PHASE
MOTION CONTROL

SUSTAINABILITY REPORT 2023

We shape what can be imagined

SUSTAINABILITY IS ABOUT IMPACT

This document represents the first step taken by Phase Motion Control to develop a strategic, systemic and integrated approach to measure its impact on the environment, the economy and society.

The 2023 Sustainability Report was born out of a desire to explore the frontier of change by anticipating future European regulatory milestones to provide all stakeholders with the information they need to understand how, in the world of Phase Motion Control, the words evolution, measurement and impact intertwine to create a unique path of transformation.

KNOWLEDGE PARTNER
The European House-Ambrosetti

GRAPHIC DESIGN
Comunicazione Visiva di Linda Cavallero

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PREFACE

[GRI 2-22]

This is the company's first Sustainability Report, *and it is a document we have wanted and have waited years for. In fact, our company, that was created with an ethical purpose - to advance science and technology for the progress of mankind - and pursues profit to that end and not as an end in itself, has always felt imperfectly represented by traditional economic documentation.*

It is, or should be, evident that an organization that produces technologies, motor and actuator systems for decarbonization and climate change mitigation should be valued differently than, for example, industries operating in hard-to-abate sectors, just as a company that hires talent and researchers, funds universities and nurtures a significant local supply chain produces a quite different effect on society than a company providing services with low spin-off impact. Yet, according to traditional economic metrics based on balance sheet data, the latter would often appear to be of equal or greater value than the former.

For these reasons, Phase Motion Control has long sought a better scale of measurement, despite being aware that one initiative alone would be of no use. The early social report experiments, which were the precursors of the sustainability report, were followed by us with extreme interest.

It is therefore with great satisfaction that, now that the principle of measuring sustainability is on its way to being a shared standard, our company has decided to take part early, on a voluntary basis, in this important development. I hope that this first Sustainability Report will, over time, represent a turning point in the company's evolution and its relationship with society at-large, allowing us to measure and, over time, improve what we accomplish every day.

This is our commitment, and future reports will measure this commitment.

Marco Venturini
Chairman and CEO

KEY FACTS AND FIGURES - 2023

30 YEARS OF HISTORY
Serving innovation and sustainable transition

BLUE GATE
A new state-of-the-art hub for precision engineering

€40 MILLION
in revenues, in 2023, up 4% on the previous year

STATUS

-38.418 tCO_2
Emissions averted each year thanks to PMC solutions

17 PATENT APPLICATIONS
Made in the last three years, half of which has already been granted

€251 THOUSAND
Invested in the three-year period to support research at the University of Genoa

METHOD

> €9 MILLION
In investment to reduce the footprint of the new production site

+66% MEAN TIME BEFORE FAILURE
Increase in the service life of warranty solutions

54% LOCAL SUPPLY
The share of procurement from Italy

EXPERTISE

+25%
Growth of the Phase Motion Control team over the past 3 years

2.000 HOURS
Training provided during the year approximately 11 hours per person

-40,8% INJURY RATE
Decline in the accident rate over the past three years

MAJOR MILESTONES ACHIEVED DURING THE YEAR INCLUDE

- The all-electric propulsion ship BRIM is launched
- First counter-rotating e-pods for planing powerboats on Candela foils are successfully delivered
- The first avionic engine prototypes for parallel hybrid aircraft are developed and delivered
- First Amniotic TM Lithium Ion battery systems receive UNI 38.3 safety certification and are approved for use in small submarines
- The first torque motors of the new TKH series are delivered, setting a new record for specific torque and enabling the elimination of gearboxes
- The first solid-state Lithium Ion battery is synthesized at the University of Genoa's Electrochemistry Laboratory as part of an R&D program funded by Phase

A FUTURE TO BE SHAPED TODAY

2023 was the hottest year ever. [1] *Nevertheless, curbing the uncontrolled rise in temperatures is still possible according to the latest report by the Intergovernmental Panel on Climate Change (IPCC): urgent global climate action is needed.* [2]

Over the past 170 years, human activity - and the greenhouse gas emissions generated by it - have contributed to raising the global temperature by approx. 1.1 °C compared to preindustrial levels. [3] *In 2015, world leaders from 170 countries signed the Paris Agreement, aimed at limiting global warming to within +2 °C of pre-industrial levels. In the same year, the United Nations adopted the 2030 Agenda, a series of 17 Sustainable Development Goals (SDGs) broken down into 169 targets to be achieved by 2030 to promote global prosperity.*

Ten years after the Paris Agreement, the 28 th United Nations Climate Change Conference (COP28) drew a global stocktake on meeting the climate goals: ***to meet the thresholds, global emissions need to peak before 2025 at the latest****, then be reduced by at least 43% by 2030 and 60% by 2035 (compared to 2019 levels).* [4]

The debate was also fueled by evidence that had emerged during the SDG Summit held a few months earlier in New York. At the meeting, it was stressed that there is still a long way to go toward achieving global goals. Therefore, ***the United Nations convened a Summit of the Future for 2024*** *- a unique opportunity to strengthen cooperation on critical challenges and address gaps in global governance.*

In this context, the European Union plays a leading role *and, with the Green Deal, aims to become the first continent in the world to achieve carbon neutrality by 2050, reducing emissions by 55% as early as 2030.* [5]

The financial sector will be a strategic ally in this transition*. In fact, the Sustainable Finance Action Plan, established in 2018, aims to direct capital flows to support economic activities that can make a concrete contribution to achieving European environmental goals. For this, on June 18, 2020, the European Parliament approved the Regulation on Taxonomy for Sustainable Activities (Reg. (EU) 2020/852). This classification system - among the most advanced in the world - makes it possible to identify those economic activities that are truly environmentally sustainable, thus limiting the risk of greenwashing.*

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[1] *Copernicus, 2023 is the hottest year on record, with global temperatures close to the 1.5°C limit, 2023.*
[2] *The European House – Ambrosetti elaboration of IPCC data, Sixth Assessment Report, 2022.*
[3] *IPCC, Climate Change 2022: Impacts, Adaptation and Vulnerability, 2022.*
[4] *Council of the European Union, COP28, 2023.*
[5] *Council of the European Union, Fit for 55, 2023.*

PHASE MOTION CONTROL

[GRI 2-1]

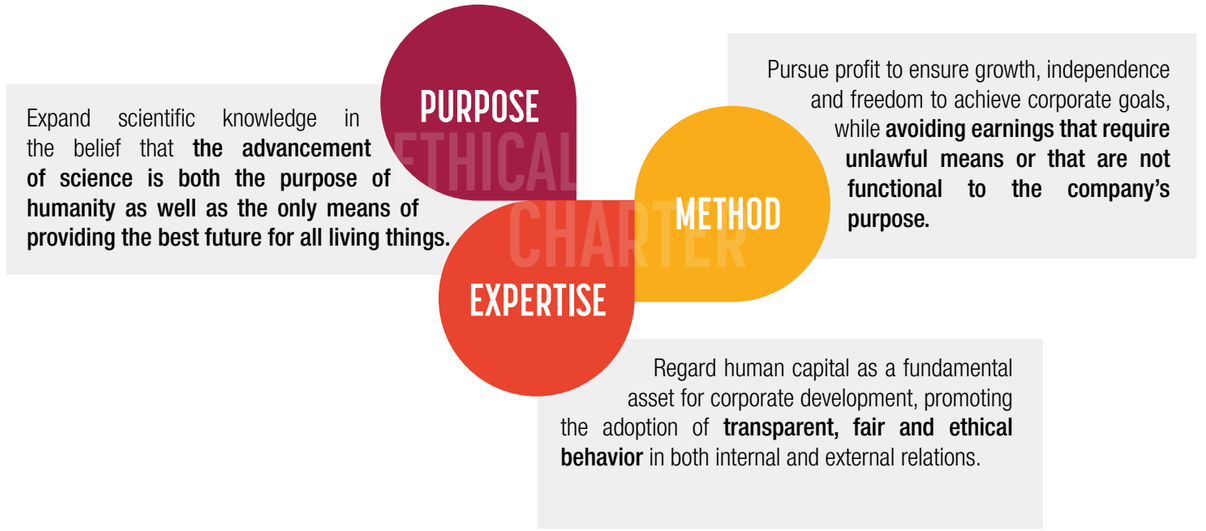
Phase Motion Control S.p.A. is a one-stop center of expertise in power electronics and energy control. The continuous search for cutting-edge solutions and readiness to provide tailored answers to customers' needs are at the heart of the excellence of a business project that has been synonymous with innovation, efficiency and compactness for more than 30 years.

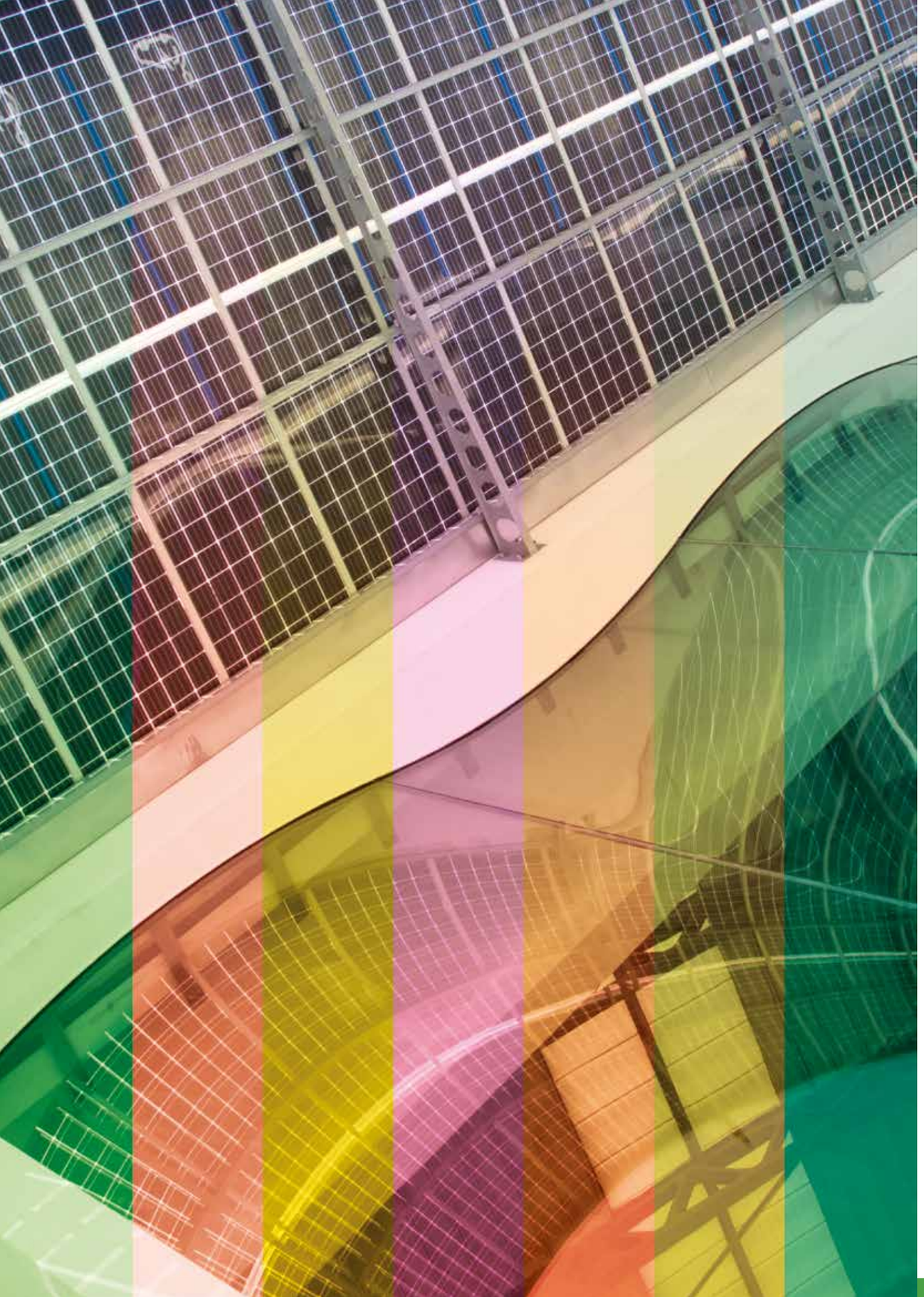
The company specializes in the field of electronic energy control and conversion, and more specifically, in the realization of optimized electronic, electrochemical and electromechanical components or solutions.

Founded in Genoa in 1994, PMC is now recognized worldwide as a result of the many techniques and patents it has developed. These range from complete mechatronic systems to manufacturing technologies, magnetic structures with high-energy magnets to control algorithms for pulse width modulation (PWM) drives. Interdisciplinary research - capable of combining new materials, power electronics, advanced magnetics, sensors and software - creates unlimited cybernetic opportunities to benefit society and all productive sectors where these solutions can be integrated.

> *ADVANCING TECHNOLOGY THROUGH RESEARCH AND DEVELOPMENT, FOCUSING ON PRODUCING ENERGY AND MOTION CONTROL SOLUTIONS. THIS IS OUR MISSION.*

The company's mission, horizons and development directions are codified in the three principles on which its Ethical Charter is based: compass to guide all people who come into contact with the Phase Motion Control business project.





30 YEARS OF FUTURE

1994

FROM 1994 TO 2000

FOUNDING OF THE COMPANY

Phase Motion Control is the brainchild of a group of researchers specialized in creating innovative components for motion control of automatic machines and scientific experiments. In its early years, the company supports the European Space Agency and the European Southern Observatory by studying and making precision servomotors to orient the telescopes of space observatories. With a diameter of ten meters, even today these devices are among the largest in the world.

INDUSTRIAL DEVELOPMENT

Phase Motion Control evolves rapidly. In a short time, in addition to focusing on R&D and working on the design of special components, the company develops a full-fledged industrial, commercial and management structure that soon enables it to establish itself as a solid and innovative business entity.

