Gnutti Carlo Group

SUSTAINABILITY REPORT 2022

Added Value, in Everything We Do

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A message to our stakeholders [2-22]

I am proud to share our Group's **2022 Sustainability Report**, drafted in accordance with the Global Reporting Initiative (GRI) Standards. Not only the GRI framework provides a crucial feature of comparability to our Group's sustainability performance, but it also allows us to effectively communicate our achievements to our stakeholders: **transparency** and **communication** are indeed two fundamental pillars of our corporate approach, as we are aware that an open and clear communication builds credibility and promotes accountability.

Despite the challenges raised by global events such as Covid-19 Pandemic, shortages of raw materials, and increase in fuel and energy costs, we managed to ensure our **business continuity** while seizing the opportunity to conduct a thorough analysis of our operations and explore innovative approaches to enhance **resource efficiency**. This Sustainability Report fits in the Group's broader commitment to account for its impacts on society and the environment, thus contributing to the sector transition towards sustainable solutions which are smart, balanced, and promote progress.

In 2022, we focused on **monitoring** the consumption and associated emissions of our operations, allowing us to establish a structured and centralized approach not only for measuring these impacts but also for effectively addressing them. Closely tracking consumptions, can give us valuable insights on sources and trends, so to implement effective strategies for the years to come. Some of our plants have already taken crucial steps to reduce their emissions by implementing **energy efficiency measures** and actively promoting the use of **renewable energy sources** through the installation of solar panels and support the transition to responsible choices in purchasing of electricity.

As for the awareness of the pivotal role played by our employees in the success of our business, in 2022 we fostered the extensive training programs offered by the **Gnutti Carlo Academy**. This internal industrial school serves as a platform for personal and professional development of employees across all seniorities, ranging from apprentices to top management. We also invested in extensive **health and safety** training, with the clear goal of spreading awareness on best practices to prevent the occurrence of injuries: we are indeed committed to ensuring that our employees can work in a safe and healthy environment, by assessing the risks and preventing them.

With our global presence, we are conscious of our **responsibility** to protect the environment and positively contribute to society, and we are therefore excited to have embarked on this journey towards a more sustainable future. Proud of our achievements, we are ready for the challenges ahead of us: the world is changing fast, and we are ready to be part of this evolution by investing on research, innovation, and sustainable practices.

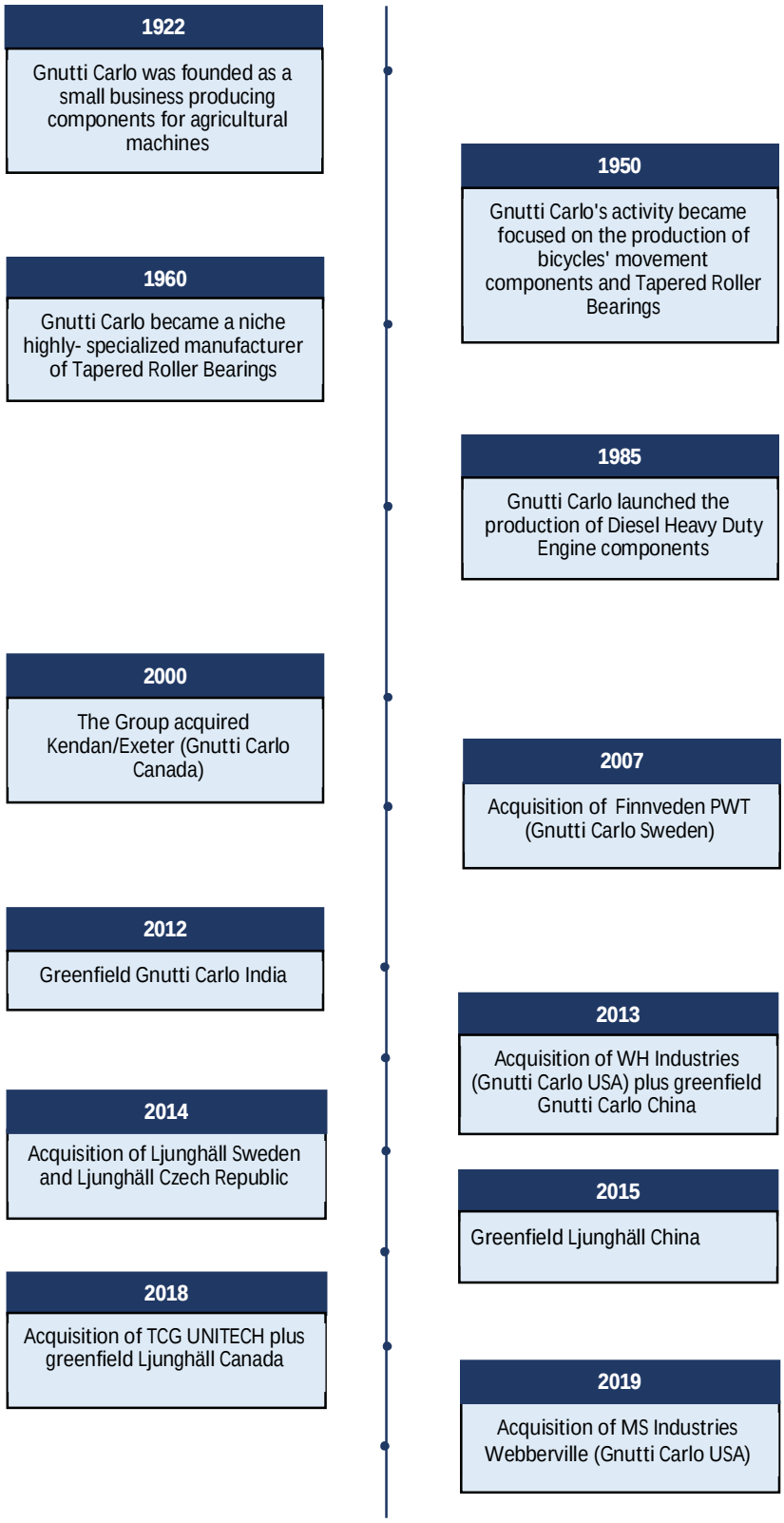
We can guarantee you we will keep adding value to everything we do.

