, Rome, with the Air Force Experience, where we were represented by Reno Ortolani, Chairman of the UMBRAGROUP Board of Directors, and by Nicola Bacelli, Group VP, Aerospace Sales, through to the opening of the Growing Peace exhibition, organized at the United Nations Headquarters in New York, where it was Leonardo Baldaccini, President of the American UMBRAGROUP offices, who represented us. There were numerous institutional events during this first part of 2023, in which our Leadership participated both as a guest and as speakers on extremely important topics relating to the Aerospace & Defense market.

But the best has yet to come! In fact, the second half of June boasts two very important events: the celebration of the Italian Air Force Centennial at Pratica di Mare, and the 54th Paris Le Bourget Aeronautics and Space Show, with us flying to Paris for a booth set up together with the Umbria Aerospace Cluster. Other important moments on the agenda are the announcement of the partnership with our customer Supernal, for a revolutionary project relating to advanced air mobility, and the visit of the Minister of Defense Hon. Guido Crosetto and the President of the Region Donatella Tesei, together with Michele Fioroni, Regional Commissioner for Economic Development, Innovation, Digital, and Simplification, and Michela Sciarpa, Sole Director of Sviluppumbria.

On the other hand, for the Industrial area, we are already working on the preparation of the booth for the super-important EMO which will be held in Hannover, Germany, in September. We will be showing our solutions in an international setting, alongside our biggest competitors and customers. During this first part of the year, there were also a number of important corporate events.

The first official initiative of 2023 arrived at the end of March, on the 31st, when we organized, together with the Environment, Health, Safety and Energy Team, a wonderful morning devoted to Sustainability: the clean-up of the former Spoleto-Norcia railroad, which today is one of Italy's most beautiful bike paths. In this timeless place, nature has reclaimed its space, blending seamlessly with the traces left by the passing of man in those areas. Unfortunately, it was in pitiful condition, and with a team of around 50 workers, who were paid for the entire workday, we cleaned up part of the route to return it to nature. None of this would have been possible without the support of the Gaia Rafting association of Serravalle, backers of our initiative.

Present at the start of the morning, together with the UMBRAGROUP Leadership represented by Beatrice Baldaccini, UMBRAGROUP Vice President, and Sara Ortolani, Managing Director for the Environment, Health, Safety and Energy, were the Deputy Mayor of the town of Norcia and Enrico Melasecche Germini, Umbria's Regional Commissioner for Infrastructure, Transportation, Public Works and Housing Policies, Civil Defense. This was a very important initiative because, if

assets of historical and artistic interest are to continue to represent added value and a heritage for the community, it is our duty to constantly protect them.

Instead, something completely different was the organization of the Technical Meeting 2023, together with Luciano Pizzoni, Aerospace HDO Technical Manager. This was a return in grand style for this event after a three-year forced hiatus, organized in an extremely atmospheric setting, the Polo Museale San Francesco (St. Francis Museum Complex) in Trevi. The day was split into different parts: poignant speeches, the 60th birthday surprise for our colleague Sandro Capolungo, the lighthearted presentation of the new hires, and afterwards the technical section devoted to a comprehensive in-depth presentation for insiders, and the hilarious, priceless interview conducted with two UMBRAGROUP pillars, now retired: Armando Mengani and Damiana Bovo. It was a very full day, and we were totally involved, on all fronts, to make the first post-pandemic edition of the Technical Meeting even more special.

And then, as the icing on the cake, right as we were writing this article came the fantastic news: UMBRAGROUP has won the *Schaeffler Supplier Award for Quality!* It's a historic milestone, something that pays tribute to all our work. After 50 years of cooperation, during which UMBRAGROUP and Schaeffler Gruppe have worked side by side toward a single shared goal, comes a great satisfaction for the whole Group! Not only were we honored with the Best Supplier award for the quality of our solutions, but we were also cited for our proactivity in adapting to the ever-changing market, offering quality solutions that are also sustainable and innovative. We can say that the golden wedding anniversary between Schaeffler Gruppe and UMBRAGROUP was celebrated very fittingly!

Lastly, to answer the question we asked you up above: we started the year with great drive and energy. As we come to the end of this first half of the year, marked by full possession of the long-awaited normality, we can only quote Mr. Ortolani, in his article "We Are UMBRAGROUP" from July of last year: "*Come on, we have the wind at our back!*"

Now, a year later, we feel it is only right to add: *Now all we have to do is proceed full sail, with passion and energy!*



# Lazarus is *back*

**Valerio Canafoglia**

Manager Strategic Planning Sales Aerospace UMBRAGROUP

It was 2016 when one of the UMBRAGROUP's major Aerospace customer asked UMBRAGROUP to support him as a second source [the first supplier was from the United States] in the production of a key component that equips the thrust reverser system of one of the most popular aircraft in the commercial aviation sector, the Boeing 737.