2001

EXPANSION TOWARD THE FAR EAST

The close technical and commercial relationships related to the development of rare-earth magnets that linked PMC to the Far East since the inception of its business prompt the company to initiate a new joint venture. This results in Phase Motion Control Ningbo Ltd in China, a key partner to ensure advanced and flexible sourcing of rare-earth magnets and gain entry into Asian markets.

2012

TRANSITION TO PHOTOVOLTAICS

Prompted by the desire to decarbonize its energy mix, Phase Motion Control designs and builds a large 2 MW photovoltaic plant for Solux Spa (eventually becoming 85% owned), and in the years to come, this energy will be used to meet part of the company's energy needs.

2015

FROM 2016 TO 2023

BREAKTHROUGH IN GROWTH

The corporate structure is transformed strategically, financially and organizationally. In this context, the shares in Phase Ningbo Ltd China are sold to private and public Chinese shareholders. Even after the company's exit, the Chinese company continues to be a strategic partner for PMC in the Far East.

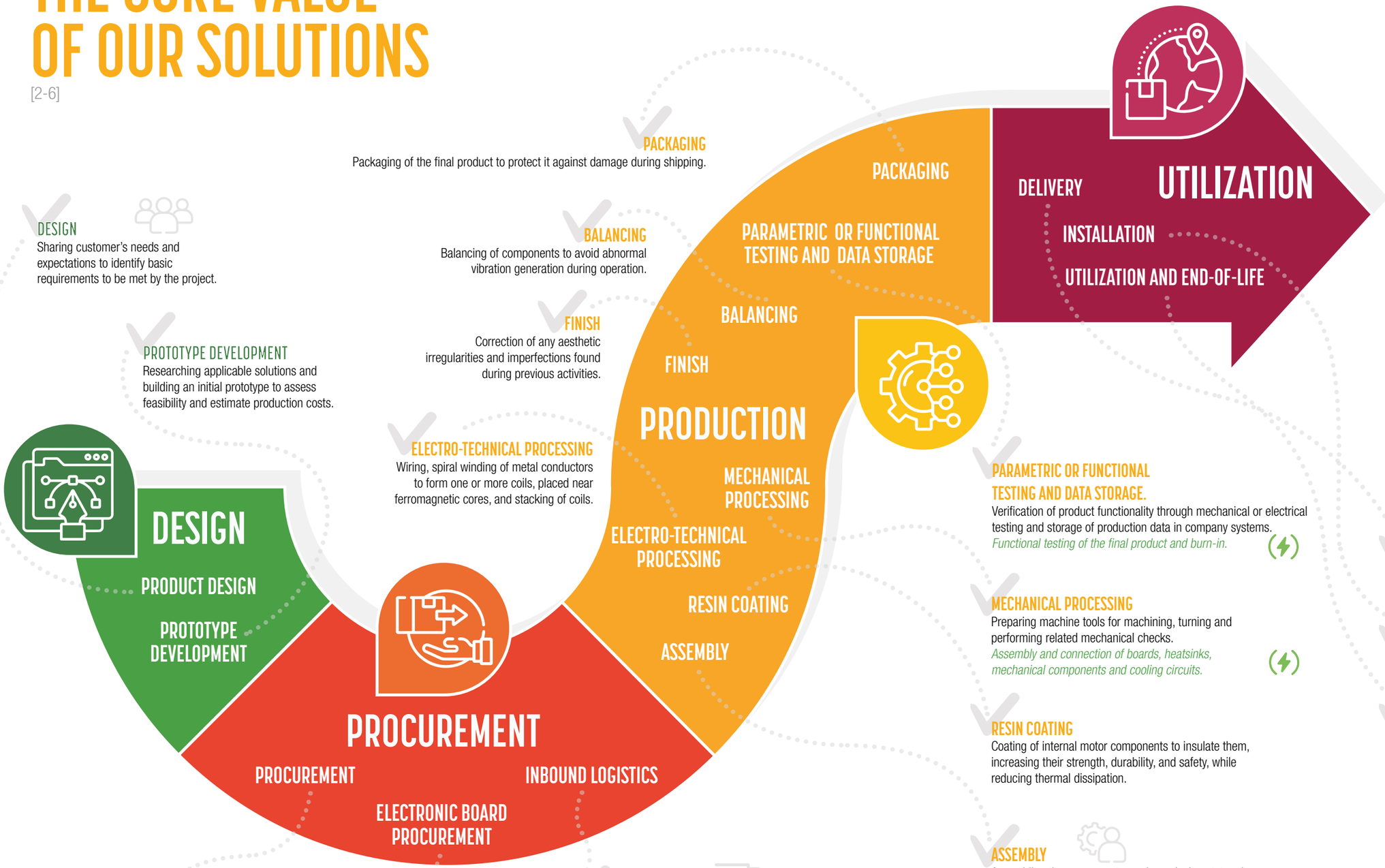
NOW

SEARCH FOR A NEW HOME

Together with three other Genoese precision engineering companies (Eurocontrol, Cosnav and Cosmet), Phase Motion Control submits a project to the Genoa-Savona Port System Authority to create a new technology hub dedicated to mechatronics: the "Marina Science Park". It is not only envisioned as a center of international excellence, but also a lever to redevelop the industrial area in the Genoese district of Sestri Ponente of more than 30,000 m² that had been abandoned by Piaggio Aerospace, thus creating new jobs and becoming a strategic asset for the area through its proximity to the future Genoa Erzelli University Hub. This results in the creation of Blue Gate, the new heart and soul of Phase Motion Control – a state-of-the-art production site covering an area of more than 22,000 m².

THE CORE VALUE OF OUR SOLUTIONS

[2-6]



DESIGN
Sharing customer's needs and expectations to identify basic requirements to be met by the project.

PROTOTYPE DEVELOPMENT
Researching applicable solutions and building an initial prototype to assess feasibility and estimate production costs.

PROCUREMENT
Purchasing materials needed for production, from raw materials - for example, ores and rare earths - to semi-finished products such as magnetic components.

ELECTRONIC BOARD PROCUREMENT
Designing of data sheets, wiring and layout of printed circuit boards and realization of Printed Circuit Boards (PCBs).

INBOUND LOGISTICS
Transportation of raw materials and semi-finished goods to the Blue Gate in Genoa, mainly by ship and by air

ELECTRO-TECHNICAL PROCESSING
Wiring, spiral winding of metal conductors to form one or more coils, placed near ferromagnetic cores, and stacking of coils.

BALANCING
Balancing of components to avoid abnormal vibration generation during operation.

FINISH
Correction of any aesthetic irregularities and imperfections found during previous activities.

PACKAGING
Packaging of the final product to protect it against damage during shipping.

PARAMETRIC OR FUNCTIONAL TESTING AND DATA STORAGE.
Verification of product functionality through mechanical or electrical testing and storage of production data in company systems.
Functional testing of the final product and burn-in.

MECHANICAL PROCESSING
Preparing machine tools for machining, turning and performing related mechanical checks.
Assembly and connection of boards, heatsinks, mechanical components and cooling circuits.

RESIN COATING
Coating of internal motor components to insulate them, increasing their strength, durability, and safety, while reducing thermal dissipation.

ASSEMBLY
Assembling the components, such as placing stators in the motor housings, performing the necessary mechanical operations, installing the magnets on the metal mounts, and inserting the ferrules on the rotors.
SMD and through-hole assembly, and parametric testing.

DELIVERY
Product pickup at the Blue Gate warehouse by customer-selected shippers.

INSTALLATION
Assembly and installation of the product.

UTILIZATION AND END-OF-LIFE
Product use by workers and end-of-life management.

*From **conception** to **production** and **distribution**, **Phase Motion Control** develops **motion** and **energy** control **systems** and **solutions**.*

- Electronic solutions
- Customers
- Material suppliers
- Service suppliers

ECONOMIC AND FINANCIAL RESULTS

[GRI 2-6]

	2023	2022	2021	2020
Revenue	40.523.991	39.006.658	29.259.196	27.238.414
Equity	12.106.261	12.530.710	12.012.110	13.676.706
Operating profit	-363.686	400.516	-1.708.329	-866.214
EBITDA	1.839.144	1.959.114	-1.581.334	42.138

RESPONSIBLE GOVERNANCE

[GRI 2-9] [GRI 2-10] [GRI 2-11] [GRI 2-12] [GRI 2-14] [GRI 2-17]

Phase Motion Control S.p.A.'s management model is based on the principles of fairness, transparency, and integrity. The company is unlisted, its corporate structure consists of three owners, and its operation is regulated by its articles of association (pursuant to Italian Legislative Decree No. 6 of January 17, 2003) and the principles contained in the Ethical Charter. The company adopts a traditional governance model, whose responsibilities are vested in the Chairman of the Board of Directors, who is supported by a Board of Directors (BoD) and a Board of Statutory Auditors.

The independent Board of Directors has a three-year term of office which was renewed in 2023 and is endowed with all powers necessary for the management of the company. The selection of its members is entrusted to corporate ownership which, when making its selection, takes into consideration specific expertise to ensure a balance of technological, financial, and legal points-of-view and expertise. The founder of Phase Motion Control, Marco Venturini, is the current Chairman, CEO, and majority shareholder of the company. He also holds full representation of the company and, together with management and the Board of Directors, is responsible for defining and implementing corporate strategy.

The Board of Directors is supported by a Board of Statutory Auditors, which is responsible for supervising compliance with the laws and bylaws, as well as with the principles of proper administration, the efficacy of the organizational structure adopted and its effective functioning. The Board of Statutory Auditors, which was renewed in 2023, serves a term of three fiscal years and consists of five members, of whom three are permanent and two are alternates. In addition, although Phase Motion Control is exempt from the regulatory requirement, in order to ensure compliance with the principles of integrity and transparency, it voluntarily entrusts the audit of its accounts to an accredited third party.

BOARD OF STATUTORY AUDITORS

GRI 2-9 | Governance structure and composition

Paolo Botta	CHAIRMAN OF THE BOARD OF STATUTORY AUDITORS
Marta Ameri	STATUTORY AUDITOR
Fabio Gardella	STATUTORY AUDITOR
Rosa Tabbi	ALTERNATE AUDITOR
Antonella Angelina	ALTERNATE AUDITOR

In line with the governance model adopted, **the CEO is personally responsible for overseeing and managing the main impacts, risks, and opportunities related to sustainability issues.**

In fact, in 2023, Phase Motion Control began a process of gradually formalizing sustainability guidelines, involving all key functions of the company. This process consisted of three stages:

- **induction to management** to nurture the creation of a shared vocabulary on sustainability issues, focusing on the challenges and opportunities presented by the transition;
- **conducting a materiality analysis** to identify the main impacts that the company and its value chain have on its stakeholders and the environment;
- **development of the first Sustainability Report** to measure, monitor, and report in a transparent way on performance and achievements during the year.

BOARD OF DIRECTORS

GRI 2-9 | Governance structure and composition

CHAIRMAN
Marco Venturini
Fondatore di Phase Motion Control S.p.A nel 1994.

Founder of Phase Motion Control S.p.A in 1994. With an engineering background, he developed his skills first as a visiting researcher in the Department of Electrical Engineering and Computer Sciences at the University of California, Berkeley (UCB) in 1976. He then alternated between professional work in Italy and research at UCB until 1980, when his invention of the matrix converter was acquired by Texas Instruments, leading him to become part of their team, and later at Philips, where he led research and development activity. He holds numerous patents in power electronics and electromechanical design, and is a senior member of IEEE, as well as a member of IAS, PES, and UAI.

INDEPENDENT BOARD MEMBER
Marco Caneva

He started his career with a brief stint as a consultant in Bolton Consulting Group in 1998. Subsequently, he accumulated 10 years of experience in investment banking at Goldman Sachs. Since 2010, he has served as a board member with a number of companies active in Italy.

INDEPENDENT BOARD MEMBER
Andrea Buffa

A certified public accountant and labor consultant since 1988, he has been a registered auditor since 1995. During his career, he has served on several boards of auditors and currently serves as a member of the board of directors of Marsina S.r.l., a company operating in the shipping industry.

PROGRESS

ACCELERATING TOWARD A DECARBONIZED WORLD

PROPELLING SCIENTIFIC PROGRESS

3 GOOD HEALTH

5 GENDER EQUALITY

7 RENEWABLE ENERGY

8 GOOD JOBS AND ECONOMIC GROWTH

9 INNOVATION AND INFRASTRUCTURE

12 RESPONSIBLE CONSUMPTION

13 CLIMATE ACTION

ACCELERATING TOWARD A DECARBONIZED WORLD

[GRI 3-3] [GRI 2-6]

Sustainable and substantial development is not possible without decarbonization. Technology, efficiency and electrification of consumption are strategic levers to accelerate this process.

PHASE MOTION CONTROL WORKS ALONGSIDE ITS CUSTOMERS DAILY, CO-DESIGNING CUTTING-EDGE SOLUTIONS TO ACCELERATE THE DECARBONIZATION OF INDUSTRY AND MOBILITY BY LEVERAGING 2 DRIVERS: EFFICIENCY AND ELECTRIFICATION.

The approximately 5,800 high-efficiency solutions designed by Phase Motion Control together with its customers during 2023 make it possible to avoid, in a single year, the consumption of more than 131,121 MWh of electricity, generating a total economic saving of around €25 million and avoiding the emission into the atmosphere of about 38,418 tCO2, which is the annual carbon footprint of the Falkland Islands.