Claudio De Conto

15/11/2023

1. Gnutti Carlo Group: history, values, and sustainability approach

1.1 Gnutti Carlo Group timeline



1.2 Introduction [2-1, 2-6]

The Gnutti Carlo Group (hereinafter also "the Group") is a leading player in the automotive industry, active in the powertrain field with the development and production of components for Valve Train (rocker arm groups) and fuel injection systems. The Group is also a reference player in the supply of complex aluminium and magnesium high pressure die-cast components for the automotive industry, in the injection moulding of thermoplastic materials and in the development and production of oil pumps and coolant pumps.

The Group is a partner of several OEM's operating in the automotive, truck, earthmoving, motorcycle, marine, genset, and e-mobility sectors.

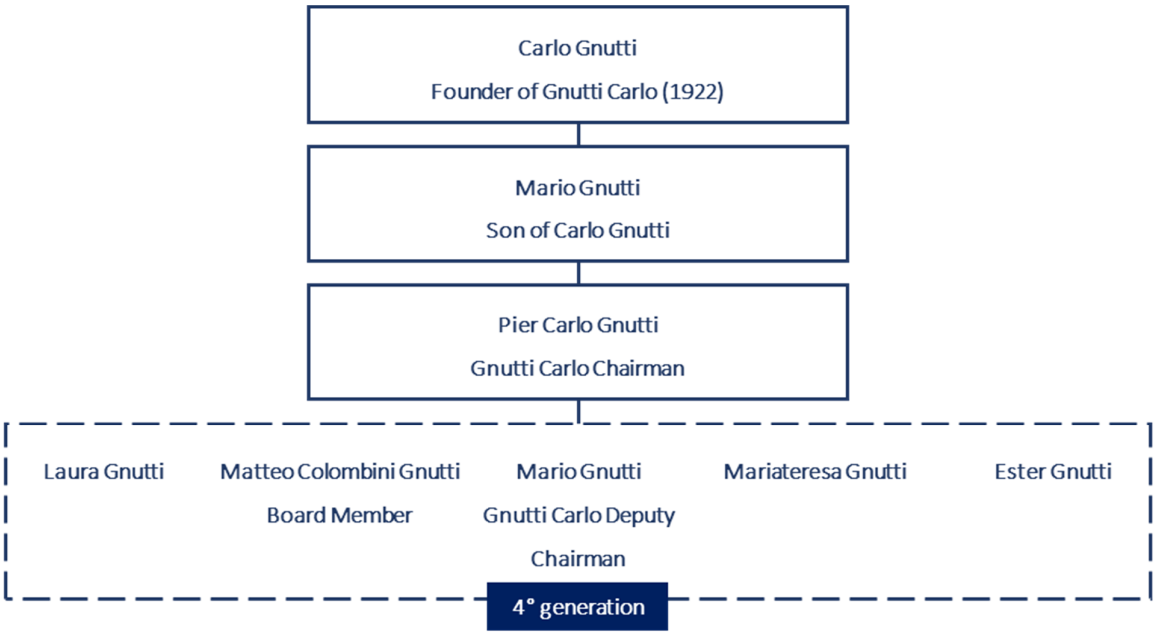
Privately held, with over 4.000 people (of which 3.000 directly employed by the Companies making up the Group)[1], working at 12 Plants around the world, the Holding Company (Gnutti Carlo S.p.A.) and the Headquarters of the Group are based in Maclodio, Brescia, Italy.

The Group's history began in 1922 when Mr. Carlo Gnutti first established a company for the production of agricultural machines components. Since then, the Group has changed focus and direction few times, with the two most recent changes taking place in 1985, with the start of the production of components for Diesel Heavy Duty Engines, and in 2014, with the entrance into the High Pressure Die Casting field. The growth has been organic, through the acquisition of new companies and the construction from greenfield of new Plants around the world (namely in India, China, and Canada). The Group is now active in two main fields, – Powertrain and High Pressure Die Casting - serving the industries' major players as a Tier 1 or Tier 2 supplier, handling every stage of the production, from design to manufacturing to continuous improvement.

