

FUTURE INSIGHT

THE WORLD IS CHANGING, AND SO ARE WE

2025

H2ALP: the plug & play solution for
green hydrogen production

Nyox: the company narrated by the people who live it

**Carcano Antonio and Polytec: a success story of
innovation and sustainability**

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Borgo Chiese (Italy), January 2025

BM Group is pleased to present the 2025 issue of **Future Insight**, a tool that guides readers to discover the world of BM Group and the news about the companies of the group.

After the great success of the 30th anniversary celebration event, the group has resumed with renewed enthusiasm, launching a new year full of **innovative projects**. The group companies have been engaged in several initiatives that aim to redefine industry standards, with a focus on innovation and sustainability.

The **full calendar of exhibitions** provided opportunities to meet customers and partners and to present the latest technological solutions and strengthening the group's presence in international markets.

Among the most significant news is the acquisition of a **new production plant** in Calvagese della Riviera (Italy), a strategic step in the group's expansion and development. This new site will increase production capacity and offer customers even more innovative solutions.

Future Insight is an invitation to explore through the pages the group's success stories, full of technology, innovation, and passion.

Enjoy your reading.



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PEOPLE

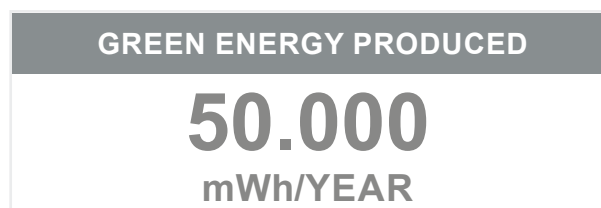
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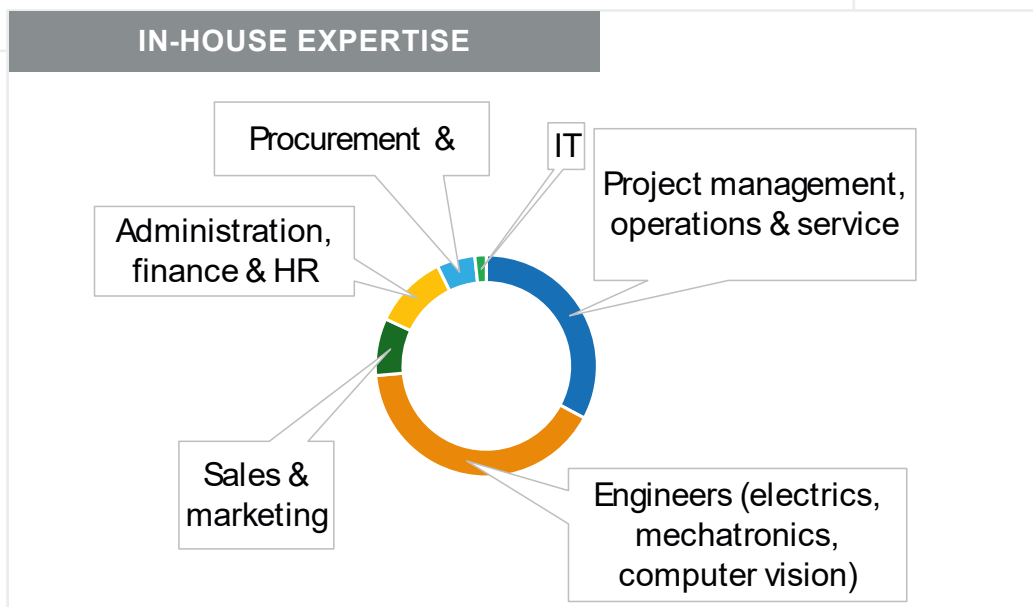
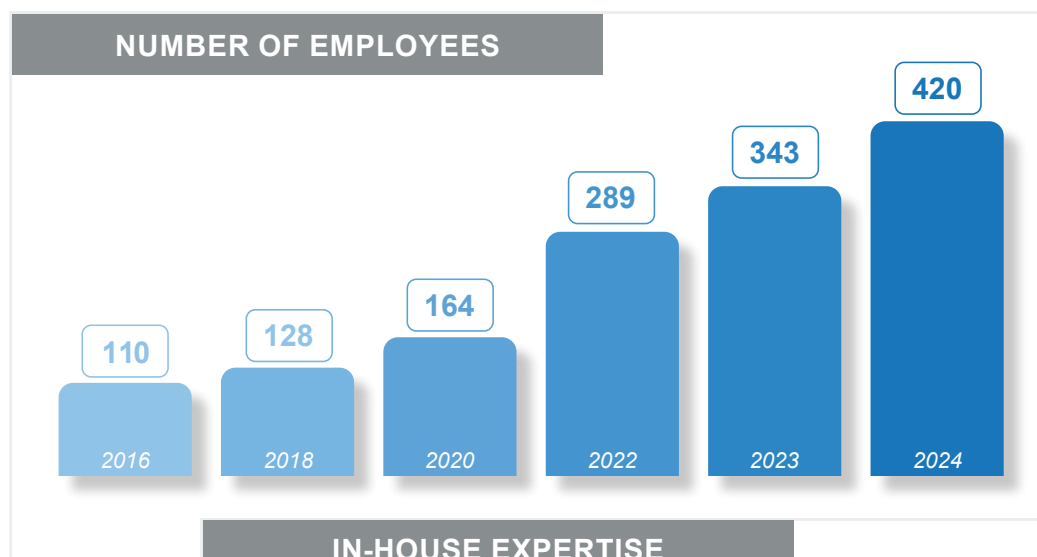
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FACTS AND FIGURES

BM Group continues to grow steadily, with **ever-expanding** revenues reflecting the company's commitment and ability to adapt to market challenges, consolidating its position as an industry **leader** each year.