ANNUAL CONTRIBUTION OF PHASE MOTION CONTROL SOLUTIONS TO DECARBONIZATION

€25 Mil.
38.418 tCO_2

INDUSTRY
49.830 MWh
energy consumption saved
€ 9.467.673
economic value generated
14.600 tCO_2
greenhouse gas emissions averted

MOBILITY
81.291 MWh
energy consumption saved
€ 15.445.267
economic value generated
23.818 tCO_2
greenhouse gas emissions averted

Energy savings generated by Phase Motion Control solutions in 2023 [6]

	Installed power	Actual power	Hours of activity	Estimated efficiency	Savings generated		
	MW	MWh	hrs/year	Conservative	MWh	€	tCO_2
Industrial applications	568,83	285,71	2.628,00	-	49.829,86	9.467.673,10	14.600,15
Numerical control machine tools	566,24	283,12	2.190,00	8%	49.602,80	9.424.531,85	14.533,62
Plastic deformation processing machines	2,59	2,59	438,00	20%	227,06	43.141,25	66,53
Mobility applications	235,20	118,64	9.720,00	-	81.290,88	15.445.267,20	23.818,23
Cable cars	5,20	3,64	960,00	20%	698,88	132.787,20	204,77
Lightweight subways	230,00	115,00	8.760,00	8%	80.592,00	15.312.480,00	23.613,46
Total	804,03	404,35	12.348,00	-	131.120,74	24.912.940,30	38.418,38

IN THE VANGUARD OF INDUSTRIAL DECARBONIZATION

Together with its customers, Phase Motion Control co-designs energy and motion control solutions aimed at simplifying and optimizing production processes.

Industrial motors designed and manufactured by PMC use "direct drive" technology with electrically powered permanent magnets. Once integrated and activated, they contribute not only to the electrification of industrial processes, but also to the energy efficiency of the line.

Applications that best attest to the positive impacts of these technologies include:

- **The operation of chip-removal CNC machine tools:** lathes and machining centers for the processing of metallic and non-metallic materials, widely used in all fields of mechanics. In fact, the movement of these machines is controlled by a built-in electronic device that enables them to achieve high cutting speeds without sacrificing precision. In these machines, energy consumption is divided between the energy used to remove material and the energy spent to position the workpiece or tool (work axes).

  For the first application, conventional CNC machines are generally equipped with asynchronous motors whose power comes from the slip generated when the rotor runs slower than the rotating magnetic field of the stator, often with mechanical transmissions. In the second application, hydraulic transmissions are also sometimes used. Alternately, Phase Motion Control's frameless motors directly drive the machine's workpiece carrier as well as the working axes and, due to their versatility, make it possible to:

  - **improve process efficiency** significantly;
  - **halve energy consumption** when substituted for hydraulically-driven kinematic chains;
  - **eliminate the oils required by traditional transmissions**, which are often complex to dispose of at the end of their life.

- **The operation of plastic deformation processing machines:** presses and hammers that exert an external force on materials to change their structure. These machines are traditionally driven by asynchronous motors, clutches, and brakes, which waste a large amount of energy in providing acceleration to the work mass and subsequently braking the hammer in friction.

  In this context, by combining direct-drive technology with a technology that allows the recovery of dissipated energy, Phase Motion Control solutions make it possible to:

  - **save about 1/5 of the process energy** thanks to the higher efficiency of the motors used;
  - **govern the energy imparted to the hammer in forging processes with great precision** through direct electronic control of the movement;
  - **save up to 100 kg/hour of raw materials**, reducing the excess metal required for the forging mold.

In the field of plastic deformation machining, **in 2023, Phase Motion Control also contributed to the co-design of an innovative method for light alloy extrusion that allows the entire process to be electrified.** In fact, the material is no longer heated in a preheating furnace, but rather directly inside the machine through the activation of an alternating magnetic field. Extrusion can thus take place when ideal temperatures are reached. This not only simplifies the process to increase its efficiency by eliminating the preheating furnace, but also allows for more precise profiles and reduces or even eliminates the grinding allowances often required to finish profiles obtained by traditional machining.

FRONTIERS OF ELECTRIC MOBILITY

Responsible for nearly 1/3 of the CO_2 produced globally each year, today, the transportation sector is the world's leading source of combustion emissions.[7] To achieve global decarbonization goals, accelerating the transition to long-term sustainable mobility is crucial. In fact, in an increasingly interconnected and developed world, where the transportation of people and goods is an essential requirement for development, electric mobility can be an enabling lever to reduce the environmental impact of travel.

Phase Motion Control aims to lead the future of mobility by developing high-efficiency permanent-magnet electric motors for the rail, marine, aviation, and cable transport sectors.

Among the projects implemented during the year that best reflect the contribution of these technologies to the sustainable mobility transition are:

[6] For more details regarding the assumptions and methodologies adopted to estimate the energy, economic, and environmental impacts of the solutions designed by Phase Motion Control, see the Technical Appendix.

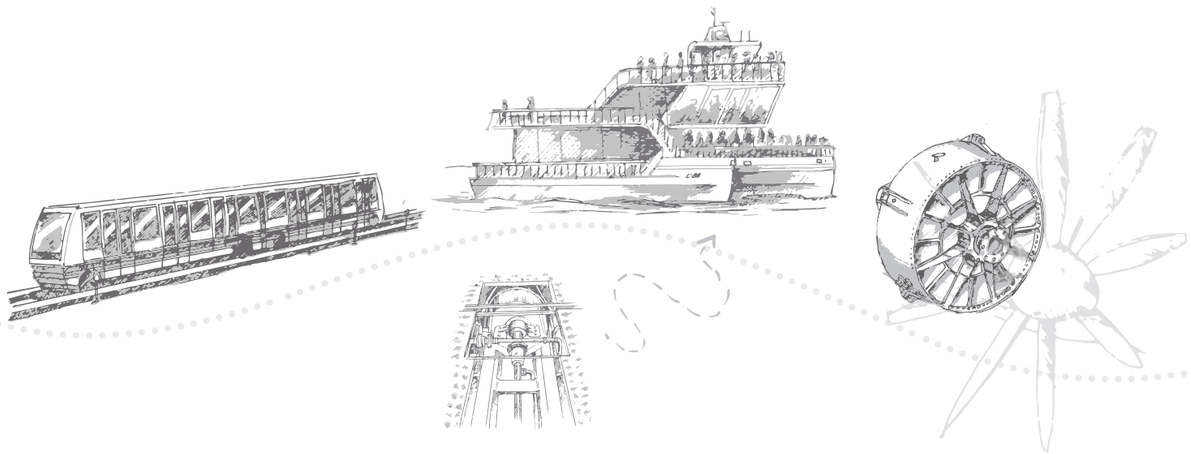
[7] IEA, Transport, n.a.

[8] European Environmental Agency, Transport and mobility, 2024.

- **The realization of engines for light subways**, which due to direct wheel drive are particularly suitable for rail transport. Compared with conventional asynchronous motors, this solution:
    - **improves operating efficiency** significantly;
    - **eliminates gearboxes and associated lubricating oils** that are difficult to dispose of.
- **The design of new battery-powered motorizations for motorboats, tourist boats, and small ferries.** During the year, PMC developed prototypes and small samples of high-torque, direct-drive electric motors used on high-speed boats. Gear-free and connected directly to the transmission and propellers, these motors:
    - **eliminate the inverter/reduction boxes**;
    - **increase the efficiency of transmission and propulsion** at sea by using large propellers at a very low rotational speed;
    - **reduce total energy consumption** by minimizing boat weight.

  In addition, **Phase Motion Control also produces high-tech and efficient electric motors for submarines**, which are characterized by their small size and weight. These high-power motors can be connected directly to the propeller shaft for propulsion, thus eliminating noise.
- **The design of electric aircraft solutions and the active promotion of hybrid powertrains**, which supplement or rely solely on electric generators and actuators. In both the full-electric and hybrid-powered formulas, these solutions:
    - **improve the efficiency of operation**;
    - **reduce the weight of aircraft**, thus contributing to lower total consumption.

Phase Motion Control has long focused on the development of electric propulsion systems for airplanes, helicopters, and electric vertical takeoff and landing (eVTOL) aircraft, powered by both batteries and fuel cells. This is an area where application development is still in the prototype stage and marked by solutions that are still complex to adopt on a large scale, but essential to complete the decarbonization process by the end of the century.



PROPELLING SCIENTIFIC PROGRESS

[GRI 2-6] [GRI 3-3]

Scientific progress is the driving force of humanity, but also the only means of providing the best future for all living things.

THANKS TO THE KNOW-HOW, EXPERTISE AND RELATIONSHIPS DEVELOPED OVER THE YEARS, PHASE MOTION CONTROL HAS BEEN ABLE TO ESTABLISH ITSELF AS A SOLID LINK BETWEEN BASIC RESEARCH AND APPLIED EXPERIMENTATION, A UNIQUE MEETING GROUND BETWEEN ACADEMIA AND BUSINESS.

PHASE MOTION CONTROL'S CONTRIBUTION TO PROPELLING SCIENTIFIC PROGRESS

BASIC RESEARCH

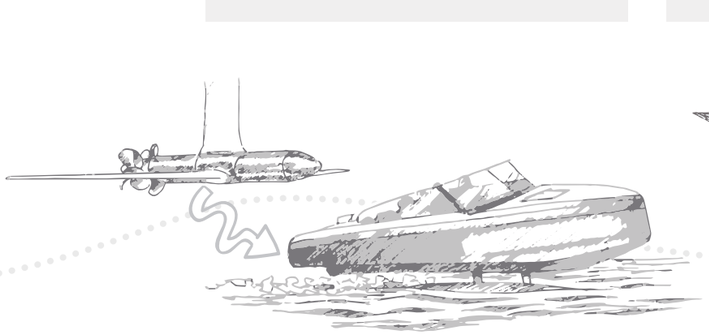
1.742 citations
of the 32 scientific publications produced by key people in the company

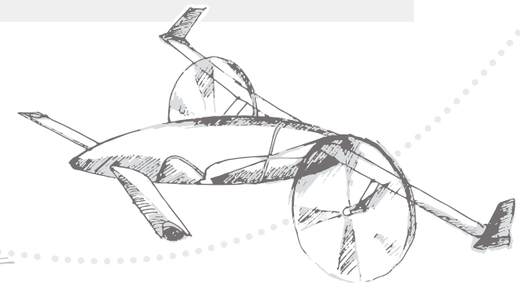
€ 251.000
invested in the past three years to support research projects at the University of Genoa

APPLIED EXPERIMENTATION

17 patent applications
filed in the last three years in Italy, Europe and the United States, of which eight have already been granted

€ 12.795.963
the total value of special projects carried out in the three-year period





INVESTMENT IN FUTURE RESEARCH

Phase Motion Control was created with the goal of expanding scientific knowledge and advancing technology in fields such as cybernetics, motion control, and energy conversion. Moments of discovery and invention are essential to contribute to sustainable development with a long-term vision.

Thanks to the substantial resources made available each year by the company, and leveraging the long-standing collaboration with the University of Genoa, Phase Motion Control professionals delve into research of potential yet still-undiscovered solutions, both in terms of industrial development and theoretical evolution or prototype creation. These are investments in the future, which could generate revolutions or fail, but which are essential for building, step by step, a path from which all humanity can benefit.

To date, research projects carried out by PMC people have led to the publication of 32 scientific papers, which in turn have generated more than 1,740 citations in scientific articles and journals in Italy and around the world.

Specifically, Phase Motion Control is currently venturing into pure research for:

- **The development of energy storage systems and advanced batteries**, currently the company's key area of concentration, whose level of progress has enabled it to generate significant new business volumes. Launched between 2016 and 2017, this research activity stems from a dual awareness: first, that energy storage is essential for the decarbonization of the economy, both in mobility and in the large-scale deployment of renewable energy; and second, that it has long been a neglected field in international energy policies, with the exception of China, which has consolidated an absolute competitive advantage in the field over the past decade.

  There are still many challenges to be solved to close the gap, such as increasing energy density to enable its application in the e-mobility sector, improving the safety of storage systems and product life cycle management (especially in the final stages), and the deployment of large-scale charging and power exchange facilities. Unlike conventional batteries, which consist only of electrochemical cells, the new high-performance lithium-ion batteries involve a number of electrochemical cells connected in series and in parallel to a mechatronic device that ensures their safety by monitoring and balancing them, as well as regulating their temperature. In fact, the main risk to which these cells are exposed is fire or explosion, partly due to their energy content, but mainly due to the volatile chemicals contained in the electrolyte.

  For this, Phase Motion Control initiated joint collaboration between its R&D team and researchers from several universities, including the School of Chemistry and Metallurgy at the University of Genoa.

  - **PMC's in-house laboratory is focused on integrating electrochemical cells into advanced mechatronics to increase their long-term safety and stability.** This work led to the definition of the new patent-pending "amniotic" immersion cooling and safety technology. Prototyping and testing activities benefited from the laboratory's safety chamber and allowed delivery to selected customers of two battery systems in the pre-production stage whose safety was certified in compliance with IEC 62619:2022, EN 62281, and UN 38.3 standards.

    PMC researchers are also working on the development of an advanced system for integrated management of all battery technology functions (Super Battery Management System or Super BMS), which enhances battery cells to achieve the exceptional performance and availability essential for applications (especially avionics).

  - At the same time, **with the establishment of a Phase Lab within the University of Genoa that is equipped with the necessary prototypes and test equipment, Phase Motion Control has pledged to support, through grants and four annually funded scholarships, the work of**

a team of researchers who are testing an innovative patented electrochemical cycle to regenerate cells and thus extend battery life.