These were components not exactly similar to UMBRAGROUP's core business, certainly not simple to manufacture, with many challenging technical aspects, but the high volumes and the increased presence of UMBRAGROUP products on Boeing's most successful platform made the challenge attractive, and UMBRAGROUP seized the opportunity.

Periods of intense industrialization of the product followed, which soon proved to be much more complex than expected but thanks to the experience, tenacity and attitude of the entire development team and the Supply Chain it was possible, in perfect "Umbra style", overcoming all the challenges and bringing the Leadscrews program to a stable and profitable production process, as well as optimizing procedures and

improving the product manufactured so far in the States.

Unfortunately, the grounding of the 737 that took place in mid-2019 and the subsequent explosion of the Covid-19 pandemic meant that the production rate of the Boeing 737 dropped drastically, almost to a standstill. The customer's decision was clear: with these volumes there is no room for 2 suppliers, and all production will be concentrated in the United States.

I will not hide that for me, at the time Project Manager of the program, it was a shock, as all the work done by the team in the previous months was in vain. The program was officially declared dead by UMBRAGROUP. But it wasn't like that. Yes, because after overcoming one of the biggest crises in history, brought by the pandemic, the world woke up with the usual desire to move, forgotten in March 2020 when everything stopped; the aerospace market has begun to raise its head again, although many economic operators due to the crisis have had to drastically downsize their realities at best.

In this situation however, Umbra continued to believe in the future and to be ready for a restart. At the end of 2022, more than 2 years after the last order, the customer returned to UMBRAGROUP, asking to help them again. Naturally we responded to the customer's call for help as the market leader it is, but this time we said we were ready to support



Valerio Canafoglia, Aerospace Key Account Manager working on the Leadscrews project.

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*more than 2 years after  
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asking to help them again*

the program not as a second supplier, but as the first and above all the sole supplier, defining a new contract with new conditions, clearly, all aimed at guaranteeing a future of work and growth for UMBRAGROUP and its supply chain. The program we thought was dead had just got back up, and thanks to the work of the Team coordinated by Maria Chiara Garofoli [Project Manager] and Luca Paracucchi [Senior Manufacturing Engineer] we will bring it back among us.

For this reason, during a dinner with the Umbra Team and the client's management, the program was officially named "Program Lazarus". On the occasion of the next Le Bourget International Exhibition in Paris, Umbra and the customer will sign the contract for the exclusive supply of the Leadscrew-Assy for the 737 program, bringing the Leadscrews back to "walk" among us again.





Matteo Notarangelo, UMBRAGROUP CEO, and Alessio Ruffinelli, Industrial Director, Italy, onstage at the Schaeffler Gruppe Supplier Day to receive the Schaeffler Supplier Award for Quality.

# UMBAGROUP *triumphs* at the Schaeffler Supplier Day

**Daniele Frillici**  
Sales Manager Industrial UMBRAGROUP SpA

*A long-standing partner for Schaeffler that has done excellent work in many areas. Today we want to express our appreciation on the subject of Quality. A supplier excels in the way in which they implement and improve the quality indicators, always focusing on solutions which are at once sustainable, high-performance, innovative, and proactive. Ladies and Gentleman, the winner is... UMBRAGROUP!*

And this is our story, starting from the end, from the fulfillment of a dream pursued for years and deservedly achieved. What is being rewarded is all the fantastic work done by the Industrial Team, and in particular by all those who, day after day, with passion, professionalism, and dedication, have made it possible to offer a very high-profile service to a customer that has had an unparalleled specific weight for decades in UMBRAGROUP. We will always remember the moments and hours that preceded the award ceremony held in Herzogenaurach (Germany) on May 23, 2023. The excitement of those who were there, the impatience of those back in Foligno waiting for news, the palpable thrill of something big that might happen soon, but of which there was no certainty. Then the announcement from the stage, delivered by none other than Schaeffler CEO Klaus Rosenfeld and heightened by the presence of Georg F. W. Schaeffler.

After 50 years of partnership, a well-deserved prize for the golden anniversary of the two companies that value and respect each other. And yet, as in all long-standing marriages, the relationship has shifted from moments of total harmony to situations that have strained mutual faithfulness and the desire to continue the journey together. Remaining in the recent past, it is sufficient to go back just a few years to revisit perils that not all companies would have been able to overcome. Market instability, pandemic, the implementation of the insourcing process with the production of ball bearings shifted progressively from Foligno to Schweinfurt. Each of these threats could have triggered a significant deterioration of the relationship, but instead, taken all together and managed correctly, they became the springboard for its revitalization. What made this possible was the values embodied in FIRST. In particular, respect for the customer and teamwork made the difference between just any company and UMBRAGROUP. And with reasonable certainty we believe that in reality the award received goes well

beyond recognition for Quality, but instead is a way to certify the great support provided during these difficult years. Who was the protagonist of this success? The people at all levels, from those in the office to those in production.