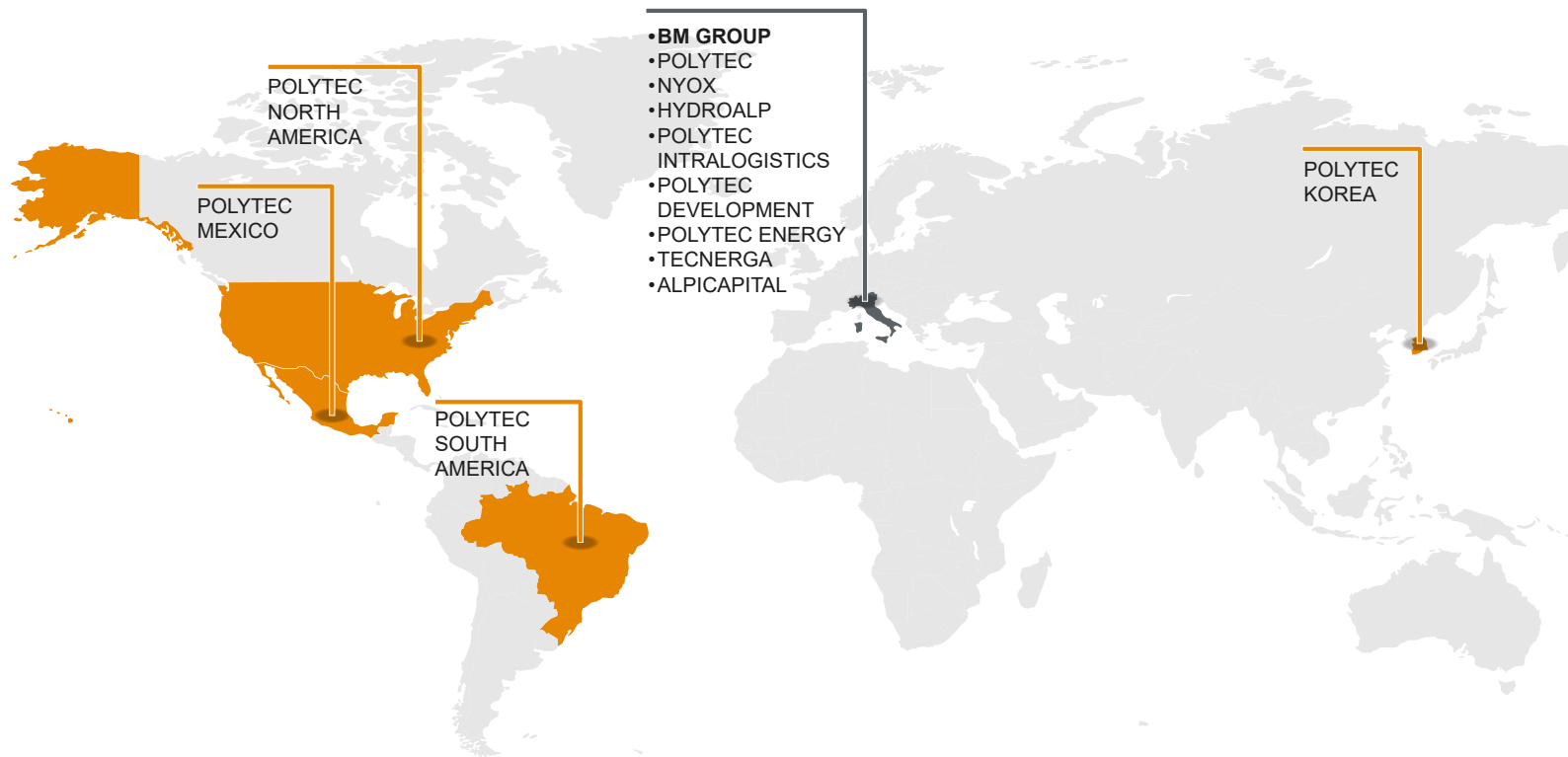


The steady growth of BM Group's employees testifies to its **commitment** to enhance talent and human resources to successfully meet the challenges of the future.



LOCATIONS

BM Group, while maintaining **solid roots** in the territory of its foundation, has immediately developed a strong **international vocation**. The organisational structure of each foreign branch enables efficient after-sales service and timely assistance.



COUNTRY COMPANIES

Our international branches represent the group's brands, developing target markets and ensuring highly efficient after-sales service. Each subsidiary is staffed by a team of **local professionals** with different skills (engineering, sales, administration), who take care of both after-sales activities and **training**.



COMPETENCIES



- Industrial automation
- Robotics
- Mechatronics
- Software development
- Computer vision
- Plant engineering



Construction of industrial photovoltaic plants in Italy as:

- EPC contractor
- PPA on-site and off-site, thanks to its partnership with Edison Next



1 MW green hydrogen production plant (in progress)





- AMR platform
- AGV forklift
- Tailor-made intralogistics
- Warehouse Management System
- Automated warehouses



Energy consulting for industry



- EPC for hydropower plants
- EPC for green hydrogen production plants
- Plant auxiliary systems



Investments in the renewables sector



Development of photovoltaic plants

HISTORY

1993

Foundation of **BM Elettronica**, that later became BM S.p.A., **system integrator** for industrial automation.

2007

Foundation of **Soft Technologies**, software house of the group.

2012



150th industrial photovoltaic **system** installed.

●●● **polytec**

Launch of the brand **Polytec**, focused on applied **robotics** and **mechatronics** for the industrial sector.

2015

● **HYDROALP**

Foundation of **Hydroalp**, manufacturer of hydropower **turbines**, hydropower plants and **water-to-wire** solutions, also specialized in revamping and maintenance.

2018



Hydroalp puts its 50th turbine into operation after only 4 years. since its foundation.

Merger of **Polytec** and **BM S.p.A.**

Opening of a **branch** in **ILVA Taranto**, Europe's largest steel plant.

2006

Launch of the brand **BM Greenpower**, operating in the field of **renewable energy**.



Foundation of **Tecnerga**, consulting company operating in the field of **energy efficiency**.

2008

Opening of a branch in **Brescia**.

2014

●●● **polytec**
NORTH AMERICA

Foundation of **Polytec USA Corp**, distributor of Polytec products for automation and robotics in the **United States**.



150th robotic cell installed by Polytec.

2017



2020



Foundation of **Alpicapital**, investment company in the **green** sector.



Foundation of **Polytec Intralogistics**, developer of guidance systems, AMR, and intralogistics.

2023



Foundation of **Nyox**, EPC contractor for industrial **photovoltaic** plants. Joint venture with **Edison Next**.

Hydroalp acquires **Al.Fa. Impianti Srl.**, specialized in the production of general-purpose **skids** and welded components.



30th BM Group anniversary.

2025



300 MW contractualized by **Nyox**.

Opening of **Polytec Technology Training Center**.



New competence: **green hydrogen**.

Foundation of Real Estate company.

New **production site** in Calvagese della Riviera.



Foundation of **Polytec Development**.

2024



Foundation of **Polytec South America**, distributor of Polytec's products in South America.



Foundation of **Polytec Korea**, distributor of Polytec's products in South Korea.



Foundation of **Polytec Mexico**, distributor of Polytec's products in Mexico.

2022



Opening of a **branch in Rovereto**, within the mechatronics hub "**Polo Meccatronica**" that connects companies, students and researchers.