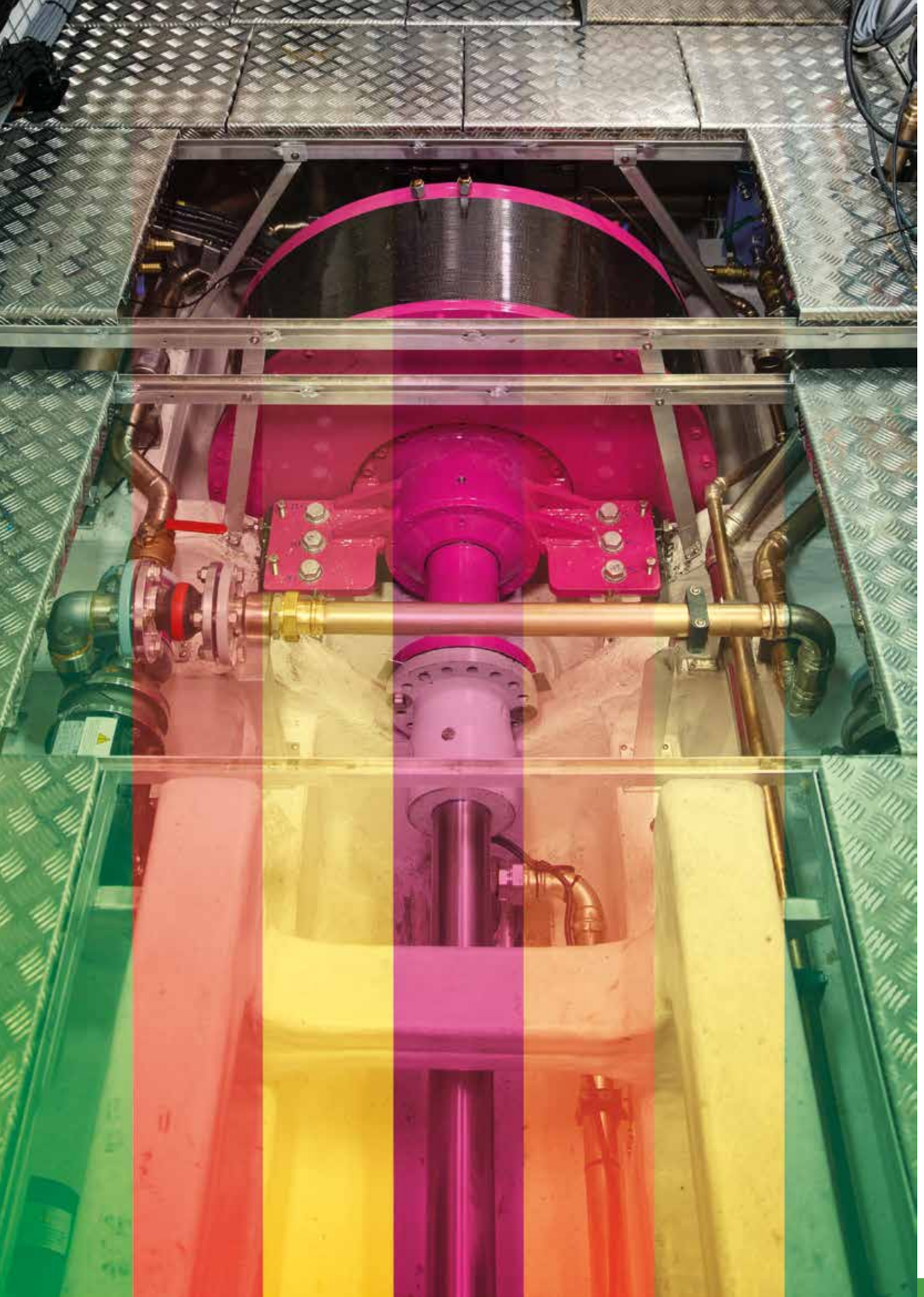
The team is also evaluating alternative anode materials, obtained by processing organic waste, that appear to offer nearly twice the ion density of standard graphite. In parallel, it is exploring a far more challenging field: that of solid-state cells. These solutions could radically transform advanced batteries by making them more stable, robust, and safe, but also lightweight as they contain no heavy metals. Today, the Phase Lab is among the first in the world to have successfully developed and tested several prototypes of solid-state batteries, with lithium and also sodium, the size of a coin, which are now in the testing phase.

To share its know-how and achievements, Phase Motion Control also joined the Batteries European Partnership Association (BEPA).

- **The development of models for recycling and replacing rare earths**, materials currently essential to produce high-performance magnets and motors, and thus for Phase Motion Control activities. To prevent the environmental impact associated with their extraction, use, and disposal, the company has entrusted the University of Genoa with two research projects aimed at probing:
  - **the properties as high-energy permanent magnets of new rare-earth-free compounds** based on iron-nitrogen crystals, some crystalline forms of which, difficult to synthesize, appear to be particularly interesting. **The project is specifically aimed at verifying the stability of this recently discovered crystalline form, describe it, and co-design** a production method that could revolutionize the field of advanced motor and magnet design thanks to the low cost of this resource. Although tests conducted over the past two years have not yielded encouraging results, a new method is now being explored that appears to offer more promising prospects;
  - **solutions to recycle rare-earth-containing magnets**, previously thought impossible to recover, by experimenting with a process to demagnetize, disassemble and pulverize the magnets in a neutral atmosphere and then reform them. The process has been tested and the first magnets have been sampled; the company is now looking for partnerships with the capacity to process these materials outside the Far East.
- **The development of a pioneering magnetic refrigeration and heat pump system**, under the guidance of the School of Thermodynamics at the University of Genoa, in which Phase Motion Control collaborates by providing the technology for the production and control of high-energy permanent magnets. Thanks to the properties of certain materials—capable of switching from a paramagnetic to a ferromagnetic state, with different energy levels, when subjected to a strong magnetic field—it would seem possible, in fact, to make a thermodynamic machine that does not require fluids for state transition and is highly efficient and with a potentially very wide temperature range. Similar technologies are already being used to conduct superconductivity and quantum mechanics experiments in extreme cryogenics.
- **The production of Kolibri: the first long-range, heavy-duty electric vertical takeoff and landing (eVTOL) aircraft**. Its creation is the result of a collaborative effort initiated in 2020 between Phase Motion Control and a group of cutting-edge aeronautical engineers. Designed to provide a viable alternative to road transport in mountainous areas, with a range of 300 km and a 300 kg payload, Kolibri has a simple design that draws on oriented-wing (tiltrotor) and multicopter models.

  The unusual propulsion efficiency derives as much from the light weight of its batteries as from the unprecedented counter-rotating motor-propeller combination that maximizes its efficiency during both takeoff and horizontal flight, as well as from the distribution of lift between the wings and the forward winglets that ensures the best lift-to-drag ratio in a compact design.

  The first test flight of a scale model took place in December 2021. After implementing some improvements to the original design, advanced testing was initiated and is still ongoing to arrive at the release of a prototype with full performance in the second half of 2024.
- **Increasing energy storage capacity to accelerate the deployment of renewable energy and the electrification of mobility in order to curb climate change**. Since 2018, Phase Motion Control's R&D team has been engaged in studying effective ways to leverage electric vehicles to increase green energy storage capacity. Over the years, the project has branched out into two areas of research aimed at developing:
  - **Ultrafast chargers for electric vehicles with storage that allow refueling in a few minutes** - an achievement that, from a technical standpoint, batteries available today would already be able to achieve, but which is hampered by an ultrafast charging infrastructure that is still inadequate due to the investment required to obtain sufficiently high peak power as needed, even in less-traveled areas. **Phase Motion Control has therefore been experimenting with the application of ultrafast chargers equipped with large batteries** to maintain low and constant loads on the power supply, while providing peak power through the battery. This is a solution that would also seem suitable for combination with small-scale solar or wind generation systems. Technology has already undergone thorough stress testing on the track, where eV competitions take place and where fast charging is a must. This experience will create EYE, a next-generation ultrafast charging station;
  - **two-way charging stations with remote control via 5G that can be installed either in the home or curbside**, capable of turning electric vehicles into large virtual batteries on wheels. Because of their bidirectionality, these technologies could, in fact, intelligently control and redirect the flow of energy between electric vehicles and green power generation systems, ensuring grid stabilization. The ability to measure the amount of energy in the grid and stored in vehicles and the speed of sharing this information with the entire system is a prerequisite for the success of the initiative. Therefore, in making the world's first prototype of this charger, PMC chose to try equipping it with a rapid communication system based on 5G technology - a demanding but enlightening challenge to unleash the full potential of this experiment.



SPECIAL APPLIED EXPERIMENTATION PROJECTS

Phase Motion Control designs and manufactures personalized solutions for its customers. These solutions are special because they are created using a "tailor-made" logic and produced in very limited series, and they are unique because they respond to needs that no existing system was yet able to meet.

The success of these projects relies on the synergy and mutual exchange created between the customer's experience and the expertise of Phase Motion Control's specialists: enhancing performance and creating value for the entire project depends on the motor or control system design.

This includes: ultra-high-dynamics hollow motors for rapid positioning of semiconductor molds; external rotary motors to be built inside high-speed elevator pulleys to minimize space requirements; direct-drive motors with large diameter double axial air gap for large telescopes; and direct-drive rings operating in high vacuum for space robots. They are just some of the most innovative technologies developed in this way in more than thirty years of working alongside customers. In fact, the company has all the necessary skills to follow a project through all its phases, from conception to industrialization, including validation by computer-aided analysis (CAA) or finite element analysis (FEA), and design and specification of individual components and subsystems.

The most significant special projects among those carried out in the three-year period were experiments involving:

- **Bidirectional fast charging systems for batteries that enable high-performance propulsion transmission for electric, hybrid, and eVTOL aircraft.** Established solutions include:
    - **all-electric propulsion motors**, equipped with simple, practical mechanics with no wear-and-tear components except for grease-lubricated hybrid bearings. The entire motor is made of high-strength light alloy, machined without welding or casting. In order to optimize availability and safety, as well as to enable the use of modular and high-frequency drives, motor winding is divided into four separate sections, which then function as independent motors. This limits the current per section, with an advantage in terms of redundancy and drive size efficiency;
    - **parallel hybrid propulsion motors**, designed without a frame to be placed directly on the propeller shaft, which in turn is the output of an internal combustion (IC) or turboshaft motor. The starting power needed for takeoff is provided by the IC motor and the electric motor, which is powered by a small battery.
- **Hybrid electric motor systems for marine traction and propulsion used by sailboats to navigate electrically both in port and at sea, thanks to several hours of autonomy**. Battery recharging is achieved by dragging the propeller while sailing, i.e., by dragging when the diesel engine is running (a component that also allows conventional navigation for these boats) or by plugging in when moored. Overall, considering average IC engine use in a sailboat, Phase Motion Control's hybrid engine system results in near-zero fuel consumption.
- **The low-speed direct-drive generators, which, thanks to the company's experience, can also be developed in large sizes**. PMC professionals design a wide range of solutions, from generators equipped with bearings and mechanics, to "frameless" units intended for direct mounting in the nacelle on the turbine shaft of mini-wind power plants. In addition, low-speed generators are produced for mini-hydro plants, used for both wave and tidal energy recovery.

METHOD

ENVIRONMENTAL FOOTPRINT OF PRODUCTION PROCESSES

ECODESIGN AND MATERIAL CIRCULARITY

SUPPLY CHAIN RESILIENCE AND SUSTAINABILITY

3 GOOD HEALTH

5 GENDER EQUALITY

7 RENEWABLE ENERGY

8 GOOD JOBS AND ECONOMIC GROWTH

9 INNOVATION AND INFRASTRUCTURE

12 RESPONSIBLE CONSUMPTION

13 CLIMATE ACTION

PHASE MOTION CONTROL

ENVIRONMENTAL FOOTPRINT OF PRODUCTION PROCESSES

[GRI 3-3]

Awareness of one's environmental performance is a necessary requirement to enhance business competitiveness, contain operating costs, and ensure greater sustainability.

To optimize business processes and decarbonize its energy mix, Phase Motion Control believes sourcing from renewable sources, energy efficiency, and electrification of consumption are essential.

A BLUE DOOR TO BRING THE FUTURE TO GENOA

Blue Gate is the name that now represents, for the Genoese neighborhood of Sestri Ponente, a synonym for avant-garde, innovation, and technology. This is the new heart and soul of Phase Motion Control - the world's first hub with a factory and research center for energy and motion control.

2023 saw the successful completion of a project presented five years ago to the Genoa-Savona Port System Authority, together with three other Genoese companies active in precision mechanics, to build a new technology hub dedicated to mechatronics.

This regeneration plan has made it possible to transform the industrial area once occupied by the Piaggio Aerospace Company into a new plant for Phase Motion Control. The ambitious project not only provided a new home for the company, but also contributed to the redevelopment of an area unused for years and in a state of neglect. Today, these spaces have acquired new life as they are set to host a center of international excellence capable of creating new jobs and becoming a strategic asset for the area thanks to their proximity to the future Genoa Erzelli University Hub.

More than 22,000 m² of the Blue Gate are designed to host a state-of-the-art, smart, efficient, and low-environmental-impact manufacturing site. To turn this vision into reality, since 2016, Phase Motion Control has invested nearly €9 million in the project, of which more than €4.5 million in the past three years. Of this sum, about 20% involves initiatives to make the plant more sustainable.

Consisting of two connected sections housing offices, laboratories, and production, the facility today is:

- designed to ensure high energy performance;
- prepared to accommodate a photovoltaic system with a peak power of 0.5 MW which, thanks to the use of state-of-the-art bifacial panels, covers not only the roof of the building but also the terrace railings that will enable it to produce 5% more energy and reduce the energy requirements for space cooling;
- equipped with high-efficiency electric heat pumps that regulate its heating, ventilation, and cooling. The system uses direct expansion cycles that allow, for each kW of electrical consumption, to generate more than 4 kW as heat or cooling output; equipped in industrial warehouses with double glazing and infrared filters to modulate natural light from the roof and fully coated with photocatalytic paints to increase the thermal insulation of the walls.

Through this project, Phase Motion Control also intends to improve the quality of daily life in its host areas. In fact, most of the area's flat roofs will be able to be transformed into accessible green spaces designed to foster a link between work and personal life. In line with this principle, PMC is committed to building two paddle courts and a planetarium open to the public for science outreach and educational activities.

GREEN ENERGY AND THE CARBON FOOTPRINT

[GRI 302-1] [GRI 302-3] [GRI 302-4] [GRI 305-1] [GRI 305-2]

In 2023, Phase Motion Control consumed 2,192,538.4 kWh of energy. Electricity consumption is the main energy source used (95.4%) to meet the company's power needs.