The capacity for innovation, for transforming in just a few months' time the bearings mix and maintaining high performance levels. The desire to be proactive and help the customer strengthen the supply chain together, and even be ready to evaluate new investments. The impetus to add new professionals to the work team and to look ahead with the eyes of those who see innovation and flexibility as the appropriate tools for achieving new goals. It wouldn't be right to name names because the success is of the whole; however, there are some key figures in this journey. There are those who have had to manage the transformation of a mix that day after day moved more and more toward tapered roller bearings, those who have had to carry on exasperating dealings with suppliers, those who have had to constantly monitor quality, and those who keep several draft price lists on file, each with dozens and dozens of Excel sheets and impossible pivots. Then there are those who were called upon to unpack costs down to the second decimal place, those who left Industrial or even UMBRAGROUP, but were instrumental at the most critical times. And then there is he, who every day from his office, keeps production under control, never denies anyone a handshake, and never stops reminding the whole Group that customers should be managed with a relationship and respect, not just with indicators, formulas, and numbers.

He who, more than anyone else, deserves this achievement, an achievement he will certainly have celebrated together with his friend, who watches us every day from up above, the one who wrote the script of this beautiful story to be handed down. From today on we will look forward with pride and with the awareness that expectations will become higher and higher. New challenges, new goals.





The MRO Customer Service Team.

# A *World* of Perpetual Motion

**Virginia Lupori**

MRO & Aftermarket Customer Service Manager UMBRAGROUP SpA

When I returned to Italy after working for one year as the Executive Assistant in Linear Motion, I was surprised to discover that my next assignment would be as Customer Service Manager in MRO. I accepted the assignment and stepped into the whirlwind of MRO activities.

Although I had been a Customer Service Manager in the past, this work was particularly challenging. There was so much to learn – part numbers, programs, client management, shipping, coordination between our internal workgroups (shop, supply chain, warehouse, shipping), and coordination between other UGI departments (Administration, Sales, IT).

I was fortunate to work with a great team of Customer Service Specialists who patiently showed me the ropes. My manager initially also had to have a lot of patience as my comprehension and abilities gradually improved. Listening to my team and focusing on their needs spurred me to become proficient in order to be a good resource for them. I worked with them to improve processes and document procedures. Despite some personnel changes over the past four years, we currently have a cohesive, supportive team.

One of the important things I learned about MRO is that you can never become too comfortable with processes or procedures. Procedures have changed due to the pandemic and smart working, new regulations from regulatory agencies, external events such as Brexit, new requirements from clients, and internal changes based on our own desire for continuous improvement.

Flexibility and creativity are the most important attributes one needs to be successful in MRO. We are constantly navigating through a sea of uncertainties to meet our client's needs. Despite challenges such as pandemic and war related supply chain issues, internal slowdowns in production and special processes, and regulatory changes, we work together to find solutions that will exceed our customer's expectations.



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# *Linear Motion* and the Saginaw community



Saginaw students visiting Linear Motion LLC.

**Kyle Smith**  
Business Improvement Manager Linear Motion LLC.

At Linear Motion, we are committed to supporting the community by exposing local high school students to the exciting careers available in the aerospace manufacturing industry. In March, we hosted a group of 40 students from the Saginaw Career Complex - Engineering and Advanced Manufacturing class, showing them the innovative technology we use and inspiring them to pursue careers in manufacturing.

In addition to the tour, we have also provided immersive work-based-learning opportunities for two students. During these experiences, students spend four weeks rotating through various positions in our facility, gaining a first-hand understanding of what a career in manufacturing looks like. They witness the wide range of professional skills that are required and learn from the talented Team we employ.

Our efforts to expose students to the aerospace manufacturing industry not only inspire and educate the next generation of professionals but also help to fill the workforce gap. Additionally, by building relationships with the local community, we increase support and recognition for our industry, promoting its growth and success.

By providing students with the opportunity to explore a career in aerospace manufacturing, we hope to contribute to the economic development of the community and inspire the next generation of leaders in the industry. As a company with a 120-year presence in the Saginaw community, we are proud to invest in its future.



# From *Eltmann* to the Space



**Rainer Fraunholz**  
Quality Director UMBRAGROUP  
Präzisionskugeln Eltmann GmbH,  
KUNH Präzisionsspindeln und Gewindetechnik GmbH

Many scientists and visionaries are convinced that the future of mankind is not only on Earth, but, sooner or later, there will be the actual conquest of space! Therefore, in recent years, the discussion about space travel, both by those dedicated to scientific research and those linked to the new idea of space tourism, has been opening up to completely new horizons. These new perspectives revolve around larger rockets and more powerful propulsion systems, which should make it possible to travel to other planets, with the ongoing aim of discovering more about space.