With a rich history spanning four generations, the Group has become a synonym of high-quality products: each step of the production process and the quality control stages are carried out with a steadfast dedication to upholding the highest standards of quality and safety. Innovative processes and industry best practices are applied at every stage to make sure that each component is thoroughly inspected, ensuring optimum performance and dependability. Through the digitalization of processes, the Group has embarked on a path to transform its plants into smart factories adopting advanced technologies such as the Internet of Things (IoT), artificial intelligence (AI), and automation to improve efficiency and productivity. Attention to people is also a cornerstone of the Group's history, starting with workplace safety and continuing with the development of people's skills through continuous training activities provided by the internal Academy.

[1] For the purpose of this Report, only the 3,000 employees directly employed by Gnutti Carlo Group Companies have been included in the reporting perimeter.

The Shareholders



The Group's business segments [2-2]

The Group's is structured into two business segments: Powertrain and High Pressure Die Casting – each of them specialised in the manufacturing of different components and serving different markets. High Pressure Die Casting business segment was organized in two divisions - TCG UNITECH and Light Metals - until end of 2022.

The Powertrain business is headquartered in Maclodio, Brescia, (Italy), hosted at one of the Plants of the Group. The Plant, which covers 23,000 square meters, also hosts the Group's Headquarters' offices. In this segment, the Group is a world leader in the development and production of valve train components, mainly rocker arm groups, lifters, roller tappets, and injectors. It partners with major OEM's active in the truck, construction, agricultural, motorbike, and marine sectors.

Starting from 2014, the Group ventured into the High Pressure Die Casting business, through the acquisition of **Ljunghäll** industries: established in 1917, Ljunghäll's Plants provide die-cast aluminium components to the automotive sector (trucks and passenger cars). Its acquisition enabled the Group to offer complete Valve Train systems to the market, encompassing both the camshaft carrier and rocker arm assembly.

In 2018, the Group acquired **TCG UNITECH**, an Austrian-based group exclusively dedicated to the automotive sector (passenger cars and light commercial vehicle) since its establishment in 1958. With TCG UNITECH activities and expertise, the Group spread into new sectors and productive processes such as magnesium manufacturing, thermoplastic injection moulding, and the design and production of oil and coolant pumps. The acquisition strengthened the Group's presence into the premium cars market, further consolidating its position in such segment.

Today, the Group is present in 9 countries with 12 production facilities, spreading over Europe, North America, and Asia:

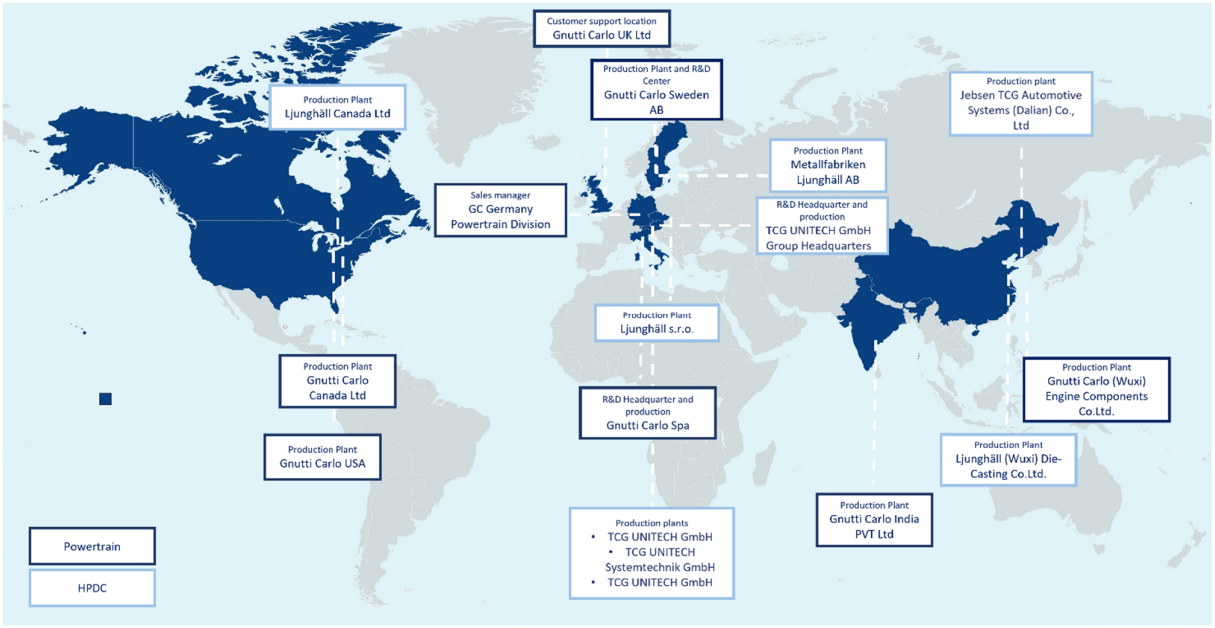
Powertrain:

- Gnutti Carlo S.p.A., Maclodio, Brescia, Italy;
- Gnutti Carlo Sweden AB, Kungsör, Sweden;
- Gnutti Carlo Canada Ltd, Huron Park, Ontario, Canada;
- Gnutti Carlo India Ltd, Ranipet, Tamil Nadu, India;
- Gnutti Carlo (Wuxi) Engine Components Co., Ltd., Wuxi (Jiangsu), Xishan, China;
- Gnutti Carlo USA, Webberville, Michigan, United States.