2019

BIRTH OF POLYTEC DEVELOPMENT

Polytec Development S.r.l. is the group's new company entirely dedicated to the future of renewable energy. Its mission is ambitious: to actively contribute to the energy transition by developing authorisations for 500 MW of ground-mounted photovoltaic plants by 2027.

To translate the vision into reality, a **multi-disciplinary team** is being set up with specific skills that include:

- Electrical engineering to design efficient and high-performance plants.
- Environmental engineering to ensure sustainability and compliance with regulations.
- Geology to identify and exploit the best territorial characteristics.
- Electricity market experts to optimise authorisation strategies and the value of projects.

By identifying **eligible areas**, selecting suitable territories to host large-capacity projects, and working with local authorities and stakeholders to speed up authorisation processes, the aim is to ensure cutting-edge and competitive solutions.

The goal for 2027 is to obtain authorisations for **500 MW of photovoltaic plants**. Polytec Development is not just a new project but a key element of BM Group's growth that will be reflected in terms of strengthening its leadership in the energy sector, creating value for the group and local communities, and making a concrete contribution to decarbonisation and national climate goals.

NEW PRODUCTION SITE IN CALVAGESE DELLA RIVIERA

Work is currently in progress on the renovation of the new 5,000-square meter **production facility** in Calvagese della Riviera, in Italy, intended for the construction of **complex mechatronics projects** and **technical training**. Applying the "open innovation" model, the aim is to create a centre for the development and transfer of knowledge and skills, open to the various players in the ecosystem in which BM Group operates, within an environment that encourages **collaboration** and the **exchange of ideas** with co-working spaces reserved for customers in training, technological partners, and collaborative projects for schools and universities.

OPENING OF POLYTEC MEXICO

Polytec MEXICO is now fully operational. In its new branch in **Veracruz** (Mexico), the local team will provide technical and commercial support directly on site, guaranteeing fast after-sales service to Mexican customers. With over 30 automation and robotics projects currently installed and numerous projects under commissioning, Mexico represents a strategic market for Polytec.



THE POLYTEC SERVICE DEPARTMENT

In a market where continuity of production is crucial and intervention and maintenance slots are becoming ever shorter, Polytec's Service Department offers highly reactive and punctual **technical support** to ensure that plants operate at maximum efficiency. The service team is made up of highly qualified technicians with extensive experience in automation and robotics and operates worldwide, thanks to our offices in Italy, the United States, Mexico, Brazil, and Korea.

We take care of your plant. this is the motto of Polytec Service, a reliable partner for keeping plants productive and running at their best, an essential service for achieving operational excellence.

BM GROUP: AN EVENTFUL YEAR

With more than **25 international events** held, the company confirms its desire to play a leading role in the technological and energy transformation, showcasing its know-how and technological solutions that are already helping to shape the future of the industry.

"These events are not only an opportunity to present new technologies but also represent a crucial moment to support the growth of the global business and consolidate our role in the automation, robotics, and renewable energy sectors" comments **Omar Bazzoli**, Polytec's *Sales Director*.

A crucial topic has been **energy transition**, with a specific focus on renewable energy solutions and green hydrogen production. The technologies featured in these contexts reflect the company's commitment to support global industry in the transition to a more sustainable energy model. During the conferences and presentations, the progress made in terms of energy innovation has been explored, with a focus on the integration of renewables into industrial processes.

Participation in international events



INNOVATION

H2ALP: THE PLUG & PLAY SOLUTION FOR GREEN HYDROGEN PRODUCTION

One of the innovations offered by Hydroalp is **H2ALP**, a plug & play solution designed for easy installation in various industrial contexts. This system is the ideal formula for companies that want to approach **green hydrogen**, testing its application and evaluating the impact on their industrial processes in terms of decarbonisation. H2ALP includes a water treatment system, one or more hydrogen production units, a hydrogen drying and purification system, and automatic process management, all remotely manageable and compliant with Industry 4.0 enabling technologies.

Hydroalp's H2ALP-120 was awarded the “**Azienda Astro Nascente**” prize at the Italian Hydrogen Technology Awards event held on 12 September 2024 at **Hydrogen Expo**. This award recognises the ability of our teams to listen to and understand the needs of the industry, with the aim of rapidly developing concrete and sustainable technological solutions. A teamwork that combines multidisciplinary skills, knowledge of industrial processes, and technological research and development.



H2ALP BY HYDROALP

H2ALP by Hydroalp: external



H2ALP di Hydroalp: interior



H2ALP – 120

H2ALP-120 is a system designed to produce hydrogen and oxygen using two Piel machines of 60 kW each placed in parallel and a demineralizer to treat the process water.

H2ALP-120 consists of two areas:

- Safe area: contains the electrical panel, demineralizer and fire control unit.
- Explosive area (ATEX - 3G IIC T1): contains two electrolyzers, a hydrogen drying system, process sensors, and a temperature management system.

A PLC is placed to supervise the plant for remote signal, alarm, and high-level control.



PLANT DATA

Dimensions	7000x2400x3500 (lxlxh)
Weight	9000 Kg
Temperature	-5/45°C
External buffer	optional
Buffer volume	600 lt
Buffer dimensions	1020x775x2052 (lxlxh)
Buffer weight	2000 Kg

PERFORMANCE

H2 production	20Nm3/h
O2 production (optional)	10Nm3/h
Demineralized H2O production	30lt/h
Waste water production	45lt/h
H2 pressures	8.2bar
O2 pressures	ATM
Consumption	130kW

SUSTAINABILITY

NYOX: THE COMPANY NARRATED BY THE PEOPLE WHO LIVE IT

Christian Giacom, *Business Developer* at Nyox, tells the story of Nyox, a joint venture between Polytec and Edison Next specialising in turnkey **industrial photovoltaic systems**. A meaningful message, well-developed characters, a well-thought-out setting and an engaging storyline.

The message: the name Nyox comes from afar, from the Greek word “ananeo”, meaning “renew”, and thus encapsulating the very philosophy of much of Italian industry. Ananeo was then shortened to “neos” (young) and transformed into Nyox to include the letters that most characterise the logos of the two companies, Polytec and Edison Next, which form Nyox, Y and X.

The characters: Polytec, a BM Group company, has been operating for over 30 years in the world of automation, industrial robotics, and the construction of plants for the production of energy from renewable sources. Edison Next is part of Gruppo Edison and supports companies and territories in the ecological transition and decarbonisation. Gruppo Edison, Europe's oldest energy company, this year celebrates the incredible milestone of 140 years in business.