The Präzisionskugeln Eltmann GmbH's Team is certainly not backing down and is making its contribution to these kinds of space missions, to meet the high demands of these journeys, which we hope will someday turn from a dream into reality! In the next future we might find Eltmann's balls in new projects managed by the major bearings manufacturers, responsible for the pump technology and rocket's propulsion. The Eltmann team wants to actively participate in the change! To achieve this there were no shortages of obstacles, which we have overcome. On the one hand, we are talking about the safe production of the high-precision balls, and on the other hand, it involves individual approvals, which customers and the various space agencies required.

As early as 2022, Präzisionskugeln Eltmann GmbH overcame a very significant challenge: obtaining approval from the American rocket manufacturer Aerojet Rocketdyne.

Then our balls found application in other important NASA projects: they will be part of the Space Launch System (SLS) and in the Orion spacecraft, but it's not done! In fact, Eltmann's balls are also being used in NASA's Artemis program, which is working on the moon landing and subsequent exploration of the lunar surface in a way that was unimaginable until now.

This bold and exciting undertaking officially began on November 16th, 2022, with the launch of Artemis I, the first unmanned flight test. But it does not end there! In fact, the next missions, which will be manned, will be equipped with the same systems. Moreover, Präzisionskugeln Eltmann GmbH will not only supply American launch systems, but also the European space industry, which is growing and facing the same challenges. The Eltmann' balls continue to successfully pass audits and approvals for production and testing.

This year the test was made by AVIO Space and once again the Eltmann Team demonstrated its incredible know-how successfully overcoming each challenge.

Our customers can now use Eltmann's balls on a European level for the production of turbopumps in the propulsion system of the VEGA and/or Ariane series of launchers used by the European Space Agency (ESA). The whole Präzisionskugeln Eltmann GmbH Team is incredibly proud of the path we've taken both in terms of involvement in prestigious projects, but also in terms of receiving approval without deviation. This is certainly a sign of the high technological knowledge of the product, its quality and the strong Team spirit that characterizes the whole Team!



# New *technologies* and efforts tool for KUHN



The KUHN team, from left to right: Werner Grosse-Wilde, Industrial Sales; Thomas Schmidt, Engineering; Holger Kelle, Engineering Manager, Germany.

## Holger Kelle

Engineering Manager Germany KUHN Präzisionsspindeln und Gewindetechnik GmbH

Before the new sales and engineering team joined KUHN, the calculation of sales prices for UMBRAGROUP solutions was based on the standard cost in Dynamics.

This essentially meant that product prices were estimated based on a comparison of the individual production step with products already manufactured in the past. It happened, however, that in some cases costs had to be calculated manually, due to the lack of certain data. What was involved in manually calculating prices? This was certainly a time-consuming operation, as in most cases, each order had its own specificities, so numerous parameters had to be searched for individually in the system.

It was felt that this process needed to be improved, as it was unanimously considered very weak. Therefore, the objective was set from the outset to develop a tool that could objectively and comparably determine the production costs of the ball screws produced at KUHN.

Another requirement was that this solution had to be compatible and implementable in Excel, in fact, MS Office is a tool that is made available to all employees. Also, for this reason, it was desirable that the system be developed with only variable costs in mind, to be able to derive the information about the contribution margin.

To calculate the production cost of a ball screw, we had to consider several factors in its production process, including material, soft machining, heat treatment, machining of heavy materials, assembly,

final inspection and packaging.

However, this was not the procedure for calculating the production cost for all products. In fact, some products are purchased as semi-finished products from different suppliers, while others are delivered already as partially assembled by the parent company in Foligno. For this reason, we consider the price indicated by price lists and quotations requested from the supplier or purchase prices already in our possession when entering them into the system.

The new Dynamics software also makes it possible to consider handling and transport between the various stages of product production and allows us to enter the rate of machine hours, which is a variable figure depending on the location. Finally, it also allows us to consider special cases in the

calculations, for example those products that involve different processes.

Finally, arriving at the results table, it is possible to calculate the prices of individual batches by entering the batch size as a variable. This will result in the contribution margin, which can be selected directly by the sales team, but must in any case be above a set minimum limit.

At KUHN, we are constantly trying to improve our calculation tool and tables containing all variables to provide our customers with the most competitive price for UMBRAGROUP products!



# AMCo

## Young and extremely eager to grow

**Paolo Trasciatti**  
CEO AMCo S.r.l.

The year 2023 opened with an important Strategic Development Plan involving all the companies of the Group.

In perfect accordance with the other locations, AMCo, too, is working to make this reality increasingly larger in scale and more significant for its target markets.

In fact, with its precision machining operations serving mainly high-tech applications in the aeronautics industry, AMCo is implementing its growth strategy with a view to being increasingly competitive and at the forefront of manufacturing technologies.

At the end of March, AMCo brought its aerospace components to the MECSPE trade fair in Bologna in its growing quest for new business opportunities. And that's not all! In fact, as a member of the

Umbria Aerospace Cluster, AMCo very recently exhibited on such a prominent stage as the Paris – Le Bourget Airshow, the International Aerospace Exhibition, which is held every two years.