High Pressure Die Casting:

- Metallfabriken Ljunghäll AB, Södra VI, Sweden;
- Ljunghäll s.r.o., Čáslav, Czech Republic;
- Ljunghäll (Wuxi) Die-Casting Co. Ltd, Wuxi (Jiangsu), Xishan, China;
- Ljunghäll Canada Ltd, Huron Park, Canada.
- TCG UNITECH GmbH, Kirchdorf an der Krems, Rohr im Kremstal, Micheldorf, Austria;
- Jebsen TCG Automotive Systems (Dalian) Co., Ltd, Dalian, China (a joint venture Company between TCG Unitech and Jebsen Automotive Technik).

The Group also comprises a Sales Company in Germany (Gnutti Carlo Germany Gmbh), and a customer support location in the United Kingdom (Gnutti Carlo UK Ltd)[2].



The Group aims at granting the delivery of state-of-the-art technologies to its customers and to ensure the highest levels of quality. To achieve this, the Group employs cutting-edge techniques for product testing to meet and exceed customers' expectations. Advanced engineering is supported by laboratory testing conducted in soundproofed cells, equipped with benches specifically designed for dynamic engine tests. Additionally, the Group utilizes specialized equipment to fulfil specific client requirements, new materials testing, leak tests, and friction tests.

This comprehensive approach guarantees that every component undergoes thorough functional testing, assuring optimal performance and reliability.

[2] Both UK and Germany offices are excluded from the reporting perimeter of this 2022 Sustainability Report.

1.3 The Group's identity and organizational structure

"Added value in everything we do" is Gnutti Carlo Group's motto, describing its commitment to creating value in an ethical and sustainable way, while ensuring the highest quality standards and operational excellence. Every decision is driven by solid values and built up on nine principles, which are embedded in the Group's values structure. The key to the Group's success is indeed represented not only by the reactivity through which it faces present and future challenges, but also through its vocation to operational excellence and transparency.

The Group constantly works with its clients in order to help them achieve their goals and to be a valuable partner for their businesses, trying to understand their processes, business models, and how they create value for their stakeholders.

The Group is committed to be more agile and cost-effective, and it works to consistently decrease complexity, "think lean," and enhance efficiency.

The market is shaped by several themes, including macroeconomics, regulation, innovation, and local requirements and restrictions. The Group's business is becoming more complex because of this. One key success factor is mastering complexity better than others.

Integrity is the foundation of the Group's business conduct. Even in challenging situations, the Group is committed to acting morally, fully dedicated to its business and stakeholders.

The Group highly values the significance of each individual's contribution and actively promotes a culture of personal accountability.

The Group aspires to be a team of really engaged individuals, proud to be part of a successful firm, where everyone is working for common goals.

The local footprint of the Group in different regions enables to embrace unique perspectives and to build synergies beyond geographical borders.

Inspired by the 3Ps strategy, the Group aims to achieve long-term profitability and wealth creation, reduce its environmental effect, and contribute positively to the communities where it is situated.

The Group is capable to transform challenges in opportunities leveraging its innovation and resilience capabilities.

The Group is thus committed to satisfy its customers by supplying products that are tailored to their unique requirements while operating quickly and effectively, as well as investing in innovative solutions and favoring simplicity over complexity.

Corporate functions and technical committees

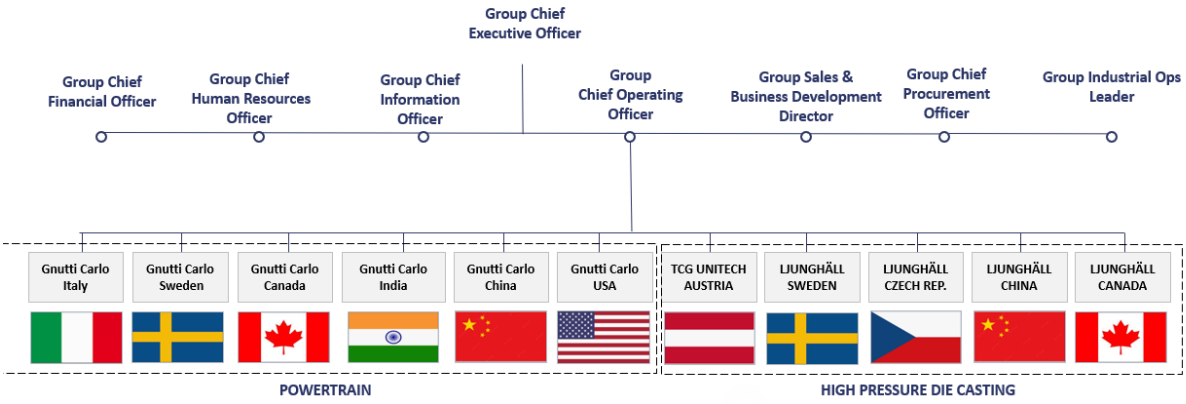
The Group has designed several centralized corporate functions to guarantee coordination among its two businesses and local activities: each of the twelve Plant's Managing Director, in fact, reports directly to the Group's Chief Operating Officer ("COO"), a direct report to the Group Chief Executive Officer ("CEO"), to facilitate strategic alignment and share results and best practices, while assuring operational independence to quickly address market needs and local inputs. Reporting to the COO are also the Chief Technology Officer of the High Pressure Die Casting Business and the Engineering Director of the Powertrain one, in addition to the Powertrain R&D Director and Quality Director.