The setting: Borgo Chiese, in the heart of industrial Italy, in the mountains of Trentino, and just a stone's throw from the provinces of Brescia and Bergamo. A place rich in tradition but also in innovation, where Nyox has decided to write a new page in the history of sustainable energy.

The plot: at the heart of the “Nyox” project is BM Group founder Mirko Bottini, together with his partners Alex Bottini and Andrea Tonini. Alex Bottini, now CEO of Nyox, took his first steps in BM Group back in 1995, when the company stood out as a supplier of electrical systems and automation solutions for companies. Already in the early 2000s, Alex's forward-looking vision focused on clean energy. His intuition led the company to explore and invest in the emerging sector of renewables and sustainability, a vision that has been realised over the years and culminated in a sustainable strategic plan: from hydropower plants in northern Italy to wind parks on the picturesque Ligurian coast and the innovative use of biomass in Trentino to exploit wood waste.

In the photovoltaic sector, BM Group was able to make huge steps forward, realising, through a dedicated business unit, hundreds of industrial plants throughout Italy and reaching an installed capacity of 200 MW in less than two decades. This constant success attracted the attention of Edison Next, leading the two companies to seek a col-



DISCOVER MORE:

nyox.it

laboration agreement, culminating in the joint venture on 14 September 2023, in which Edison Next became part of Nyox with the purchase of 49% of the company shares. Nyox today is an entity destined to lead Italy towards a more sustainable future, made up of data and real feedback. The goal is to install **500 MW** of industrial photovoltaic systems within the next five years. A desire that represents the realisation of a vision outlined two decades ago.

The future: driven by the experience and know-how of Edison Next and Polytec, Nyox is preparing for a future in which solar energy will not only be a primary source of clean energy but also a driver of economic growth and sustainable development for Italy.

Services: Nyox acts as an EPC (Engineering, Procurement, and Construction) and thus as the single point of contact responsible for designing, purchasing materials, and constructing the system. A comprehensive approach that is used in various sectors, including photovoltaic plants.

Nyox handles the engineering, procurement, and construction of photovoltaic systems, providing the customer with a turnkey solution.

The **partnership** with Edison Next also offers companies the chance to propose on-site and off-site EsCo PPA (Power Purchase Agreements); a method in which the customer does not invest in a photovoltaic system of its own but only agrees to purchase power directly from Edison Next for a predetermined period of time and at an agreed price.

Sustainability must be pursued in the round, both ecologically and economically.

Nyox actively contributes to the **decarbonisation of the industry** by strengthening its commitment alongside its customers, using its knowledge and expertise, and guaranteeing competitive, high-tech solutions within a short timeframe.

Nyox employees



BM GROUP SPORT DAY: COHESION AND FUN

Last June, the second edition of the **BM Group Sport Day** was held, the annual event that gathers all the employees of the companies belonging to BM Group for an afternoon of sports and outdoor activities, fun, and information. The day, which was attended by almost **200 employees** together with their families, is aimed at strengthening ties within the group's various teams. The event took place in an atmosphere of friendship and healthy competition, offering various activities that allowed everyone to have fun and test themselves. Participants competed in a futsal tournament, a walk, and an e-bike tour, creating a perfect balance between physical activity, teamwork, and discovering the **territory**.

BM Group Sport Day ended with a social moment, where all participants had the opportunity to taste some products from local farms and learn about prevention and health protection thanks to LILT Trento volunteers and specialists in nutrition, yoga, and sport who accepted the invitation. Promoting a **healthy and active lifestyle** and strengthening the spirit of belonging and cooperation among employees in a non-work context will also be the goal of the next edition, scheduled for June 2025.

BM Group Sport Day 2024



POLYTEC IS FAN SPONSOR OF ATALANTA BERGAMASCA CALCIO

Polytec, an internationally renowned Italian company known for its digital and environmental technologies for industry and its leadership in robotics for the steel sector, has renewed its **Fan Sponsor** contract with Atalanta Bergamasca Calcio for the 2024/2025 & 2025/2026 season.

This renewal underscores Polytec's commitment to expanding its brand and actively promoting the Italian system and its many excellences.

The sponsorship includes the Polytec logo on the LED Skylines and on the official Atalanta website's sponsor area, along with an exclusive "hospitality and experience" package.

Polytec and Atalanta Bergamasca Calcio: two entities united by **passion, determination, commitment, and a strong desire to win.**



**FAN
SPONSOR**
2024/25

DISCOVERY: POLYTEC INTRALOGISTICS' FLEET OF FORKLIFT AGVS

Founded as a start-up and now part of BM Group, **Polytec Intralogistics** plays a leading role among innovative companies operating in the intralogistics sector. Thanks to its multi-disciplinary skills, Polytec Intralogistics specialises in the design and development of **tailor-made solutions** that integrate innovative technologies into processes, including automation, mobile robotics, and advanced software for management and planning.

Polytec Intralogistics offers several cutting-edge solutions, including the **AGV/AMR vehicles** of the Voyager and Discovery fleet. The Voyager platforms are designed for autonomous material handling within defined spaces, while the Discovery forklifts are ideal for automated picking and transport.

The **Discovery fleet** represents a real innovation in the market, with frontal, bilateral and trilateral forklift AGVs offering exceptional versatility and manoeuvrability. These vehicles are essential in dynamic and complex environments, providing unparalleled operational efficiency.

Each solution is carefully developed to meet specific customer requirements, ensuring **optimal results** in terms of productivity and reliability.

Polytec Intralogistics' Discovery fleet vehicle



JADA: THE FUTURE OF RENEWABLE ASSET MANAGEMENT BY NYOX

JADA (Jada Asset Data Analytics) represents the peak of in-house experience gained in the renewables sector, thanks to in-depth knowledge in industrial automation, SCADA systems, and IoT. Developed by Nyox, this innovative software was created to overcome the limitations of traditional monitoring methodologies, offering an innovative and advanced approach to **renewable asset management**.