The focus on people, the importance of work, and the sharing of our FIRST values have been fundamental in creating a cohesive Team, made up of motivated people working toward common and shared goals.

AMCo fits perfectly into the growth strategies of the Group, where having the right size, the right machines and, above all, the right people will be crucial for supporting the growth and development of new products.

AMCo strives, and will continue to strive, to be one of UMBRAGROUP's small but solid supporting pillars.



The full AMCo S.r.l. team.



The UMBRAGROUP and AMCo S.r.l. booth at the MECSPE fair in Bologna.

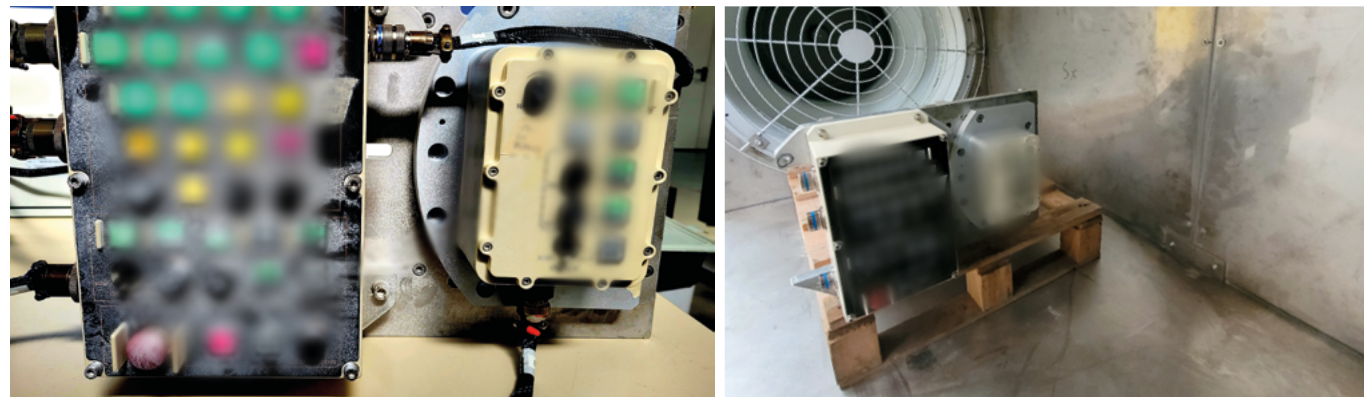


Purchase of a new piece of equipment for the AMCo S.r.l. facility.



# Tales from Terni: *SERMS'S 2023*

**Antonio Alvino**  
Technical Director SERMS S.r.l.



Components inside the chamber before and after exposure

## First tests with the Nera Montoro plant

Sand and dust storms pose huge risks for electromechanical components. In order to best qualify such components, SERMS has equipped itself with a plant capable of reproducing sandstorms with characteristics suitable for performing tests according to RTCA-DO-160 and MIL-STD-810.

After the first testing phases, as of January 2023, we are already operational! Aviation and military components were successfully tested at the plant set up in Nera Montoro on the premises of Italeaf S.p.A. The following tests were performed: Sand and Dust Test Section 12, Cat. S, and Dust Test Section 12, Cat D.

Although a fire unfortunately rendered the electric

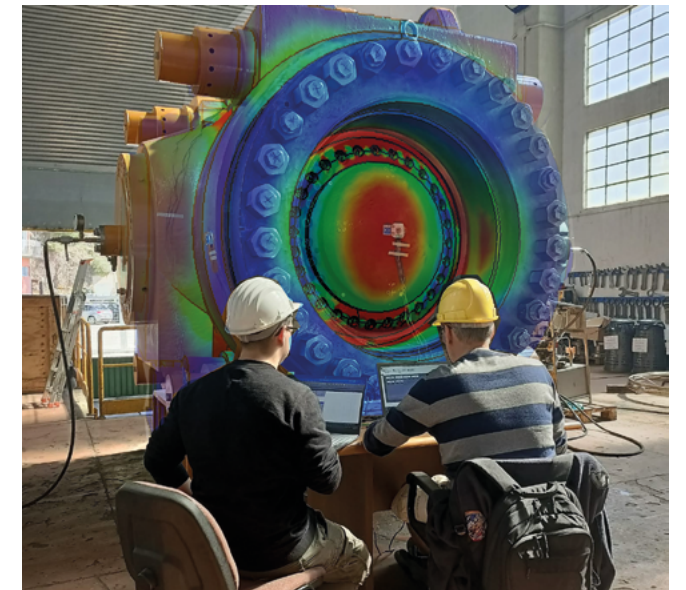
substation at the installation site unusable in December of last year, we did not give up! Using a voltage generator, we managed to complete all the tests planned with the customers by the set deadlines.