While daily operations, engineering activities, products' development and quality controls are delegated to local Plants, six corporate functions are designed to assist the Plants' managers and local functions in their business activities, guaranteeing proper synergies and the sharing of best practices at Group Level.

Below are summarized the main responsibilities of the six corporate functions:

- **Finance**: responsible for the integrity of the Group financial statements - ensuring both legal compliance and accurate financial reporting to the Stakeholders – over-seeing the cashflow in and out of the organization, reporting on the financial performance of the different Companies of the Group, developing effective financial strategies to help ensuring the success of the Group;
- **Procurement:** defines, plans, and control the supply chain of the Group, ensuring that the businesses have the appropriate suppliers base to manufacture their goods in line with the Customers' demand and expectations. Procurement has also the responsibility to develop the vendor base to be used for significant investments in production assets.
- **Operations:** leads, manage and run the operations activity of the Plants of the Group, leading key initiatives, and implementing Group-wide strategies. Its duties include implementing the Operational Excellence Journey across the Group and maintaining the Group's conversion costs under control, in addition to the management of the Maintenance and Assets activities at Group level. Together with Human Resources, it manages the Gnutti Carlo Group Academy that has the ambition to reskill and up-skill the Group's personnel. HSEQ also belongs to this function in order to get uniformity in the Health, Safety, Environmental and Quality System across the Group.
- **HR:** responsible of all the aspects related to the nurturing of the Human Capital of the Group, from hiring to training and development, to compensation and retention of the Group's employees.
- **ICT:** supports in full the Business' needs in all tasks and processes. This function is in charge of scouting, defining, maintaining, developing tools and new functions, always fitting with the context. ICT is a technological enabler for business processes and a source of ideas for new technologies and digitalization, being actively engaged in the convergence process of IOT (Information Operation Technologies). ICT incorporates a risk-based approach, compliant with laws and standards, and it is in charge of setting a reliable Infrastructure and Cyber Security environment to provide continuous services.

- **Sales and Business Development** sets go-to-market plans and organizes the Group's strategies for top customers. It is in charge of spotting emerging trends in the automotive sectors as well as potential chances for the Group to continue growing in a sustainable way.



To better manage the needs and requirements of the business units, the Group CEO appointed two Operational Committees (the **High Pressure Die Casting Operational Committee** and the **Powertrain Operational Committee**).

These Operational Committees, established in November 2022, meet on a monthly basis and are focused on supporting the operational activities of the business of the Group, looking at:

- Operational performances (Financial, Sales/Backlog, OEE, Engineering, Quality, Inventory), performing reviews, analysis, and setting up follow-up actions;
- Requests for Quotations, Industrial Capacity and Investments proposals;
- Organizational topics;
- Investment authorization process.

Governance structure [2-9, 2-10, 2-11]

As per the governance structure, the Holding Company of the Group, Gnutti Carlo S.p.A., is governed by a five-member Board, comprising the Chairman of the Board of Directors, the CEO, the Vice Chairman of the Board, and two Board members. The duration of their tenure is determined at the time of appointment, not exceeding three financial years, with the possibility of re-election. Notably, Gnutti Pier Carlo serves as a non-executive director of the Holding Company.

Board members - Gnutti Carlo S.p.A.	
Pier Carlo Gnutti	Chairman of the Board
Claudio De Conto	Chief Executive Officer

Mario Gnutti	Vice Chairman of the Board
Matteo Colombini Gnutti	Member of the Board
Ester Gnutti	Member of the Board

The powers, duties, and responsibilities of the Board of Directors are determined by government regulations (including the jurisdiction's corporate law) and the organization's own constitution and by-laws.

About compensation matters, the Board is responsible for defining the CEO's compensation package: this package includes a fixed component and a variable component in the form of Management By Objectives (MBOs) and Long-Term Incentives (LTIs), which are tied to the attainment of specific economic and financial performance targets[3]. The Holding Company's Board of Directors also bears the responsibility of approving the M.B.O. policy for the Group employees participating to the MBO Variable Compensation Program. On the other hand, remuneration packages for other roles and positions tend to be more stable, primarily influenced by the fixed remuneration component [2-19] [2-20].

Although the Group currently lacks a specific policy or guidelines for managing and preventing conflicts of interests within the Board of Directors, no instances of conflicts of interest have been reported in the three-year reporting period 2020-2022 [2-15].

Stakeholders and membership associations [2-28, 2-29]

Operating through a broad and complex value chain requires engaging with a great number of different stakeholders, both private and public, that are impacted by and responsive to the Group's business activities. The Gnutti Carlo Group fosters dialogue with each relevant stakeholder category throughout different approaches, and through associations and platform, both at national and international level, that promote networking, collaboration, and knowledge sharing among industry peers, providing for a context of collective growth and mutual development.

List of stakeholders	
Employees	NGOs
Competitors	Universities and research institutes
Category associations	Local communities and territories
Investors and shareholders	Suppliers
Consumers and clients	Media and public opinions
Regulators and governmental bodies	Trade unions

[3] Currently, bonuses and rewards based on sustainability objectives are not included, but the Group, coherently with its sustainability path, is considering their incorporation in the coming years.