GRI 302-1 | Energy consumption within the organization (kWh) [9]
GRI 302-3 | Energy intensity (kWh/hours worked)

	2023		2022		2021	
	kWh	**kWh / hrs worked**	**kWh**	**kWh / hrs worked**	**kWh**	**kWh / hrs worked**
Direct energy consumption	101.137,40	0,35	n.d.	n.d.	n.d.	n.d.
of which natural gas consumption	12,65	~0,00	n.d.	n.d.	n.d.	n.d.
of which diesel consumption	101.124,75	0,35	n.d.	n.d.	n.d.	n.d.
Indirect energy consumption	2.091.401,00	7,14	2.334.708,00	8,55	2.261.422,00	8,17
of which electrical energy from renewable sources	559.658,91	1,91	1.648.757,54	6,04	2.261.422,00	8,17
of which electrical energy from non-renewable sources	1.531.742,09	5,23	685.950,46	2,51	0	-
Total energy consumed	**5.20.58**	**7,49**	**2.334.708,00**	**8,55**	**2.261.422,00**	**8,17**

Also, thanks to the move to the new Blue Gate site, in recent years the company has implemented several initiatives to reduce energy consumption.

These include, for example, the replacement of lighting systems with new efficient LED systems and the adoption of state-of-the-art hatches and air conditioning systems to reduce consumption and emissions. The company also owns a 2 MW photovoltaic plant, whose energy production is fully sold to the national grid.

The measures taken, combined with minimal fuel and gas consumption, enabled Phase Motion Control to produce only 27.1 tons of scope 1 CO_2 in 2023, almost entirely attributable to diesel combustion.

At the same time, over the three-year period, the volume of emissions related to the use of electricity increased steadily, albeit with a significant decrease in consumption. This was mainly due to the renegotiation of contract clauses with the supplier. Since mid-2022, Phase Motion Control has in fact had to give up sourcing 100% renewable energy covered by Guarantees of Origin in favor of a plan aligned with the national energy mix.

GRI 305-1 | Direct (Scope 1) GHG emissions [10]
GRI 305-2 | Energy indirect (Scope 2) GHG emissions

	2023		2022		2021	
	kg of CO_2e	**Kg CO_2 / hrs processed**	**kg CO_2e**	**Kg CO_2 / hrs processed**	**kg CO_2e**	**Kg CO_2 / hrs processed**
Total direct (Scope 1) emissions	27.106,30	0,09	n.d,	n.d.	n.d.	n.d.
Direct emissions from natural gas consumption	2,56	~0,00	n.d.	n.d.	n.d.	n.d.
Direct emissions from diesel consumption	27.103, 74	0,09	n.d.	n.d.	n.d.	n.d.
Indirect emissions from energy consumption (location-based)	954.870,95	3,26	735.433,02	2,69	763.017,89	2,75
Indirect emissions from energy consumption (market-based)	699.347,49	2,39	313.184,40	1,15	0	-
Total Scope 1 and Scope 2 emissions (location-based)	**726.453,79**	**2,48**	**313.184,40**	**1,15**	**0**	**-**

To lessen emissions of dust, aliphatic amines, phenols, and solvents generated during production activities, the company has installed cartridges, bag and synthetic filters, as well as activated carbon systems.

In addition, by its nature, the processing requires minimal water usage, only for cooling the batteries, which is done through closed circuits to avoid discharge or waste.

Therefore, the company's water consumption is attributable almost exclusively to civil use and amounts to about 5 megaliters, down nearly 40% from 2021, thanks in part to timely checks and prompt actions to prevent potential leakage.

[9] The indication "N.A." means no up-to-date data was available.

[10] The indication "N.A." means no up-to-date data was available.

ECODESIGN AND MATERIAL CIRCULARITY

[GRI 3-3] [GRI 306-1] [GRI 306-2]

In line with the approach defined by the European Commission in the new Circular Economy Action Plan, Phase Motion Control has designed an industrial process geared toward decoupling, as much as possible, economic growth from the consumption of finite or even scarce natural resources. **The company integrates the principles of optimization and circularity into all stages of production, from design inspired by ecodesign to waste management, as a way to minimize waste and encourage its reintroduction into the production process.** This strategy is the result of a detailed analysis of the activities, processes, and specific flows of raw materials that characterize the company's operations.

FLOW OF MATERIALS AND MANAGEMENT OF PRODUCTION WASTE

[GRI 306-3] [GRI 306-4] [GRI 306-5]

Optimizing resource use and reducing waste is an important means for a company like Phase Motion Control to promote environmental sustainability while ensuring an efficient and responsible production cycle.

FOCUS ON

THE IMPACT OF EPOXY RESINS ON SOLUTION DURABILITY

Rust is one of the main threats to the durability of high metal content products. In fact, metal oxidation can compromise its strength and lead to failure or malfunction.

To prevent this risk, **Phase Motion Control has developed a solution to increase the mechanical strength and durability of its products through the application of special resins known as epoxy resins.** This material is the result of a mixture of resins and thermosetting components which, when properly combined, react at room temperature, solidifying and creating a glossy vitrified coating on the application area.

Resin-coating components is carried out using closed-cycle machines that are monitored and maintained weekly by a specific operator who is in charge of replacing the pump that allows the fluid material to circulate.

Worker safety and environmental protection are ensured during all stages of the process in compliance with Art. 224 of Italian Legislative Decree no. 81/2008 regarding the use of chemical agents.

INTERNAL FLOWS OF RAW MATERIALS, PRODUCTION PROCESSES AND FINAL PRODUCTS

Input		Production process	Output	
Processing	Scraps and waste		Processing	Scraps and waste
Unfinished, semi-finished, finished products		Warehouse	Packaging, finished, semi-finished, unfinished products	• Wood, plastic, cardboard, PPE
Unfinished, semi-finished products, resin		Large Engines	Packaging, finished product	• Wood, plastic, cardboard, PPE • Soldering fumes • AC43 vapors
Unfinished (ferrules), semi-finished products		Assembly	Packaging, finished, semi-finished product	• Wood, plastic, cardboard, PPE • Carbon dust • AC43 vapors • Oil evaporation • LPG
Molds, semi-finished products, resin	• Packaging • Consumption • PPE	Resin coating	Semi-finished final product, metal drums	• Polymerized resin, plastic, rags, PPE • Resin vapors
Unfinished, semi-finished products		Mechanical processing	Semi-finished final product	• Metal shavings, wood, resin, cardboard, PPE • Resin dust • Waste oil
Semi-finished products, resin		Finish	Semi-finished final product	• Polymerized resin, abrasives, PPE • Resin dust
Unfinished, semi-finished products		Testing	Semi-finished final product	• Wood, plastic, cardboard, PPE • Soldering fumes
Semi-finished, finished products		Assembly	Semi-finished final product	• Wood, plastic, cardboard, PPE
Semi-finished products, raw materials		Windings	Semi-finished products	• Wood, plastic, cardboard, PPE • Raw materials (copper) • Soldering fumes

WASTE GENERATED 2023

215,8 t

WASTE RECOVERED

93%

In 2023, Phase Motion Control produced about 215.9 tons of waste, almost double compared to the 2021 levels, due in part to a return to normal production rates after the slowdown the company experienced during the pandemic period. Most of this is classified as non-hazardous (88.9%), while a small portion (11.1%) falls into the hazardous waste category.[11]

GRI 306-3 | Waste generated (tons)

	2023		2022		2021		Δ 2021-23
	tons	%	tons	%	tons	%	%
Hazardous waste	23,95	11,09%	26,37	13,89%	13,26	11,87%	80,62%
Non-hazardous waste	191,97	88,91%	163,43	86,11%	98,44	88,13%	95,02%
Overall total	215,92	100%	189,80	100%	111,70	100%	93,31%

In 2023, almost all of the waste generated (93.9%) was sent for recovery. This is mostly non-hazardous waste (97.5%), comprising mainly wood packaging and ferrous waste. A small portion, however, is hazardous waste (2.5%), which includes oil emulsions, oils and aqueous solutions, followed by electrical and electronic waste.

GRI 306-4 | Waste diverted from disposal

	2023		2022		2021		Δ 2021-23
	tons	%	tons	%	tons	%	%
Hazardous waste	5,14	100%	19,18	100%	2,13	100%	164,95%
of which oil emulsions, oils and aqueous solutions	4,60	89,49%	9,18	47,86%	0,75	35,21%	513,33%
of which electrical and electronic	0,19	3,70%	-	-	-	-	-
of which other	0,35	6,81%	10,00	52,14%	1,38	64,79%	-74,64%
Non-hazardous waste	197,68	100%	163,278	100%	98,371	100%	100,95%
of which paper and cardboard packaging	6,60	3,34%	2,90	1,78%	2,17	2,21%	204,15%
of which wood packaging	95,20	48,16%	87,69	53,71%	50,15	50,98%	89,83%
of which plastic packaging	9,56	4,84%	10,80	6,62%	7,88	8,01%	21,34%
of which mixed packaging	7,43	3,76%	3,58	2,19%	3,71	3,77%	100,11%
of which ferrous	57,58	29,13%	47,45	29,06%	0,60	0,61%	9480,70%
of which non-ferrous	2,45	1,24%	1,86	1,14%	1,65	1,68%	47,88%
of which electrical and electronic	7,75	3,92%	8,90	5,45%	3,89	3,96%	98,95%
of which green maintenance	0,05	0,03%	-	-	-	-	-
of which other	11,07	5,60%	0,10	0,06%	28,31	28,78%	-60,91%
Overall total	202,82		182,46		100,5		101,81%

GRI 306-5 | Waste directed to disposal (tons)

	2023		2022		2021		Δ 2021-23
	tons	%	tons	%	tons	%	%
Hazardous waste	11,80	90,04%	17,18	99,13%	11,13	99,37%	6,01%
Non-hazardous waste	1,31	9,96%	0,15	0,87%	0,07	0,63%	1764,29%
Overall total	13,10	100%	17,33	100%	11,2	100%	17,01%

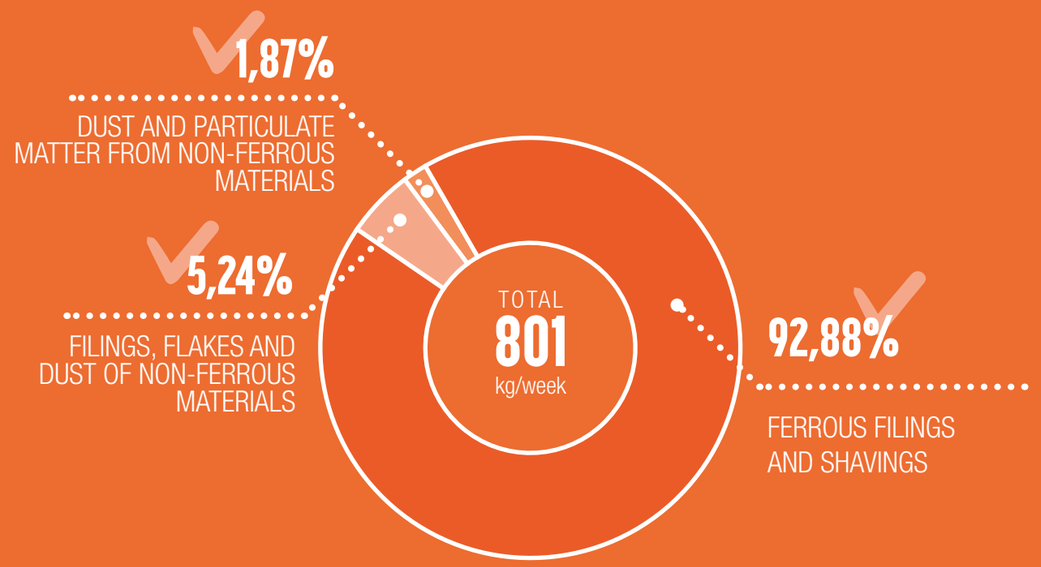
[11] Waste is managed by the Facility Management department, which, through the use of Winwaste software, is able to monitor the company's loading and unloading activity.

OPTIMIZATION IN CHIP MANAGEMENT

Turning is a mechanical process that involves machining a workpiece through chip removal. During these operations, machine tools produce shavings, dust, and filings of hazardous ferrous and nonferrous materials that can pose a threat to the operator assigned to the task.

For this reason, **Phase Motion Control has established a process to optimize the management of approximately 800 kg of chips generated each week at the plant, most of which come from ferrous materials (92.88%).**

QUANTITY OF CHIPS PRODUCED BY TYPE:



In fact, whenever the company changes the type of processing on the machine tools, it removes the chips generated and deposits them in bins marked with the correct European Waste Code (EWC) for waste management.

In addition, every evening, first by lathe operators and then by cleaning personnel, the chips are completely removed from the lathes. Each morning, before processing begins, the chips are removed from the bins and placed in special metal crates in the temporary waste storage area where it will be picked up by the hauler and sent for recovery.

FOCUS ON

CIRCULARITY AND END-OF-LIFE MANAGEMENT OF SOLUTIONS

In order to ensure that the products sold generate benefits by operating at full capacity for as long as possible, Phase Motion Control offers its customers a repair service for installed solutions upon request that is free of charge for products under warranty and provided upon approval of the quote if the warranty period has expired.

Over the year, the company handled 577 repair requests successfully in almost all cases (92%), thanks to the expertise of its technicians. Also testifying to the longevity of the products offered is the fact that nearly 1 in 2 requests involved products that had been in operation for years and therefore no longer under warranty.