These are very harsh tests to pass, but up to now the components have resisted well. The images below show an object placed inside the exposure chamber and the functional checks performed downstream of the test.

The self-built plant has already attracted the attention of several potential customers, who have visited it in operation and appreciated its features. Further upgrades are planned for the coming months in order to optimize its management and reduce energy consumption.

## Correlation between experimental and numerical data

Collaboration between SERMS, TERES, and Enel Green Power in correlation campaigns between experimental [TEST] and numerical [FEM] data is ongoing. SERMS has the task of capturing the stress and strain produced by the internal pressure in the operating valves of hydroelectric power plants in order to assess their damage. The FEM models have shown a good correlation with the experimental data. Thanks to the results obtained by the analysis, it will be possible to optimize maintenance intervals based on actual valve damage. SERMS has always promoted the use of experimental acquisitions to validate and calibrate numerical models. This activity is becoming increasingly important in the space sector also.



Valve instrumented with strain gauges and graphic overlay of the strains

## A new umbrian center for aerospace testing

In November 2023 the first stone of the Aerospace City of Turin will be laid. The project is very similar to the initiative SERMS has been promoting for several years.

SERMS's project consists of using part of the approximately 25,000 square meters of abandoned buildings near our SERMS site in Terni, owned by the region of Umbria, to expand its testing services and create an aerospace testing hub of excellence. The idea emerged within the Umbria Aerospace Cluster when it was found that many companies had to travel outside the region, sometimes even outside the country, to qualify their products due to the lack of adequate services in the area.

The redevelopment would have numerous benefits: first, the virtuous collaboration between academia and industry would be strengthened. In addition, it would offer the possibility to create new job opportunities for highly qualified technology



Satellite view of the area involved

professionals who are too often forced to emigrate abroad. The aerospace industry could truly become a driving force for the entire manufacturing sector. In short, it is clear that the potential strategic benefits that would be gained from the realization of this project would be numerous. We hope that in the future this dream will become a solid reality for the entire aerospace industry world!



# SIADD: the new UMBAGROUP's research project

**Moreno D'Andrea**  
Research Centre & Electrical Design Manager UMBAGROUP SpA

Today's race toward electric mobility, concern for the environment, and need for increasingly high-performance products are driving companies to explore – with growing attention – the world of Additive Manufacturing [AM].

SIADD – the name of the latest research project concluded successfully by UMBAGROUP – focused on the optimization and design of components conceived with additive production technology, which would be able to replace the consolidated traditional production technology. Thanks to the experience gained during the forty-two months of the project, the staff embarked on a path of professional growth, specializing in the use of

dedicated design software for the use of additive manufacturing. Among the goals envisaged by the project were those concerning topological optimization, the introduction of lattice structures [micro-mesh material], the redesigning of bi-material components, and product life cycle analysis.

It should be pointed out that some of the main advantages of the AM process are material savings, weight reduction, and the possibility to create extremely complex geometric shapes. These are all advantages that dovetail perfectly with the needs of the products demanded by the Aerospace world. Nevertheless, AM in the space and aeronautics industry is not yet being used on a large scale. This is mainly due to the difficulty in shaping the production process and predicting, with adequate

safety factors, the properties of the molded parts. This leads to a lack of standardization and, as a result, limited use in the Aerospace industry. Our case studies enabled us to analyze aspects in different contexts, and to consider components with different functions.

An initial case study focused on the housing of an electromechanical actuator, currently produced by the subtraction method, i.e. starting from a solid block, with which the final product is produced by means of successive machining processes [such as milling, turning, drilling, etc.]. With the AM process, the object was revised and redesigned in such a way that it could be produced by adding, instead of subtracting, material. This possibility enabled us to achieve a significant reduction in weight, while at the same time maintaining product performance at the same level.

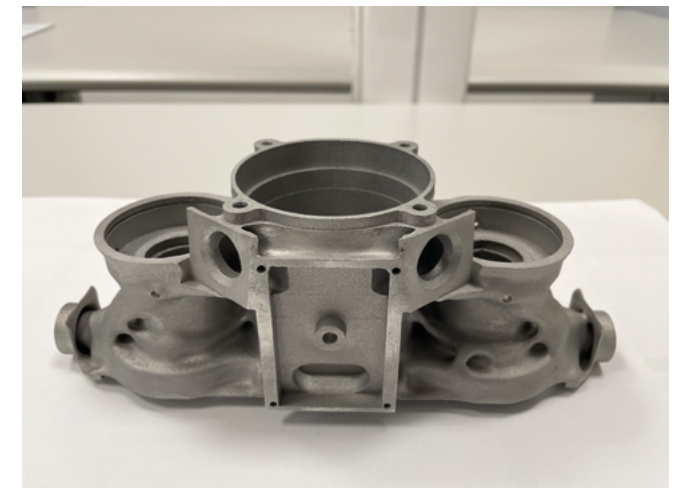
A second case study concerned the recirculating ball insert. The designed component represents the classic case in which the geometry envisioned would not have been possible using a traditional production process because, with a view to maximizing its performance, both the topological optimization of the geometry and the insertion of a lattice structure were implemented in the design phase. The result was a product with a number of final advantages in terms of both weight and, especially, product performance, arriving at +116% in the hybrid lattice configuration compared to the baseline configuration.