The software employs a scalable, multi-layered architecture with artificial intelligence algorithms to optimise energy production, predict anomalies, and improve operational efficiency. The system includes:

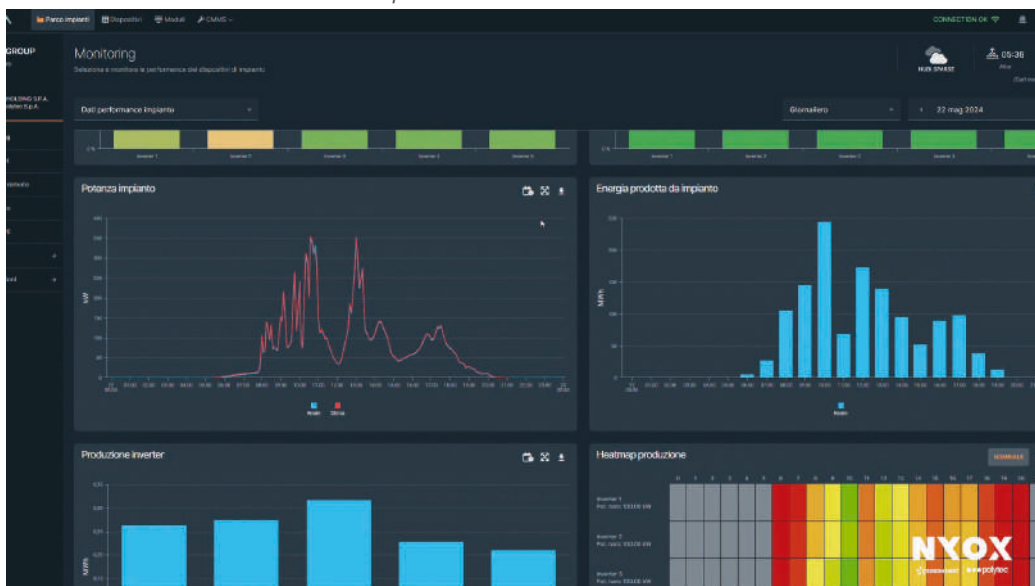
- **Advanced monitoring:** a customisable alarm system to detect critical issues in real time.
- **Integrated asset management:** centralisation of documentation, performance supervision, and direct connection to the electricity market.
- **Strategic decision support:** accurate data to plan interventions and optimise return on investment.

JADA is at the heart of the Operations and Maintenance (O&M) department, a complete service covering all phases of asset management through:

- **Real-time monitoring:** continuous data analysis to maintain maximum efficiency.
- **Preventive and predictive maintenance:** strategic planning to reduce downtime.
- **Rapid intervention:** rapid and precise response to minimise the impact of any breakdowns.

For Nyox, which is responsible for engineering, design, and construction, the creation of JADA was a key step in providing a complete asset management solution. The platform not only centralises supervision and control but also adapts to the specific needs of each plant, offering critical decision support to maximise **return on investment**.

Jada platform



**JADA: NYOX'S PLATFORM FOR
MANAGING PHOTOVOLTAIC SYSTEMS**

SUSTAINABILITY

TECNERGA: CERTIFIED ENERGY CONSULTANCY

Tecnerga S.r.l. is a BM Group company founded to provide energy consultancy to industries to enable them to increase their energy performance and thus improve their business competitiveness by optimising energy consumption.

Tecnerga's **consulting** activities include the preparation of energy diagnoses in order to determine the energy performance of company assets and, therefore, **guide companies** towards the implementation of energy efficiency measures that allow the reduction of energy consumption and climate-changing gas emissions and, consequently, a decrease in energy supply costs. Furthermore, they can accompany the customer in obtaining the possible incentives available on the national scene.

New for 2024 is the **Italian Piano Transizione 5.0**, which gives companies the opportunity to obtain a tax credit on new investments that lead to a reduction in energy consumption at their plant. The higher the percentage of reduction in energy consumption, the higher the tax credit obtainable. In addition, plants for self-production of energy from renewable sources for self-consumption, such as photovoltaic plants, are also eligible for a tax credit.

Access to the benefit is subject to the presentation of an “EX ANTE” certification attesting to the reduction in consumption that can be achieved thanks to the energy efficiency intervention and an “EX POST” certification proving that the objective has actually been achieved. This certification can also be issued by Energy Service Companies (ESCO) certified according to UNI CEI 11352 and by Energy Management Experts (EGE) certified according to UNICEI 11339.

Tecnerga is an ESCo UNI CEI 11352 certified company with qualified EGE personnel, UNI CEI 11339 certified Energy Management Experts who can make themselves available for the necessary evaluations in order to lead companies to obtain the facilitation envisaged by the Transition 5.0 Plan.



DISCOVER MORE:

www.tecnerga.com



VOLVERUP: A “CIRCULAR” COLLABORATION

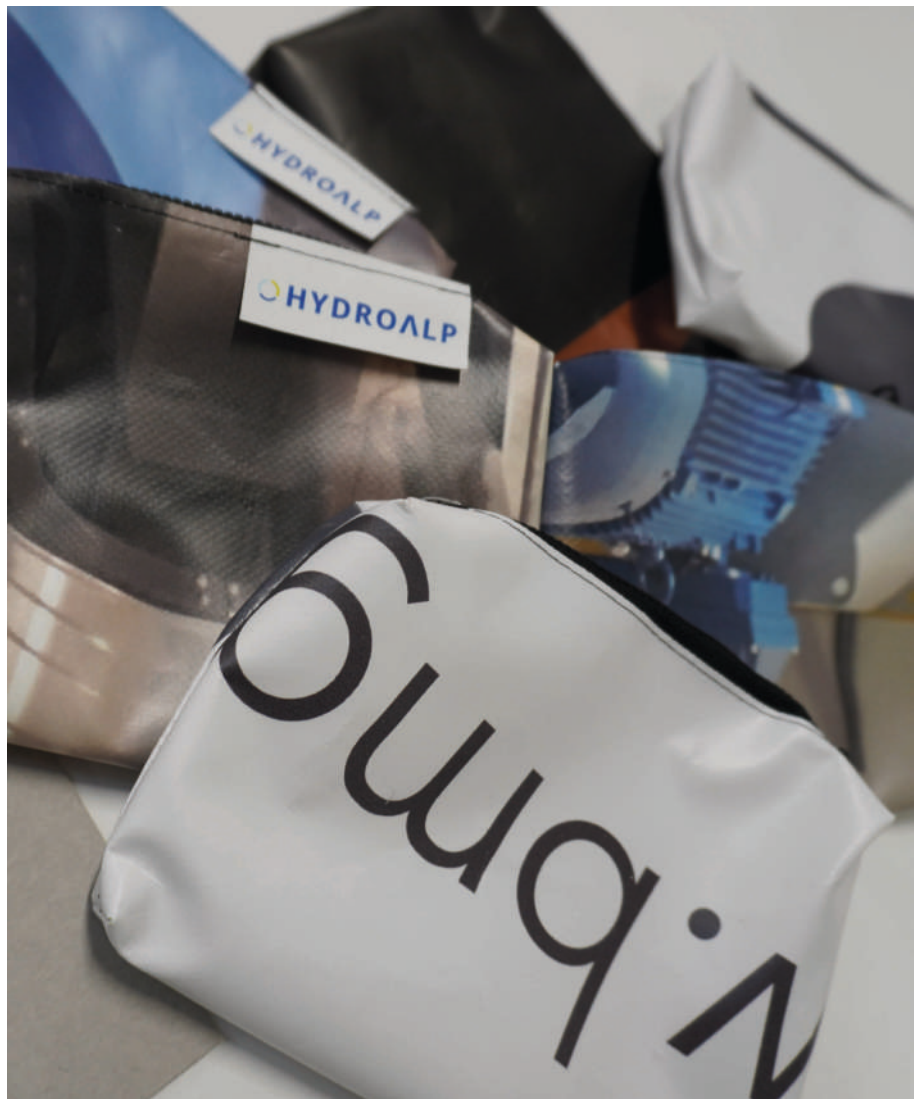
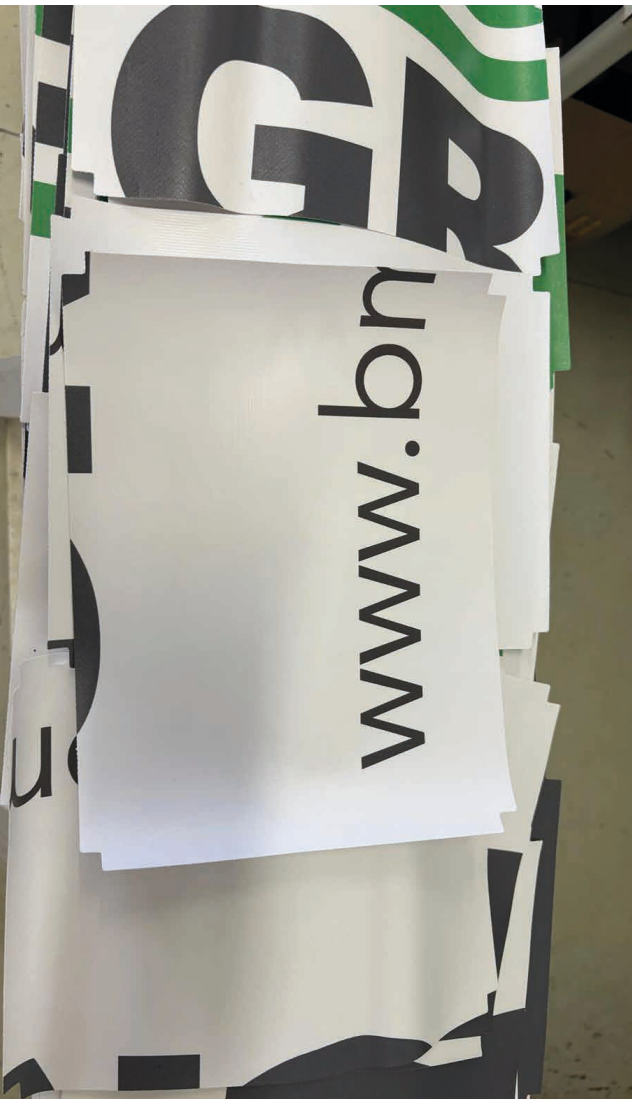
BM Group has recently launched a **partnership** with Volverup to give new life to the banners used during the company's 30th anniversary celebration, transforming them into unique and durable cases. These unique gadgets not only testify to BM Group's commitment to sustainability but also reflect the brilliance and creativity that characterise the collaboration with Volverup. The project, which is part of the broader effort to reduce waste and promote the circular economy, marks a further step in the company's journey towards greater environmental responsibility.



DISCOVER MORE:

www.volverup.com

Manufacturing cases from waste material



ZERO-KILOMETRE PROJECTS

The **territory** is one of the pillars of BM Group, which over time has developed a corporate culture based on respect for the environment, enhancement of the local community, and sustainability. This commitment to the territory is manifested in various **initiatives**, including support for local realities that share the same principles of care and respect for nature.

By involving local realities and associations in its activities, BM Group promotes the growth of the territories in which it is present.

Among the most representative stories is that of **Virginia Gualdi**, a farmer from Borgo Chiese who perfectly embodies the value of caring for the land. Virginia cultivates apples, apricots, blueberries, and currants with a philosophy based on the concept of “taking care”.

Roberta Butterini's is instead the story of a beekeeper who, through her work, contributes to maintaining the balance of local ecosystems.



VIRGINIA GUALDI:



ROBERTA BUTTERINI:



Local products by Virginia Gualdi and Roberta Butterini



SOCIAL INITIATIVES

BM Group has recently announced two important new partnerships with local social realities, demonstrating a concrete commitment to support fragility and sustainability. The partnerships with **Cooperativa Incontra** and the **Effetto Ettore** association are part of a broader social inclusion project, in which the users of these realities will be directly involved in the company's activities, creating innovative synergies between the industrial and social worlds.

The collaboration with Cooperativa Incontra foresees the involvement of users in the preparation of gadgets that BM Group will use during its participation in international trade fairs. This project will not be limited to the operational aspect: participants will also have the opportunity to virtually 'travel' through the experiences of the marketing and sales team members, thanks to videos, photos, and stories documenting their adventures during the events. A way to broaden the horizons of those who, for various reasons, cannot physically travel but can still feel part of an international and professional dimension.

Alongside this initiative, BM Group wanted to support the Effetto Ettore association by producing colourful t-shirts for the numerous initiatives that the group organises. The collaboration between BM Group, Cooperativa Incontra and Effetto Ettore shows how social inclusion and innovation can go hand in hand. "We want to create a bridge between our world and that of people in fragile situations and create opportunities for interaction and collaboration within concrete and motivating projects," said **Anna Zoppirolli**, *Marketing Manager* at BM Group.

Collaboration with Cooperativa Incontra and Effetto Ettore



SUSTAINABILITY

HYDROALP: CLEAN ENERGY FROM THE ARNO RIVER

The Arno project, born from the desire of the Tuscany region, involves the construction of **12 hydropower plants** along the Arno River, with the aim of rehabilitating and restoring the historic weirs present along the river. These structures, many of which date back centuries, were once used for generating mechanical power. Today, they are undergoing a restoration process that will not only ensure greater hydraulic safety along the river but also create ecological corridors for fish fauna. The new hydropower plants will be equipped with fish ladders and large basins that will channel the river water, which, after passing through the turbines, will return directly to the Arno, creating a sustainable and minimal-impact cycle while generating clean energy.