The Group is an active member of several industry associations whose goal is to draft guidelines, coordinate and promote collaboration among different players in the automotive and metalworking industries. In addition, the Group is a member of economic and financial associations (e.g., Chambers of Commerce) as well as technical associations, aimed at fostering product innovation and development within the industry. In particular, the Group's Plants have joined the following associations of both of local and international interest:

List of association	
TCG UNITECH GmbH	Austrian Federal Economic Chamber
	Plastics Cluster
	Automotive cluster
	Industriellenverein Österreich
	Business Upper Austria
	Technology Innovation Center – Kirchdorf, Austria
	Österreichische Gießereiindustrie - ÖGI
Metallfabriken Ljunghäll AB	Teknikföretagen - Association of Swedish Engineering Industries - member of Svenskt Näringsliv, Confederation of Swedish Enterprises
Ljunghäll (Wuxi) Die-Casting Co. Ltd	China Foundry Association
	Shanghai Die Casting Technology Association
Ljunghäll Canada Ltd.	NADCA – North American Die Cast association
Gnutti Carlo Canada Ltd	HMA – Huron Manufacturers Association
	EMC – Excellence in Manufacturing
Gnutti Carlo USA	Michigan Manufacturing Association
	IMA (Institute of Management Accountants)
Gnutti Carlo Sweden AB	Scandinavian Association for Suppliers to the Automotive Industry
	Svenskt Näringsliv – Confederation of Swedish Enterprises
Gnutti Carlo S.p.A.	Confindustria - Brescia
	Heavy Duty Business Forum – Europe
	ANFIA (Associazione Nazionale Filiera Industria Automobilistica)
	Federmeccanica

Gnutti Carl india Ltd	Export Promotion Council for EOUs & SEZs (EPCES) by the Ministry of Commerce & Industry, Government of India
Gnutti Carlo (Wuxi) Engine Components Co., Ltd.	China-Italy Chamber of Commerce

1.4 Group compliance and business ethics [2-23, 2-24, 2-25, 2-26]

The Group is committed to full transparency in communication and compliance with applicable laws and regulations in all countries where it operates. In fact, it has drafted a set of internal documents and policies with the aim of avoiding cases of regulatory and administrative non-compliance and to guide its employees' behavior in their daily activities.

As an example, the Group monitors and periodically updates its **Organizational, Management and Control Model**[4], an organic set of principles, rules, provisions, organizational schemes and related tasks and responsibilities suitable to prevent administrative offences, as envisaged by the Italian Legislative Decree 231/2001 [2-16].

The Group's **Code of Conduct**[5], inspired to the Universal Declaration of Human Rights and the International Labour Organization's Declaration on Fundamental Principles and Rights at Work for Multinational Enterprises, defines the principles, corporate values as well as the rules that all company representatives, employees, and every individual acting, directly or indirectly, on behalf of the Group must respect to abide to its values. The Group is committed to not initiate or continue any relation with any entities or person who does not comply with the principles state in its Code of Conduct.

The six guiding principles contained in the documents are given as follows:

- **Integrity**: all employees and collaborators are required to comply with applicable local regulations, regardless of any potential cost or benefit to the Gnutti Carlo Group;
- **Responsibility**: each employee is held accountable for their actions and professionality, which can affect the reputation of the Group. Their professionality and performance are to be aimed at achieving the goals set by the Group, and this should always be done by following the guidelines outlined in the Code of Conduct;
- **Honesty**: all employees shall carry out their actions in accordance with the principles of honesty and diligence upheld by the Group. They should refrain from any unlawful behavior, not only in overt cases, but also in instances involving illegitimate acts or undue advantages arising from conflicts of interest;
- **Fair behavior**: each employee is required to respect the dignity of every other individual, and therefore to reject any kind of discrimination, harassment or use of child labor; in particular, the Group does not engage with business partners which use child labor;
- **Respect for the Law and Regulations:** the Group recognizes the fundamental principle of respecting the laws and regulations in effect in all countries; every employee and every activity must abide by the defined regulations;
- **Respect for the person and diversity:** The Gnutti Carlo Group promotes respect for the physical, moral, and cultural integrity of individuals. It guarantees working conditions that uphold individual dignity and ensure safe working environments; the Group is committed to applying current legislation and labor contracts to its workers.

[4] Organizational, Management and Control Model
[5] Group's Code of Conduct

The Group has also implemented a **whistleblowing model** and **dedicated channel**[6], serving as a platform for reporting unethical, illegal, or policy-violating actions, allowing individuals to disclose reprehensible matters that might otherwise remain undisclosed.
To facilitate this process, a dedicated online platform was launched in 2022, enabling internal and external stakeholders to submit grievances. As defined by the Group's procedures, once a grievance is reported, local HR managers are responsible for collecting the instance and determining the appropriate steps and personnel that should be involved in addressing the matter. In case of significant issues extending the locale scope, they escalate to the Group Chief Human Resources Officer, who assesses the eventual need of the CEO's involvement[7].

During 2022, two potentially critical concerns have been reported via the online platform: both of them have been promptly addressed and resolved within a few days.