Another study, which was very significant for us, focused on the optimization of the heat dissipation of an electric motor. Once again, the analyses in this case produced very promising results, obtaining a decrease in the maximum temperature reached of -14°C with combined optimization, compared to the baseline configuration.

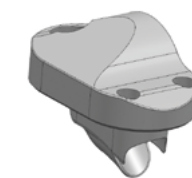
In addition to the components shown, other components with different characteristics were analyzed. All the studies conducted produced, and continue to produce, very promising results. This, for us, is a strong sign that will carry the products we've studied in research and development to the actual production phase, enabling us to introduce a number of different innovations for the next generation of electromechanical actuation and electric propulsion developed by UMBAGROUP.



Conventional process.



AM process.



Baseline.



Hybrid.



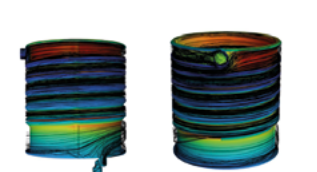
Free lattice.



Topological optimization.



Baseline.



Heat exchange optimization.



# UMBAGROUP helps guarantee *Flight Safety*

**Lorenzo Bronchinetti**

Quality Engineer UMBAGROUP SpA

UMBAGROUP plays a fundamental role in guaranteeing aeronautical safety in the production and maintenance of solutions for aeronautical applications.

But what is actually meant by Flight Safety? Safety is the comprehensive set of activities and actions focused on the development of Flight Safety, in terms of protecting the safety of persons and objects involved in aeronautical operations in the general sense (including the production and maintenance of aeronautical parts). It is also one of the essential connotations of the civil aviation governance activity. The term Flight Safety indicates the condition in which the possibility of harming persons and/or things is reduced and maintained below a limit considered acceptable, by means of a constant process of identification of dangers and risk management.

In mid-April UMBAGROUP received, at the Foligno facility, the visit of two Airbus Helicopters auditors for the usual product audit conducted each year on

the H160 electromechanical actuators.

I will start by saying immediately that the audit was completed very successfully, with no nonconformities found and only a couple of observations. For us, this result is a demonstration of the excellent work done up to now and which is carried out every day and at all levels by the various Teams.

This is a shared achievement, the result of the Team's efforts from the inception of the H160 program to today, and it is only thanks to the cooperation of all the company entities involved that we were able to arrive well prepared for the day of the Audit, receiving excellent feedback from the customer, even beyond the usual formalities. For those who, like myself, are new to the field, the H160 program concerns the electromechanical actuators installed on the new Airbus Helicopters H160 helicopter, which are used to operate the landing gear. Specifically, these consist of a "nose" actuator situated at the front of the aircraft and two "main" actuators at the rear. Precisely because of the role they play, which is fundamental for the operation of the helicopter, the failure conditions associated with the two actuator models, main and

nose, are classified up to Catastrophic.

In addition, these actuators, developed entirely by UMBAGROUP, are the first Safety Critical EMAs (Electromechanical Actuators) also certified by the EASA (European Union Aviation Safety Agency) for use on the landing gear of a helicopter.

We are therefore talking about solutions that are defined "critical", as defined by the regulation; "A critical part is a part, the failure of which could have a catastrophic effect upon the rotorcraft, and for which critical characteristics have been identified which must be controlled to ensure the required level of integrity"

In our case, the critical characteristics were defined, and must be monitored to ensure the required safety level. Therefore, particular attention is devoted to critical components throughout all the life phases of the solution, from design to production, and for this reason they must meet specific requirements in order to guarantee compliance with approved design data. It thus follows that the H160 actuators, and their subcomponents are kept under close observation by Airbus Helicopters, in order to ensure that all applicable requirements and design data are met

and complied with.

In fact, in our specific case, the malfunction of a main actuator could pose a hazard to the helicopter, passengers, and/or ground personnel; it could impair its ability to land or result in instability on the ground, creating a dangerous situation with the spinning blades.

To conclude, I can say that this being my first experience at UMBAGROUP in the management of an audit, I was pleasantly impressed by the great helpfulness of everyone both before and during the audit, and by the commitment shown in ensuring that we passed it successfully.

Personally speaking, it was an opportunity for me to gain a comprehensive overview of numerous business processes and associated procedures, useful for both daily work and future Audits. Once again, thank you all very much for your cooperation, from the UMBAGROUP AERO Quality Team!



Il Team Quality Aerospace.