The intervention will have a significant **positive impact on the environment**, saving about 25,000 tons of CO₂ per year and generating 55 GW of power, equivalent to the annual energy needs of approximately 20,000 families. The hydroelectric plants will not only help preserve biodiversity but will also enhance the historical and cultural heritage, while meeting the needs of citizens.

Hydroalp, in collaboration with PAC S.p.A. (the project's EPC), plays a central role in the development of the hydroelectric plants. Hydroalp's responsibility is to design and implement the power plants and automation systems for the rehabilitation of the weirs along a 55-kilometer stretch, between Incisa and Le Signe.

Three of the twelve plants – Incisa, Compiobbi, and Traversa dell'Isolotto – are already operational. The latter hosts a flowing water turbine that will generate a power of 7,400 GWh/year, with a 6.5-meter drop and a flow rate of 30 cubic meters per second. All the plants are being built through a Project Financing partnership with Iniziative Toscane, and construction is ongoing for the remaining nine plants, which will be fully operational by 2025.



ARNO PROJECT VIDEO STORY

AUTOMATION AND EQUIPMENT FOR THE CIRCULAR ECONOMY

Recycling is a fundamental component of the **circular economy**: it reduces waste and minimises environmental impact. In this context, Polytec operates as a system integrator serving large Italian multi-utility companies that are leaders in sustainability. From engineering to commissioning, Polytec builds turnkey automation systems, also developing customised software for process control and direction. In particular:

- Electrical automation systems, PLC level, HMI-SCADA with all market brands.
- MV/LV electrical distribution systems
- Turnkey electrical installation
- Electrical distribution and automation for dedusting plants and water treatment plants.
- Sorting systems from waste conveyor belts

Complete automation guarantees **reliability, safety, and availability of the plants**, enabling optimal and sustainable operation.

The portfolio of references includes water treatment plants, waste-to-energy plants, CSS treatment plants, as well as plastics sorting plants.

Innovation in metal recycling: the PolySORT project

Polytec's R&D department is working on PolySORT, an innovative robotic system for the automatic sorting of scrap metal. Thanks to a scanning and identification system powered by artificial intelligence algorithms, PolySORT allows unwanted components to be separated using robotic arms, guaranteeing:

- Increased sorting efficiency and repeatability
- Reduced operating costs
- Continuous 24/7 operation
- Elimination of manual labour in critical environments

This solution is a big step towards smarter and more efficient recycling.

Hydroalp: skid systems for renewable energy

Hydroalp, part of the group, also supports the circular economy through the design and production of skid systems for the handling of fluids, gases, biofuels, and innovative fuels (biomethane, methanol, ammonia, and green hydrogen) as well as for wastewater treatment.

PEOPLE

CAREER: THE LANDING PAGE FOR JOINING BM GROUP

Working in BM Group means entering a **dynamic context** where personal and professional growth is combined with the possibility of dealing with global teams and high-level projects. The new portal, designed to be a point of reference for professionals and young talents, offers a clear and detailed view of open positions and available career paths, with a focus on innovative projects and international experiences. Inside you can find job offers and information for those who aspire to build a career in an international and innovative context.

With an eye to the future, BM Group actively collaborates with professional institutes, universities, and research centres, offering:

- **Training internships** to integrate theoretical knowledge with field experience.
- **Summer placements** to bring young people closer to the world of work.
- **Master's thesis projects** to explore innovative topics in synergy with the company.

These initiatives represent a unique opportunity for young talents to join a growth- and innovation-oriented company.



DISCOVER MORE:
career.bmgroupp.com



APPLY:
job@bmgroupp.com

Participation in recruiting events



POLYTEC: SUCCESS AT IPSP 2024

Polytec successfully participated in IPSP - Industrial Problem Solving with Physics, a competition promoted by the Physics Department of the **University of Trento**. The event, held in the second half of July 2024, aimed at fostering collaboration between companies and young talents in the field of physics. During the IPSP event, twenty-four undergraduate and PhD students, as well as young graduates and researchers from different universities collaborated with selected companies to tackle real technological challenges. Polytec proposed a topic of great industrial relevance, related to improving the steel melting process in electric furnaces: **measuring the temperature of liquid steel**. The task given to the IPSP participants was to analyse the thermal stresses to which the lance is subjected in order to identify the **most suitable material** to minimise the deformations to the lance caused by the high temperatures. In just a few days, the team led by Dr. Sebastiano Mariazzi carefully studied Polytec's case, successfully interpreting the proposed industrial challenge and providing an innovative solution, thus winning the competition. Initiatives such as IPSP represent a crucial vector of collaboration between the business and research worlds, demonstrating how fundamental these **synergies** are for fostering innovation. Not only for the individual participants, who have the opportunity to grow professionally and in terms of skills, but also for the region, which benefits from these unique interactions between business and science.

IPSP 2024 - Closing Ceremony



INNOVATION

CARCANO ANTONIO E POLYTEC: A SUCCESS STORY OF INNOVATION AND SUSTAINABILITY

The partnership between Carcano Antonio, a historic Italian aluminium manufacturer, and Polytec is a **success story** that started from a specific need and developed into a complete strategic collaboration, which today ranges from robotics to automation to renewable energy. A virtuous example of how technological innovation and business synergy can transform an operational challenge into a long-term partnership.

It all started when Carcano Antonio was faced with a problem related to the operation of a piece of machinery in its factory. The need to find a quick and effective solution led the company to approach Polytec, which, thanks to its experience and problem-solving skills, proposed a **targeted and innovative intervention**. The timely resolution of the issue paved the way for a broader dialogue between the two companies, highlighting the potential for strategic collaboration. In the wake of that initial success, Carcano Antonio recognised Polytec as an **ideal partner** to further drive innovation in its processes. This led to a series of industrial automation and robotics projects aimed at optimising productivity and improving the efficiency of aluminium production processes.

The technological solutions proposed by Polytec have made it possible to automate complex operations, reduce processing times, and improve employee safety in the factory, making Carcano's production processes more **competitive** on the global market. The integration of robotic systems has not only made the production flow smoother and faster but has also ensured greater precision and quality of the finished

Partnership between Polytec and Carcano Antonio



product. Polytec's tailored approach ensured that the technological solutions were perfectly aligned with Carcano's specific production requirements, maximising the **potential** of the industrial partner.

The collaboration between Carcano and Polytec did not stop at technological innovation. With a growing focus on sustainability and energy transition, the two companies have extended their partnership into the field of **renewable energy**. In particular, Polytec has led the development of turnkey projects for the production of energy from renewable sources, enabling Carcano to reduce the environmental impact of its industrial processes.