The process to manage and deliver this service is codified within a special procedure and consists of four stages:

1. **receipt of the form:** the customer completes and sends the repair form to repair@phase.eu, briefly explaining the anomalies or problems encountered in the product;
2. **authorization of repair and receipt of goods:** following receipt of the completed form, PMC enters into the system the data of the customer and of the product for which assistance is required, and receives it in its warehouse;
3. **material analysis:** preliminary analysis is performed. Based on the findings, more in-depth checks may be requested from the laboratory, or the goods may be referred to the department that will perform the repair;
4. **service estimate, repair and shipment**: after the customer approves the estimate (in the case of out-of-warranty products), the specific PMC department involved initiates the repair and, on completion, ships the repaired product.

For products already returned to Genoa but found impossible to repair, PMC handles their disposal.

In 2023, the Company scrapped 49 engines, totaling about 8.2 tons of materials disposed of, most of which were ferrous in nature: steel alloys used for mechanical processing; incompletely processed electrical steel used in generators and electric motors; copper; mixed aluminum-magnesium-silicon alloys and other metallic materials.

FOCUS ON

OPTIMIZING THE AVERAGE LIFESPAN OF PHASE SOLUTIONS

Phase Motion Control uses Mean Time Between Failures (MTBF) as a reliability parameter for the solutions offered on the market, measuring this parameter for both returned machinery and defective products still under warranty.

Compared with the previous year, in 2023, the MTBF showed a marked improvement, with increases in the two categories of +41.9% and +65.8% respectively.

These data are indicative of the quality of electronic devices or software, mechanical components in the design phase and the processing times of semi-finished products - namely, the entire production range of PMC.

SUPPLY CHAIN RESILIENCE AND SUSTAINABILITY

[GRI 3-3]

To generate a positive and tangible impact, change needs to spread from a single organization throughout its supply chain.

Building a responsible and sustainable supply chain is an integral part of a broader corporate vision that actively promotes and fosters social and environmental responsibility.

In this scenario, the sector in which Phase Motion Control operates is particularly exposed to the risks which characterize supply chains that span the globe. In recent years, a succession of socioeconomic emergencies and geopolitical tensions have caused disruptions or uncertainties in supply. This has generated delays, price increases or material shortages, thus reducing the responsiveness of production and logistics chains.

CONTROLLED GLOBAL SUPPLY

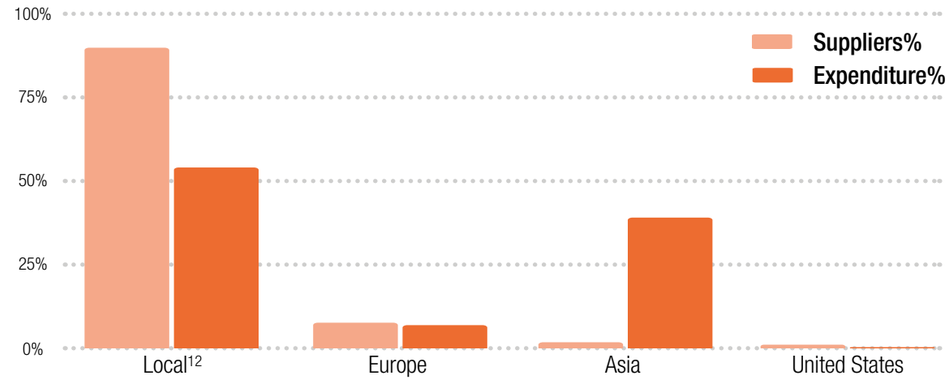
[GRI 204-1] [GRI 403-7]

Phase Motion Control is committed to responsibly managing its supply chain to ensure the best quality for its products and services. To do so, the company establishes solid and lasting relationships with the most qualified suppliers, promoting relationships characterized by mutual trust, transparency and cooperation throughout the entire value chain.

PMC's Purchasing Department is responsible for procuring what is needed for technology-related activities - design, research and development of new products and management of the electronic components - and manufacturing, primarily used for production activities.

Currently, 54.0% of Phase Motion Control's expenditure is to local suppliers, followed by Asian suppliers (38.9%). This choice is motivated by the nature of the raw materials needed for the company's operations, the production of which takes place almost exclusively in China. Therefore, despite the transfer of ownership of Phase Ningbo Ltd China, this company continues to be one of the most strategic partners in the implementation of PMC's projects.

204-1 Proportion of spending on local suppliers



[12] *Local suppliers are those whose procurement operations are based in Italy.*

As part of its constant improvement of the entire production chain, Phase Motion Control's purchasing process is governed by an evaluation procedure to approve all suppliers.

Through third-party audits, the company periodically monitors both new and already-approved suppliers to ensure that they are able to meet the technical, quality, environmental and safety requirements sought and required by the customer. The goal of this assessment is to verify that the supplier has the necessary resources (equipment, knowledge, policies, experience and personnel) to ensure a continued supply of excellent, safe and quality products. For this, the parameters utilized encompass five major criteria:

- the quality of the product and/or service provided;
- delivery times;
- payment methods;
- compliance with workplace safety conditions, with a higher score if the supplier has ISO 45001:2018 certification;
- environmental impact management, with ISO14001:2015 certification considered as an added value.

COMPETENCIES

PROFESSIONAL DEVELOPMENT, RECRUITMENT AND PERSONAL WELL-BEING

OCCUPATIONAL HEALTH AND SAFETY

3 GOOD HEALTH

5 GENDER EQUALITY

7 RENEWABLE ENERGY

8 GOOD JOBS AND ECONOMIC GROWTH

9 INNOVATION AND INFRASTRUCTURE

12 RESPONSIBLE CONSUMPTION

13 CLIMATE ACTION

PROFESSIONAL DEVELOPMENT, RECRUITMENT AND PERSONAL WELL-BEING

[GRI 3-3]

Phase Motion Control operates with the goal of building a world that functions. Since innovation and discovery are the result of individual creativity, the company regards its human capital as its main asset and places it at the center of its interests.

Therefore, professionalism and continuous skill development are the driving force of the company.

THE TEAM TO DESIGN A SUSTAINABLE FUTURE

[GRI 2-7] [GRI 2-8] [GRI 2-30] [GRI 202-2] [GRI 401-1] [GRI 405-1]

In 2023, PMC benefited from the contribution of 183 employees, 89% of whom were hired on a permanent basis and 88% on a full-time basis. Women represented about 12% of the corporate population and 20% of managers. 100% of employees are covered by a national collective bargaining agreement. In addition to its permanent employees, the company also had 12 outsourced workers.

GRI 2-7 I Employees by gender and region (number of people)
GRI 2-7 I Employees by type of contract, gender and region (number of people)

	2023			2022			2021			Δ 2021-23
	Women	Men	Total	Women	Men	Total	Women	Men	Total	%
Employees with permanent contracts	19	149	168	20	132	152	19	121	140	20,00%
Employees with temporary contracts	2	13	15	0	3	3	4	2	6	150,00%
Total	21	162	183	20	135	155	23	123	146	25,34%
of which full-time employees	12	161	173	12	134	146	17	121	138	25,36%
of which part-time employees	9	1	10	8	1	9	6	2	8	25,00%

GRI 2-8 I Workers who are not employees

	2023		2022		2021		Δ 2021-23
	Role	Total	Role	%	Role	Total	%
Outsourced workers	Blue collar workers	12	Blue collar workers	6	Blue collar workers	4	200,00%

GRI 405-1 I Diversity of governance bodies and employees

	2023		2022		2021		Δ 2021-23	
Employees by gender and professional level	Women	Men	Women	Men	Women	Men	% Women	% Men
Managers	1	4	1	3	1	3	0,00%	33,33%
Middle managers	1	7	1	7	1	8	0,00%	-12,50%
Staff	19	56	18	48	19	38	0,00%	47,37%
Blue collar workers	0	95	0	77	0	77	-	23,38%
Total	21	162	20	135	21	126	0,00%	28,56

Employees by gender and age bracket	2023			2022			2021			Δ 2021-23		
	<30	30 - 50	>50	<30	30 - 50	>50	<30	30 - 50	>50	% <30	% 30 - 50	% >50
Managers	0	3	2	0	2	2	0	1	2	-	-66,67%	0,00%
Middle managers	0	2	6	0	2	6	0	5	4	-	150,00%	-33,33%
Staff	14	50	11	10	46	10	15	34	8	7,14%	-32,00%	-27,27%
Blue collar workers	23	58	14	10	56	11	26	44	7	13,04%	-24,14%	-50,00%
Total	37	113	33	20	106	29	41	84	21	10,81%	-25,66%	-36,36%

Attracting new talent is fundamental to meeting the needs of all customers. However, given the nature of STEM skills required by the industry, the search for and retention of trained and competent personnel is a major challenge.

PMC's HR department places great emphasis on the recruiting process, promoting careful and rigorous selection to hire qualified talent. The search for new personnel is carried out through traditional channels outside the company: paper-based manual databases, newspaper advertisements, use of recruitment agencies and contact with schools, institutions and universities.

In 2023, Phase Motion Control recorded an incoming turnover of 25.6%, an achievement that testifies to the company's ability to systematically increase its personnel. Of the 47 new entrants, 53.2% are between 30 and 50 years old and 87.2% are men. During the year, there were also 19 terminations, mainly among employees under 30 (47.4%). However, the 10.4% termination rate indicates a low level of staff turnover.

GRI 401-1 | New employee hires and employee turnover

	2023			2022			2021		
	Women	Men	Total	Women	Men	Total	Women	Men	Total
Total hires	6	41	47	2	16	18	2	6	8
< 30 years old	2	16	18	0	7	7	1	4	5
30 - 50 years old	3	22	25	2	5	7	1	2	3
> 50 years old	1	3	4	0	4	4	0	0	0
Total terminations	5	14	19	3	7	10	1	8	9
< 30 years old	1	8	9	1	1	2	0	4	4
30 - 50 years old	3	4	7	2	2	4	1	3	4
> 50 years old	1	2	3	0	4	4	0	1	1

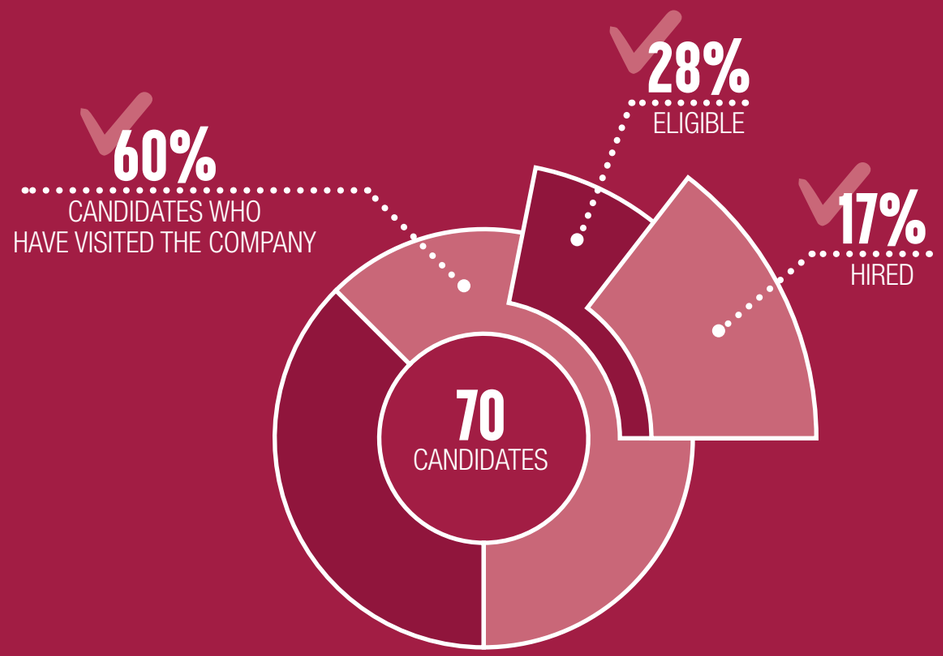
	2023			2022			2021		
	Women	Men	Total	Women	Men	Total	Women	Men	Total
Incoming turnover	28,57%	25,31%	25,68%	10,00%	11,85%	11,61%	8,70%	4,88%	5,48%
< 30 years old	9,52%	9,88%	9,84%	0,00%	5,19%	4,52%	4,35%	3,25%	3,42%
30 - 50 years old	14,29%	13,58%	13,66%	10,00%	3,70%	4,52%	4,35%	1,63%	2,05%
> 50 years old	4,76%	1,85%	2,19%	0,00%	2,96%	2,58%	0,00%	0,00%	0,00%
Outgoing turnover	23,81%	8,64%	10,38%	15,00%	5,19%	6,45%	4,35%	6,50%	6,16%
< 30 years old	4,76%	4,94%	4,92%	5,00%	0,74%	1,29%	0,00%	3,25%	2,74%
30 - 50 years old	14,29%	2,47%	3,83%	10,00%	1,48%	2,58%	4,35%	2,44%	2,74%
> 50 years old	4,76%	1,23%	1,64%	0,00%	2,96%	2,58%	0,00%	0,81%	0,68%
Overall turnover	52,38%	33,95%	36,07%	25,00%	17,04%	18,06%	13,04%	11,38%	11,64%