# The *First* Half-Year of the Industrial Quality Team

**Luca Bossi**  
OpEx & Quality Manager Industrial UMBRAGROUP SpA

The first part of the year has been intense and full of satisfaction for UMBRAGROUP, which reaped many of the results sown in past years by the Industrial Team.

In particular, with regard to the subject of Quality, UMBRAGROUP was awarded the Supplier of the Year 2022 prize by the company's biggest Industrial customer in the bearings sector. This is the culmination of efforts by the entire Industrial Team to keep production processes under control and ensure customer product compliance. UMBRAGROUP won the Award in particular for the Quality of the products supplied.

In the bearings area, we want to mention the following activities coordinated and supported by Stefan Vetturini of Customer Industrial Quality, and by Agostino Chiavarini, Head of the Bearing Quality Control Department:

- » The approval of the ring phosphating process, which follows that of the other components, which took place during the previous year. The activity was coordinated by Stefan Vetturini of Customer Industrial Quality of the Industrial Quality Team.
- » The successful outcome of an on-site audit on prototypes for a new range of high-performance, ultra-long-life bearings by the customer that presented the Company with the award.

All of these activities were possible thanks to the support of Production, Industrial Design, Special Processes, and the Materials and Processes Team. The control capacity of the bearing AQ room was also increased, with the arrival of dedicated instrumentation for the control of surfaces and profiles with advanced, particularly complex, and non-standard finishes.



The Team Quality Industrial.

In the areas of Ball Screws, Electromechanical Actuators, and Industrial Bearings, we would like to highlight activities coordinated by Mattia Pilli, Quality Design Engineering, Marco Baldassarri, Supplier Quality Leader, and supported by the Industrial Incoming Inspection Team: Marco Moretti, Leonardo Santarelli, Leonardo Porzi, and Amedeo Marchetti:

- » The application to screws of the results of the work carried out in 2022, which was aimed at increasing the corrosion resistance of bearings. For screws, also, the activity followed the DMAIC (Define, Measure, Analyze, Improve, Control) logical process, therefore going through the phases of problem definition, process measurement and mapping, data analysis, implementation of improvements, and monitoring of their effectiveness. The results led to a decrease in the risk of the occurrence of oxidation phenomena on all products and a streamlining and efficiency of the maintenance procedures connected with the parts washing phases.

- » Extension of the application of additive-manufacturing technology to machined components, with a view to increasing performance (lightening of weight) and optimizing the process.
- » A reduction of the risk connected with the supply chain, supporting the Strategic Procurement Team and the Cost Analysis Team, which affects, as mentioned, all industrial sectors. At the same time, the optimization of internal controls focused on decreasing the risk related to the quality of supply and the possible causes hindering final assemblies.

In addition, the final control and verification system was upgraded, with a view to automation and process improvement (times and precision) for certain specific products, through the construction and purchase of highly automated measuring and control benches. A warm welcome and good luck to the newcomers to the Industrial Quality Team: Marco Baldassarri, Supplier Quality Leader, and Leonardo Porzi, Incoming Inspection, already mentioned in the activity descriptions given above.





# Congratulations

## New hires

### UMBLAGROUP SpA

Antonelli Gionata  
Agostinelli Alessio  
Bianconi Barbara  
Calabrini Alessandro  
Capasso Matteo  
Cariani Mattia  
Cavanna Marco  
Cecon Andrea  
Cerbella Vittoria  
Cianchetta Luca  
Conti Elisa  
De Santis Andrea  
Donati Fabio  
Filena Paolo  
La Torre Davide  
L'Abbate Giuseppe Savio  
Magalotti Daniel  
Montilli Andrea  
Paoli Andrea  
Porti Cristiano  
Ricci Alessia  
Ricci Michele  
Ricciarelli Ivano  
Riegger Martin  
Salvi Federico  
Sorokan Yana  
Tocci Tommaso  
Tulli Alessandro

### AMCo S.r.l.

Appolloni Simone  
Bartoli Martina  
Bucciarelli Giovanna

### KUHN GmbH

Bortolotti Kevin  
De Zolt Martina  
Marini Yuri  
Poprockij Olga  
Riccier Andrea  
Sclafani Salvatore

### Präzisionskugeln Eltmann GmbH

Bollmann Jens  
Hornung Lena

## Just Married

### UMBLAGROUP SpA

Becchetti Cristian e Fatica Marco  
Schiarelli Marco e Onori Sara  
Trombettoni Fabio e Lipovan Viorica

## Births

### UMBLAGROUP SpA

Baldoni Bianca  
Castellucci Jacopo  
Ciacci Tommaso  
Figlioli Palmini Nathan  
Fioroni Cesare  
Mercuri Camilla  
Narcisi Dafne  
Pispola Maria  
Ronchetti Elia  
Schiarelli Anita  
Tasca Riccardo

### AMCo S.r.l.

Belloco Ludovica





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