The **collaboration** between Carcano Antonio and Polytec is an example that demonstrates how the alliance of complementary skills can result in innovative and sustainable projects. What began as the resolution of a single technical problem has turned into a long-term strategic partnership, encompassing industrial automation, robotics, and green energy, with the construction of a 1.2 MW rooftop photovoltaic system by Nyox.



**POLYTEC & CARCANO ANTONIO,
A SUCCESS STORY.**



INNOVATION

POLYSTAR-T:

The thermal lance ignition system developed by Polytec represents a true **technological innovation** in the field of steel mill robotics. This hybrid system, designed to ensure remote and safe ignition of the oxygen lance, sets new standards in terms of process reliability and repeatability.

The **safety** and **efficiency** of the system are optimised by separating the two key stages of the ignition process: thermal preheating of the lance and controlled ignition of the oxygen.

At the heart of the system is an inductive preheating device, which brings the cartridge at the end of the lance to a sufficiently high temperature for oxygen ignition in a matter of seconds. The temperature is kept high for several seconds by a carbon mixture inserted in the cartridge itself, ensuring reliable and safe ignition.

A further element of innovation is the precise and controlled positioning of the lance by a **robotic arm** prior to opening the oxygen flow. This approach eliminates the risks associated with manual handling, significantly improving operational safety.

The PolySTAR-T system can be applied to various robotic solutions from Polytec:

- **PolyEBT**: automatic robot for EBT/SPOUT lancing and cleaning on EAF
- **PolyCAST**: multi-tool robotic solution for continuous casting machines
- **PolyLADLE**: robotic cell for ladle sliding gate maintenance.

Contrary to traditional methods, which use cartridges containing specific powder mixtures for ignition, increasing complexity and reducing reliability, the Polytec system offers an advanced, safe, and high-performance solution. With this technology, Polytec confirms its commitment to **innovation** and **safety**, redefining the parameters of efficiency and reliability in the industrial sector.

Thermal lance ignition system





THERMAL LANCE IGNITION SYSTEM

Hybrid system that allows remote and safe lance ignition in processes where built-in igniters cannot be used.

FUNCTIONING AND PROCESS STEPS

CARTRIDGE INSERTION ON THERMAL LANCE	Mild steel cartridge with locking system and hole for oxygen passage. A small amount of high-calorific material (charcoal/anthracite) is contained in the cartridge.
CARTRIDGE HEATING	Use of a heater, preferably an induction heater, to heat the cartridge. The cartridge maintains the required temperature for approximately 60 seconds.
HEATING SYSTEM	Inductor consisting of a heater and a copper coil. The heater heats the cartridge to a temperature of about 1000° in a few seconds, igniting the material inside.
THERMAL LANCE POSITIONING	The thermal lance is positioned in the drilling/cleaning area. The operation is conducted by a manipulator or robotic arm.
THERMAL LANCE IGNITION	With the opening of the oxygen flow, the exothermic reaction starts and the lance ignites.

HIGHLIGHTS

PERFORMED AUTOMATICALLY BY A ROBOTIC SYSTEM

NO SPECIFIC TRANSPORT/STORAGE REGULATIONS REQUIRED

NO RISK OF EXPLOSION/SPONTANEOUS IGNITION

NO EXTERNAL ACTIONS FOR TRIGGER SUCH AS PRESSURE OR FRICTION REQUIRED

GREATER RELIABILITY THAN KNOWN SYSTEMS

THERMAL LANCE
IGNITION SYSTEM



CESARE MAESTRI: A RUNNING COLLEAGUE

Cesare Maestri, known by everyone as a mountain running champion, is also a Proposal Engineer at Nyox. Athlete of the Italian National Mountain Running team supported by Nike, he is a talent that is emerging at world level, coached by Giordano Zanetti. The editorial staff of Future Insight collected an interview with Cesare on the occasion of his victory at the first edition of the Trentino Business Run, a sporting event dedicated to companies in which some employees of BM Group companies tackled the 6 km with commitment and healthy competition.

What is your secret to balancing work life and a competitive sports career?

"Good question, I don't think there is a secret. I like to pursue work and sport in parallel because they both give me great satisfaction, although in different forms. I focus on one thing at a time, on what I am doing, to do it as well as possible. Training helps me with work because it clears my head and allows me to be more focused; on the other hand, work helps me with sport because it requires more commitment and dedication".

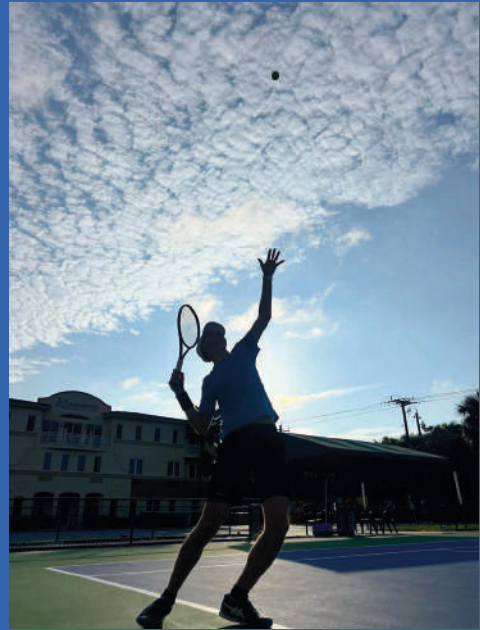
Future plans?

"I would like to spread the word about this sport and the lifestyle that comes with it to those who don't know it because I believe it is accessible to many. My goal is to do my best in my job to make the environment we live in better, to have a low-consumption lifestyle, and to make the best use of renewable resources".

For BM Group colleagues, Cesare is a concrete example showing how it is possible to pursue one's personal interests while achieving **significant career goals**.

Cesare Maestri at 2024 World Championship and Trentio Business Run 2024





BM GROUP SUPPORTS SPORTS AND YOUNG TALENTS

BM Group believes in the value of **sport** as a tool for growth and inspiration. This year, among the various sponsorship initiatives, the focus is on:

- **Angelica Bettoni**, a very young promise of Alpine skiing, is training with the national team to face an exciting new season.
- **Nicola Tolot** has decided to embark on a training path that combines sporting growth, personal training, and the development of English language skills in Florida.
- Local sports clubs such as **ASD Chiese Nuoto**, which, in addition to competitive achievements, strengthen ties with the local area through initiatives such as the social competition at the Borgo Chiese swimming pool

BM Group's commitment to sport and young talent is a choice that reflects the company's values: supporting talent, promoting the community, and inspiring new generations.

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