EMPLOYER BRANDING STRATEGY

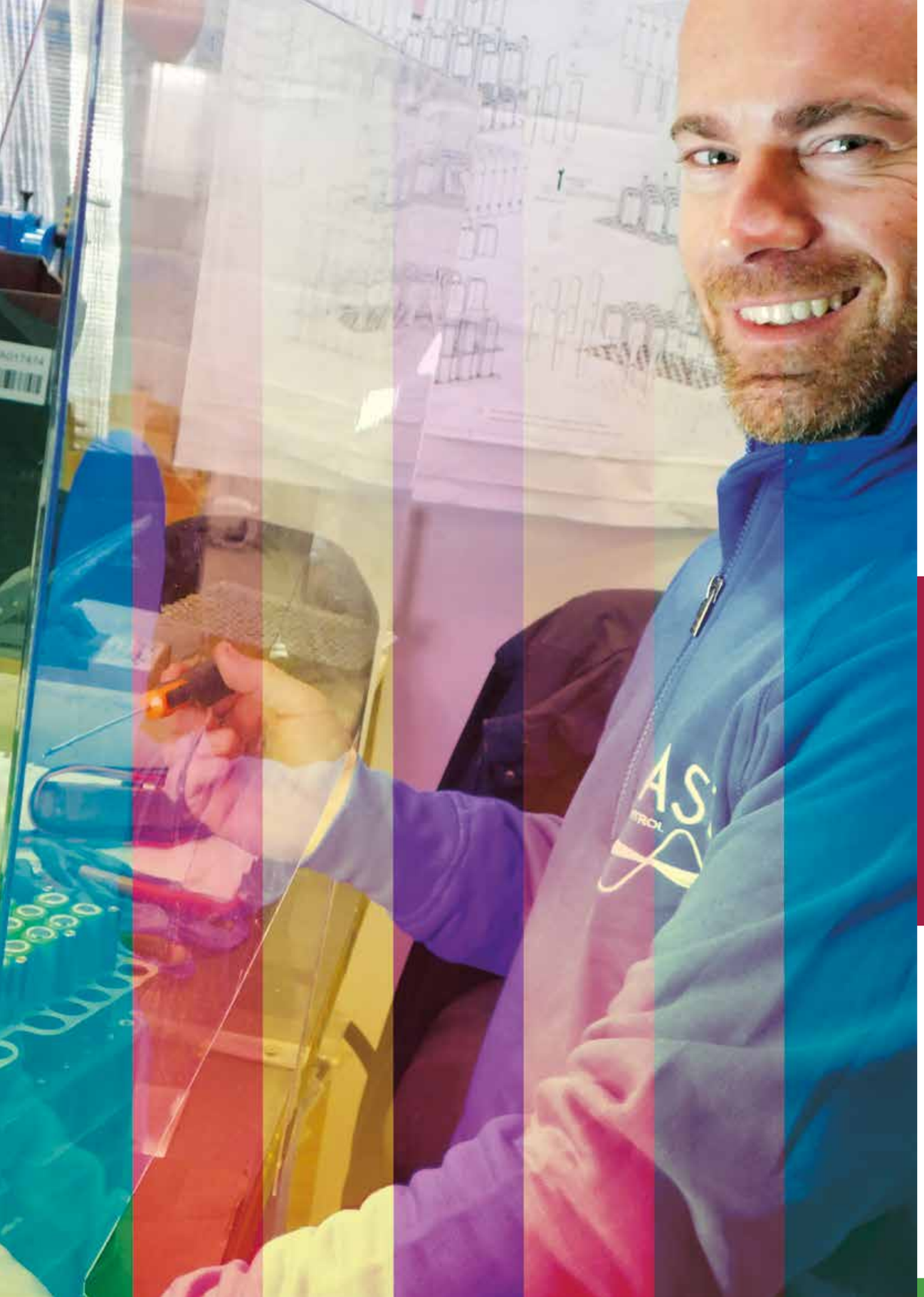
To expand its talent pool, Phase Motion Control has initiated a search for candidates with skills suited to its environment, in collaboration with Adecco.

Starting with an Employer Branding plan developed in synergy with the Adecco Academyc - which was created to identify young candidates to target for specific career paths - **the company launched a coordinated series of communication activities to contact potential candidates possessing soft and hard skills in line with the company' needs**. Subsequently, the selected candidates underwent training designed specially to meet PMC's specific professional training needs. The last phase involved job placement within the company to provide continuity with the process already begun.

THIS INITIATIVE WAS PROMOTED IN EIGHT LIGURIAN INSTITUTIONS AND ATTRACTED THE INTEREST OF MORE THAN 70 CANDIDATES. OF THESE, MORE THAN 60% TOOK PART IN THE COMPANY VISIT, 28% WERE SELECTED AS ELIGIBLE AND 17% WERE HIRED UPON COMPLETION OF THE INITIATIVE.



FOCUS ON



HEALTH AND WELFARE

[GRI 401-2] [GRI 401-3]

Employee well-being has always been a company priority. In particular, to promote a work-life balance, PMC offers various welfare and well-being solutions.

The company guarantees access to smart-working to all employees involved in activities which, due to their nature and organizational and production needs, can be carried out in locations other than the company's headquarters. In addition, for the second year in a row, the company has promoted the Solidarity Time Bank. This tool for the voluntary sharing of leave and vacation allows colleagues who have not exhausted their leave and rest days to freely offer their time off to those who may need it to care for sick children, spouses or parents.

The desire to promote the well-being of its people also led PMC to join WellMAKERS in 2023, a wellness and sustainability ecosystem devised by the BNP Paribas Group that provides workers with arrangements and discounts covering a wide range of services and products. This benefit is designed to meet five basic needs of employees: health and prevention, family support, education, protection, leisure time and mobility.

In the area of wellness, Phase Motion Control has also organized yoga and posture courses, as well as acupuncture and medical visits. To encourage good health, the company guarantees half an hour of time off before and after medical visits within the national health system. In addition, in accordance with the provisions of the national collective bargaining agreement for workers in the metalworking industry, all employees are covered by the supplementary health fund META Salute.

FOCUS ON

QUICK RELIEF FROM MUSCULOSKELETAL PAIN

In 2023, at the company's infirmary, Phase Motion Control offered its employees the opportunity to use Libralux free of charge for two days.

This treatment uses a laser beam at very low power levels capable of producing extremely effective biostimulation, thanks to a precise and specific (patented) combination of wavelength, modulation and power.

Libralux is suitable for treating and curing musculoskeletal pain, back pain and cervical issues, often providing immediate benefits to the patient.

During the three-year period, nine employees made use of parental leave (about 6.2% of those eligible). Of these, 55.5% were men. In addition, 100% of employees of both sexes returned to work after parental leave.

GRI 401-3 | Parental leave

	2023			2022			2021		
Number of employees	**Women**	**Men**	**Total**	**Women**	**Men**	**Total**	**Women**	**Men**	**Total**
with the right to parental leave	5	42	47	1	41	42	4	54	58
who took advantage of parental leave	0	2	2	1	3	4	3	0	3
who returned to work following parental leave	0	2	2	1	3	4	3	0	3
who returned to work and are still employed after 12 months	0	0	0	0	0	0	3	0	3
Re-entry rate	**100%**			**100%**			**100%**		

SKILL DEVELOPMENT

Phase Motion Control promotes the professional development of its employees to ensure that they acquire the skills necessary to do their jobs effectively and safely.

For this, **in 2023, it provided a total of more than 2,000 hours of training, with an average of about 11 hours per employee**. In addition to mandatory training, the company offers elective training courses selected to foster the development of specific and soft skills. **In addition, there are also study leaves that the company grants to support its employees who wish to pursue their academic education: two individuals are studying for a secondary school diploma, six for a bachelor's degree, five for a master's degree, and 1 for a doctorate**.

Also during the year, to promote greater understanding of the solutions and technologies designed and adopted by the company, Phase Academy was created. This project is based on the concept of sharing knowledge and for it, in each department, a "master" is identified who is recognized by all as an expert and who offers a one-hour session to those who want to understand how work is done in another department. The first course was conducted by CEO, Marco Venturini, on chip-removal machining; the second by Mr. Politi, an experienced senior foreman. They were followed by courses given by electronic and mechanical experts

In addition, the company also uses external partnerships to provide training courses. These include the empowering intervention by INTOO that is aimed at creating awareness, responsibility and proactivity among employees, and Objective and Key Results (OKR), designed to accelerate the operational capacity of the supply chain to sustain the pace of business growth by effectively identifying and mapping development priorities.

Lastly, in order to enhance the skills of its employees, **PMC organized together with Randstad a training course dedicated to exploring language and communication, best practices for defining a corporate task force and talent development**. In addition, taking a cue from the needs of its workers, the company proposed a 24-hour course to boost communication skills aimed at fostering effective dialogue and enhanced collaboration among colleagues. The course, based on the principle of "on-the-job training", involved the participation of 15 people and the introduction of the Gallup CliftonStrengths report.

FOCUS ON

DEVELOPING AGILE LEADERSHIP

In 2023, an agile leadership course was organized with the aim of increasing awareness of the manager's role, the effectiveness of key skills such as flexibility and adaptation, as well as experimenting with new management tools for human resources.

The topics covered outlined the concept of "Agile", a philosophy that has spread since the beginning of the new millennium. It is characterized by the ability to respond promptly to unplanned elements and to constantly re-plan to take advantage of opportunities that arise in the operational environment. The main challenge of this approach lies in the need for a significant mental and cultural change, and this course was designed to provide the proper foundation to address this transformation.

OCCUPATIONAL HEALTH AND SAFETY

[GRI 3-3] [403-1] [403-8]

Also, in light of the medium-high risk level of its activities, Phase Motion Control puts the health and safety of its people first. In fact, it uses an Integrated Management System (IMS) that covers 100% of employees, based on ISO 9001:2015, ISO 45001:2018 and ISO 14001:2015 standards and certified by TÜV SÜD.

SAFETY CULTURE, FROM PREVENTION TO RISK MANAGEMENT

[403-2] [403-3] [403-4] [403-5] [403-6] [403-9] [403-10]

Phase Motion Control scrupulously analyzes potential risks that may occur during its business activities. Prevention is essential. Therefore, the company has prepared a Risk Assessment Document (DVR) in conformity with Article 28 of Italian Legislative Decree no. 81/2008. This document is updated using information obtained from monitoring activities, as well as when there are significant changes in the production process or when health surveillance reveals the need for corrective action.

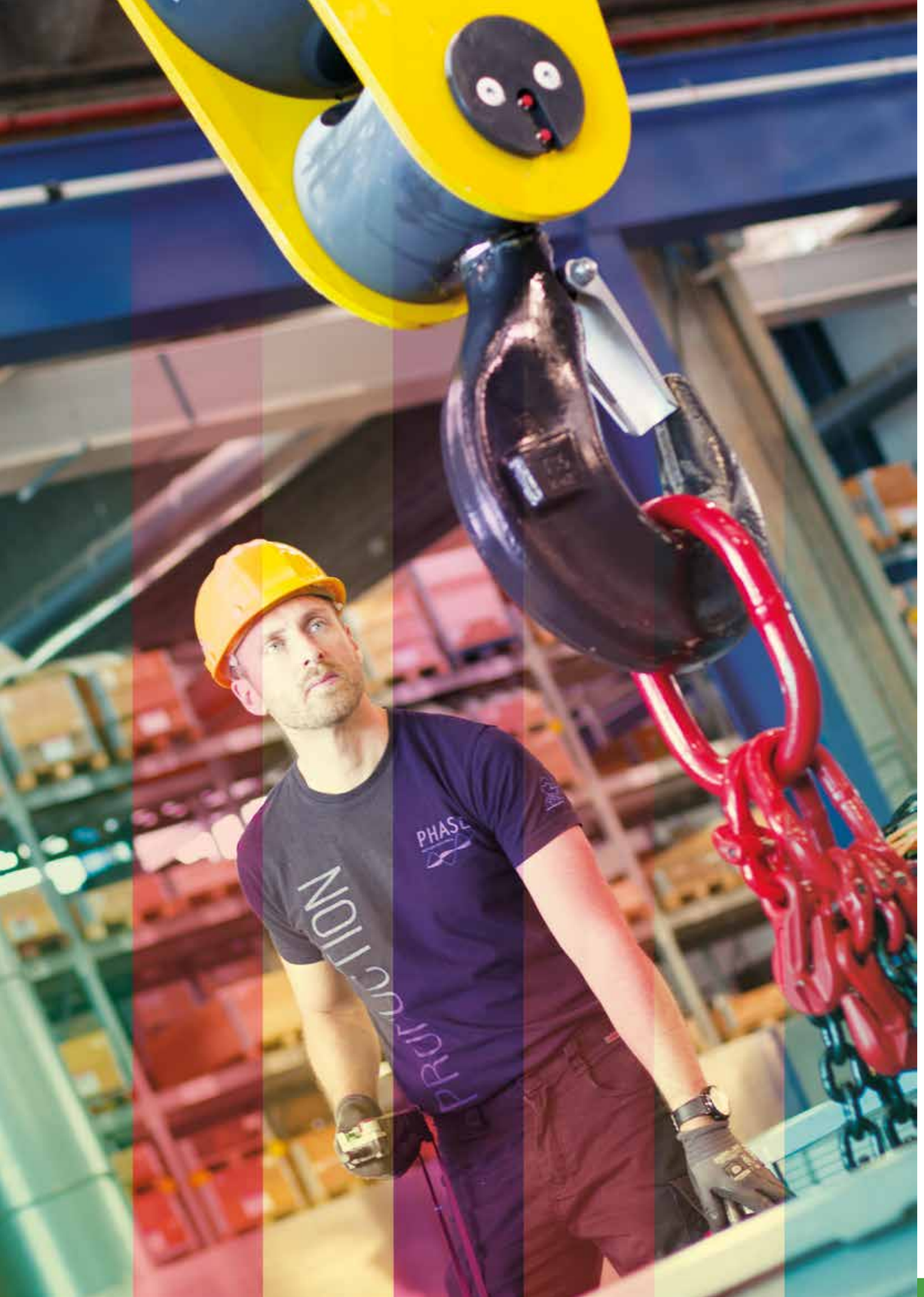
The company employs an **external Prevention and Protection Service Manager (RSPP)** whose job is to identify and evaluate risk, as well as all measures required to ensure a safe and healthy work environment. Employees may also report accidents or situations that jeopardize safety and the environment, using a QR code. This gives them easy access to a form to fill out, in which they can specify the type of event and other details they deem relevant, which are then discussed at monthly staff meetings.

Health surveillance is entrusted to the occupational physician, an external figure who conducts periodic inspections, examines workers according to the health protocol and collaborates with the employer and the RSPP for any action required.

In 2023, there were 5 injuries among employees, down 37.5% from 2021. In addition, in the past three years, there have been no cases of employees suffering from work-related ill health or fatalities resulting from work-related ill health.