The Group has also drafted dedicated policies and documents with the aim of making its workspaces welcoming, safe and inclusive for its employees and collaborators, to whom they are addressed:

- **Quality, Health, Safety, and Environmental Policy**[8]: the policy has been implemented as an integral part of the Group's activities, and with the aim of achieving the greatest level of customer satisfaction by delivering products in line with the highest quality standards, according to a zero-defect principle. As another goal of the Policy, it sets the aim of continuously improving the Group's performance both in terms of occupational health and safety and environmental protection, through the removal or mitigation of present risks: healthy working conditions and safe workspaces, fire protection, responsiveness in cases of emergencies of any kind, and all those aspects aimed at reducing the Group's impacts on the environment, including the proper use of raw materials and resources.
- **Information & Communication Technologies Policy**[9]: the policy aspires to define the main ways of managing the IT tools available to the Group, with the main purpose of protecting sensitive information and personal data, reducing and mitigating human error and preventing risks of fraud by raising security awareness among all the employees.
- **Gnutti Management System Handbook and Central Directives for Health, Safety, Environment and Quality**: a common Management System applicable to all the plants has been defined by the Group in order to set standards across the plants and to share a common approach focused on Health, Safety, Environment and Quality.
- **Suppliers' manual**: the Group takes a comprehensive approach to its operations, not only overseeing matters within its direct operational control but also placing significant emphasis on the entire value chain of its products. This approach begins with the supply chain, where the Group meticulously selects suppliers through audits, visits, and performance evaluations, aiming at establishing business relationships with those who align with its values. Considering this, the Group has developed a dedicated **Supplier Manual** to ensure that every supplier of raw materials or semi-finished products reflects the principles that have made the Group an industry leader. The objective of this manual is to enhance the supply chain's awareness of health, safety,

[6] Whistleblowing mechanism
[7] For the time being, communication of grievances reported is not a regular topic discussed at Board level: if deemed relevant, only significant cases are addressed during BoD meetings.
[8] Quality, Health, Safety, and Environmental Policy
[9] Information Security General Policy

environmental and quality issues and international standards pertaining to business conduct, workplace safety, labor rights, health, and environmental protection. The document establishes expectations, rules, requirements, and essential procedures for maintaining a successful business partnership with the Group.

The successful implementation and management of such policies made the Group able to prevent major instances of non-compliance. In fact, even if during the period 2020-2022 there have been isolated instances that resulted in small economic sanctions, the Group promptly took corrective measures, ensuring the necessary procedures were followed and the disputed cases resolved, corresponding to 8 cases of noncompliance during 2022[10-11], amounting to about 24.866,00 €.

As per the same years-span (2020-2022) no cases were recorded regarding violations of internal norms and regulations related to business ethics. Indeed, the Gnutti Group deems extremely important the management of business ethics and the maintenance of high levels of transparency: these two elements are indeed fundamental to build trust and credibility among stakeholders, as well as to promote fair and responsible business practices which can contribute to positive societal impact.

Certifications

The Group has always put great focus and commitment to guarantee the continuous improvement of its production processes and operative model: over the years, the plants of the Group have achieved many among the most significant international certifications related to their business sector and productive processes. Specifically, the plants formalized and adopted the following management systems and obtained the related certifications:

- **ISO 9001**: Quality Management Systems certification aimed at improving the quality of products and services and consistently meeting the expectations of the customers of the Group;
- **IATF 16949**: the Automotive Quality Management Systems certification aims, through process quality, at preventing defects, reducing variation and waste in the automotive supply chain;
- **ISO 14001**: Environmental management system which provides practical tools to manage environmental compliance and responsibilities;
- **ISO 45001**: Occupational Health and Safety Management Systems enable the Group to provide safe and healthy workplaces and improve its OH&S performance;
- **TISAX**: Trusted Information Security Assessment Exchange ensures information security and safe processing of sensitive information in the automotive industry.

As the table shows, certifications vary according to the level of maturity of each plant and the needs deriving from their specific customers. Over the last few years there has been an evolution in terms of certification of the plants of the Group. In 2022, Gnutti Carlo Sweden AB achieved ISO45001 certification for the first time and TCG UNITECH GmbH further expanded the portfolio of its certifications, obtaining the Tisax label. At the end of 2022, also Gnutti Carlo Spa plant applied for the Tisax certification process, with the aim of obtaining the label at the beginning of 2023. And

[10] For Gnutti Carlo S.p.A, a materiality threshold of 10,000 € for noncompliance cases of has been considered.
[11] 11 cases in 2021 and 13 in 2020, amounting to 628 € and 1,483 €, respectively.

throughout 2023, other plants such as Metallfabriken Ljunghäll AB, Ljunghäll s.r.o. (Caslav) and Ljunghäll Wuxi have planned the achievement of Tisax labelling. Ljunghäll Canada, the youngest plant in the Group, plans to have its quality system certified in 2024. This will be the first step for the Canadian plant to gain further certifications.