GRI 403-9 | Work-related injuries

	2023	2022	2021	Δ 2021-23
Number of recordable injuries	5	7	8	-37,50%
of which fatalities	0	0	0	0%
of which with serious consequences of which with serious consequences	0	0	0	0%
Total hours worked by employees	292.731,90	272.970,00	277.073,70	5,65%
Accident rate (per million hours worked)	17,08	25,64	28,87	-40,84%



Accidents are attributable to traditional metalworking activities: the greatest risks are related to working at heights, machine tool use and working with high-tension lines. As standard practice, preventive measures taken include the adoption of collective protection equipment; specific information, education and training; the adoption of measures, methods and procedures for reorganizing work; and the use of personal protective equipment (PPE).

PPE, assigned in compliance with current regulations and according to the individual tasks performed by employees, is dispensed through an automatic dispenser, which keeps track of each withdrawal, except for specific equipment (e.g., welding, anti-fall protection) that is assigned manually.

Again, in conformity with Italian Legislative Decree no. 81/2008, PMC also provides risk assessment for work-related stress, a condition that may be accompanied by physical, psychological or social disorders or dysfunctions as a result of feeling unable to meet demands or expectations. The assessment is also extended to activities that minors can engage in. Specifically, the company prohibits adolescents from being assigned to tasks that expose them to hazardous physical, biological and chemical agents, or to specific phases of work.

To protect the safety of its employees even while working off-site, Phase Motion Control conducts inspections to assess the risks associated with transfers and takes the necessary measures to ensure their protection.

Every worker, whether employed or outsourced, must receive all the information on the measures taken to achieve the best quality standards and to protect the environment and occupational health and safety.

The company provides education and training to consolidate the skills, as well as awareness, of staff in this context. **Training is divided into mandatory and vocational (related to the employee's specific duties). The latter stems from the need to enable, qualify or upgrade technical personnel to their role.**

PMC has developed an induction program specifically for new hires. During the learning phase, the process manager pairs the new hire with a mentor who is responsible for supporting the new employee and reporting on the results achieved.

HOW THIS DOCUMENT WAS PREPARED

NOTA METODOLOGICA

[GRI 2-2] [GRI 2-3] [GRI 2-4] [GRI 2-5] [GRI 2-29]

Phase Motion Control's Sustainability Report 2023 is the result of its desire to take the first step in transparently and systematically communicating to all stakeholders and employees the aspirations, challenges and impacts, as well as the environmental, social and economic achievements of the company.

In line with the Financial Statements, this document adopts a reporting scope that includes only Phase Motion Control S.p.A., and the information reported refers to fiscal year 2023 (January 1 – December 31, 2023). Where possible, data pertaining to the previous two-year period (2021-2022) have been provided.

The Report has been prepared with reference to GRI Standards 2021, the most widely used standards in non-financial reporting. *When available, data and information corresponding to the GRI indicators are indicated in the text by identification codes in square brackets [GRI] under each title. Compliance with the standards has not been verified by a third party.*

The collection of all the data and qualitative information presented in this Sustainability Report is the result of collaboration among all PMC departments, each of which has contributed to its own areas of expertise.

For more information visit https://www.phase.eu/it/ or email administration@phase.eu.

MATERIALITY ANALYSIS 2023

[GRI 2-29] [GRI 3-1] [GRI 3-2]

Reporting on sustainability means providing stakeholders with the necessary information to understand the fundamental elements of an organization, considering the impacts generated and experienced across the various aspects of sustainability.

In 2023, following the guidelines provided by the GRI Standards 2021 and anticipating the requirements of the future European Sustainability Reporting Standards (ESRS) developed by the European Financial Regulation Advisory Group (EFRAG), Phase Motion Control chose to focus its attention and commitment on the most relevant issues throughout its value chain, specifically those related to the most significant, positive or negative, current or potential impacts that are generated or experienced.

Through a materiality analysis - the process of identifying and understanding the most significant issues for a company in its interactions with the environment, economy and people - the company was able to assess its key impacts by performing:

1. **Context analysis of the trends in the sector in which PMC operates,** at international, national and local level, through bibliographical sources and sector articles.
2. **Mapping of impacts related to the company's sector and activities** along the entire value chain, including both impacts generated on the external environment (impact materiality) and impacts suffered (financial materiality).
3. **Technical evaluation of mapped impacts** to measure significance based on four parameters:
   - Scope, to measure the influence generated or suffered by PMC in each topic;
   - Scale, the extent of the impact;
   - Irremediable character, to quantify the difficulty of nullifying or offsetting the effects of an impact;
   - Likelihood, to measure the probability of the impact occurring.
4. **Prioritization of the most significant impacts and definition of the materiality threshold** through dialogue and engagement with key internal functions and senior management, and subsequent validation of the results by management.

OUR RELEVANT TOPICS

Starting from an initial list of 10 potentially relevant topics, the materiality analysis resulted in PMC identifying 7 material topics on which to concentrate its attention, resources and reporting activity.

1° Accelerating toward a decarbonized world

2° Ecodesign and material circularity

3° Propelling scientific progress

4° Environmental footprint of production processes

5° Quality and accessibility of solutions

6° Professional development, recruitment and personal well-being

7° Occupational health and safety

TECHNICAL APPENDIX

Calculation of the annual contribution of Phase Motion Control solutions to decarbonization

PMC co-designs innovative solutions for energy and motion control with its customers to produce direct drive motors and thus eliminate kinematic chains. These applications simplify processes and, as a result, save energy for customers who use them. This saving can involve a reduction in costs incurred and a decrease in the carbon footprint.

Since Phase Motion Control does not have detailed information on the actual intensity of customer use of the solutions and motors sold, to quantify the energy, economic and environmental benefits generated, the company used a proprietary, standardized calculation methodology structured as follows:

- rated power and the number of installed solutions were taken from databases extracted from the information systems used by the company;
- actual power is quantified from a conservative estimate of:
  - average operating time of the device during a calendar year;
  - share of rated power utilized during the period of operation;
- efficiency compared to a standard solution is the result of an accurate and conservative estimate made by the company's top management;
- the actual energy savings was calculated according to the formula (actual power * annual hours of operation * estimated efficiency);
- economic savings associated with reduced consumption was calculated based on the average price for industrial electricity found in fourteen western EU countries and the UK during 2023 and reported in the document "Industrial Electricity Prices in the EU" by the British government's Department for Energy Security and Net Zero;
- the amount of CO2 emissions averted by energy consumption savings was calculated by referring to the conversion factors given in the document "Efficiency and decarbonization indicators in Italy and in the biggest European Countries, 2023" by the Institute for Environmental Protection and Research (ISPRA) and using the formula (MWh saved * Electricity consumption factor).

Calculating the contribution of Phase Motion Control to propelling scientific progress

Phase Motion Control pursues the goal of expanding scientific knowledge and advancing technology in fields such as cybernetics, motion control and energy conversion.

Impact is generated not only by designing and developing cutting-edge solutions, but also by sharing the results of experiments and research conducted with the scientific community through the publication of academic papers. This impact was calculated through the researchgate.com portal by surveying the number of citations (recorded as of April 5, 2024) of articles attributed to three key figures in the company: Marco Venturini (Chairman and CEO), Marco Calvini (Research Director) and Alvise Zorzi (PhD student and company employee).

GRI INDEX

GRI Index Phase Motion Control has reported the information cited in this document with reference to the GRI Standards.
GRI 1 utilized GRI 1: Foundation 2021
GRI Sector Standard(s) Not applicable

GRI Standards	Disclosure	Location / Omissioni
General information		
GRI 2: General Disclosures 2021	2-1 Organizational details	§ Phase Motion Control Registered office: Via Luigi Cibrario 4, 16154, Genoa, Italy.
	2-2 Entities included in the organization's sustainability reporting	§ Methodological Note
	2-3 Reporting period, frequency and contact point	§ Methodological Note
	2-4 Restatements of information	Not applicable because this is the first Sustainability Report of Phase Motion Control S.p.A.
	2-5 External assurance	This document did not undergo external control.
	2-6 Activities, value chain and other business relationships	§ The core value of our solutions § Economic-financial results § Accelerating toward a decarbonized world § Propelling scientific progress ATECO code 27.11
	2-7 Employees	§ The team to design a sustainable future
	2-8 Workers who are not employees	§ The team to design a sustainable future
	2-9 Governance structure and composition	§ Responsible governance
	2-10 Nomination and selection of the highest governance body	§ Responsible governance
	2-11 Chair of the highest governance body	§ Responsible governance
	2-12 Role of the highest governance body in overseeing the management of impacts	§ Responsible governance
	2-13 Delegation of responsibility for managing impacts	There is no formalized delegation of management responsibility related to ESG issues.
	2-14 Role of the highest governance body in sustainability reporting	§ Responsible governance
	2-15 Conflicts of interest	There is no process regarding this
	2-16 Communication of critical concerns	In 2023, ten critical issues were reported to the BoD, of which six involved tax issues and four potential lawsuits.
	2-17 Collective knowledge of the highest governance body	§ Responsible governance
	2-18 Evaluation of the performance of the highest governance body	There is no procedure for performance evaluation in ESG.
	2-19 Remuneration policies	a. Board remuneration is fixed and defined by the General Meeting. For the management team, each member has a fixed and a variable component, generally linked to the achievement of company goals. In normal administration, there are no entry bonuses or payments at the end of the contract. There are no claw backs or retirement benefits. b. Unrelated.
	2-20 Process to determine remuneration	There is no remuneration committee. The CEO determines the remuneration of employees and members of the BoD.
	2-21 Annual total compensation ratio	§
	2-22 Statement on sustainable development strategy	§ Letter to stakeholders
	2-23 Policy commitments	§ n.a.
	2-24 Embedding policy commitments	§ n.a.
	2-25 Processes to remediate negative impacts	§
	2-26 Mechanisms for seeking advice and raising concerns	There is no formalized procedure or mechanism for seeking advice and raising concerns.
	2-27 Compliance with laws and regulations	§
	2-28 Membership associations	Institute of Electrical and Eletronics Engineers, Confindustria, Batteries European Partnership Association (BEPA), Conai, Comitato Elettrotecnico Italiano (CEI), Consorzio Marina Science Park.
	2-29 Approach to stakeholder engagement	§ Methodological Note § Materiality Analysis
	2-30 Collective bargaining agreements	§ The team to design a sustainable future

Specific Disclosures		
GRI 3: Material Topics 2021	3-1 Process to determine material topics	§ Materiality Analysis
	3-2 List of material topicsi	§ Materiality Analysis
	Accelerating toward a decarbonized world	
GRI 3: Material Topics 2021	3-3 Management of material topics	§ Accelerating toward a decarbonized world
	Propelling scientific progress	
GRI 3: Material Topics 2021	3-3 Management of material topics	§ Propelling scientific progress
	Environmental footprint of production processes	
GRI 3: Material Topics 2021	3-3 Management of material topics	§ Environmental footprint of production processes
GRI 302: Energy 2016	302-1 Energy consumption within the organization	§ Green energy and carbon footprint The equivalent of natural gas and diesel in kWh was calculated by referring to the conversion factors given in the "UK Government GHG Conversion Factors for Company Reporting" document from the British government's Department for Energy Security and Net Zero.
	302-3 Energy intensity	§ Green energy and carbon footprint
	302-4 Reduction of energy consumption	§ Green energy and carbon footprint
	305-1 Direct (Scope 1) GHG emissions	§ Green energy and carbon footprint
	305-2 Energy indirect (Scope 2) GHG emissions	§ Green energy and carbon footprint The amount of tCO2e emissions was calculated by referring to the conversion factors given in ISPRA's "Efficiency and decarbonization indicators in Italy and in the biggest European Countries", 2023.
	Ecodesign and material circularity	
GRI 3: Material Topics 2021	3-3 Management of material topics	§ Ecodesign and material circularity
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	§ Ecodesign and material circularity
	306-2 Management of significant waste-related impacts	§ Ecodesign and material circularity
	306-3 Waste generated	§ Flow of materials and management of production waste
	306-4 Waste diverted from disposal	§ Flow of materials and management of production waste
	306-5 Waste directed to disposal	§ Flow of materials and management of production waste
	Supply chain resilience and sustainability	
GRI 3: Material Topics 2021	3-3 Management of material topics	§ Supply chain resilience and sustainability
GRI 204: Procurement Practices	204-1 Proportion of spending on local suppliers	§ Controlled global supply
GRI 403: Occupational health and safety 2018	403- 7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	§ Controlled global supply
	Personal development, recruitment and personal well-being	
GRI 3: Material Topics 2021	3-3 Management of material topics	§ Personal development, recruitment and personal well-being
GRI 202: Market presence 2016	202-2 Proportion of senior management hired from the local community	§ The team to design a sustainable future
GRI 401: Employment 2016	401- 1 New employee hires and employee turnover	§ The team to design a sustainable future
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	§ Health and well-being
	401-3 Parental leave	§ Health and well-being
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	§ The team to design a sustainable future
	Occupational health and safety	
GRI 3: Material Topics 2021	3-3 Management of material topics	§ Occupational health and safety
GRI 403: Occupational health and safety 2018	403-1 Occupational health and safety management system	§ Occupational health and safety
	403-2 Hazard identification, risk assessment and incident investigation	§ Safety culture: from prevention to risk management
	403-3 Occupational health services	§ Safety culture: from prevention to risk management i
	403-4 Worker participation, consultation and communication on occupational health and safety	
	403-5 Worker training on occupational health and safety	§ Safety culture: from prevention to risk management
	403-6 Promotion of worker health	§ Safety culture: from prevention to risk management
	403-8 Workers covered by an occupational health and safety management system	§ Occupational health and safety
	403-9 Work-related injuries	§ Safety culture: from prevention to risk management
	403-10 Work-related ill health	§ Safety culture: from prevention to risk management

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