Gnutti Carlo Group	ISO9001	IATF16949	ISO14001	ISO45001	TISAX
Gnutti Carlo Spa		O	O	O	2023
Gnutti Carlo Sweden AB	O	O	O	O	
Gnutti Carlo Canada Ltd	O	O	O		
Gnutti Carlo India Ltd	O	O	O		
Gnutti Carlo (Wuxi) Engine Components Co., Ltd.	O	O	O		
Gnutti Carlo USA	O	O	O		
Metallfabriken Ljunghäll AB	O	O	O		2023
Ljunghäll s.r.o.	O	O	O		2023
Ljunghäll (Wuxi) Die-Casting Co.Ltd	O	O	O		2023
Ljunghäll Canada Ltd.	2024	2024	2025		
TCG UNITECH GmbH	O	O	O	O	O
Jebsen TCG Automotive Systems (Dalian) Co., Ltd		O	O	O	

1.5 Sustainability governance and impacts materiality [3-1] [3-2]

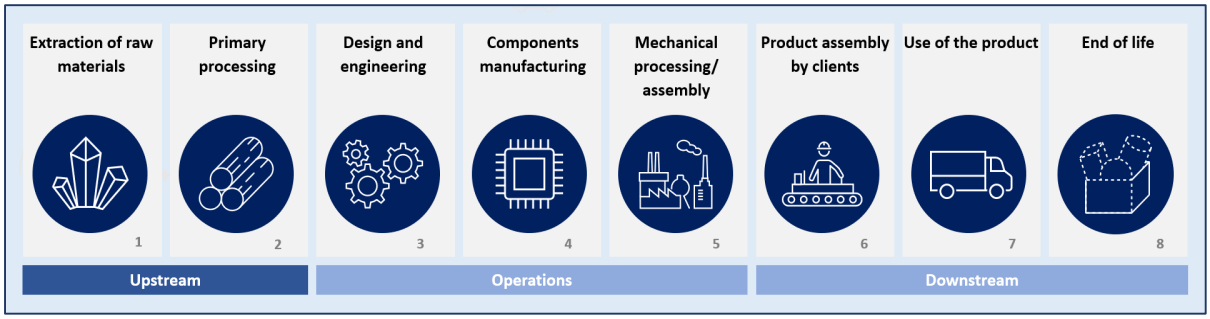
In 2022, the Group has undertaken the path towards the drafting of its Sustainability Report in accordance with the GRI Standard 2021. As per the methodology required by the Standard, the Group identified the most relevant sustainability impacts that generates, or may be generated, that can be negative, whether they produce harm to individuals, society, and the environment, or positive if, conversely, they generate a positive contribution to sustainable development. The relevant topics covered in this Sustainability Report were identified using an **impact materiality process**, consisting of the following, consequential steps:

- an understanding of the context in which the Group operates;
- the identification of the current and potential negative and positive impacts that the Group and its value chain have or may generate;
- an evaluation of the significance of each impact, based on its severity and likelihood, as well as a prioritization of the impacts;
- the identification of the material topics associated with the impacts identified as pertinent in the preceding steps;
- the validation of the impacts identified by the Group's top management[12], according to their perception and relevance to the Group itself[13].

The Group's value chain [2-6]

In order to identify the impacts generated by the Group, all stages of the Group's value chain were mapped, including both upstream and downstream activities.

Considering the different processes carried out within its business units, the Group's value chain encompasses multiple stages. It begins with the extraction of raw materials, followed by design and engineering phases, manufacturing processes, and ultimately extends to the end-of-life of the products sold. In the light of this complexity, having a comprehensive understanding of the characteristics and operations at each step of the value chain is vital to ensure a thorough application of the highest quality standards.



[12] Furthermore, a centralized working group [2-13] has been established to oversee the Group's sustainability path and coordinate the related activities. The Board of Directors and the Managing Directors of each of the 12 plants participated in a dedicated workshop held in November 2022, aimed at fostering their knowledge about ESG topics, the regulatory context and applicable Standards, and how to report sustainability information accordingly [2-17] [2-18].

[13] The Board of Directors reviewed and approved the information presented in this 2022 Sustainability Report [2-12] [2-14].

The mapping activity of the Group's value chain laid the foundation to identify the stages on which the Group's upstream, direct, and downstream operations have greater impacts. These impacts were then identified through an analysis focused on the sector in which the Group operates in, on the sustainability issues brought up by the media, and on a benchmark of the impacts of the Group's main competitors and comparable companies. Identifying the impacts of its value chain is a crucial step for the Group to mitigate them through various initiatives and policies. The impacts of the upstream section of the value chain are addressed by the Group through the Suppliers' Manual, which – as illustrated above – guides the selection process of suppliers, as well as audits and performance evaluations with the aim of enhancing the awareness of sustainability issues and establishing expectations, rules, and requirements for a successful relationship. The Manual addresses the impacts of the value chain on human rights by expecting and requiring all suppliers to respect human rights, fight any form of discrimination and restrain from utilizing any form of forced and/or compulsory work.

Identification and evaluation of significant impacts [2-25]

The impacts identified along the Group's value chain were addressed and prioritized by an assessment of their **significance**, based on different attributes:

- **Severity:**
  - **Scale**: how severe the impact is and the external context in which the impact occurs, including geography.
  - **Scope**: how widespread and how can be measured in terms of impact on the value chain.
  - **Irremediable character**: how difficult it is to counter or remedy the resulting damage.
- **Likelihood**: the likelihood of an impact considers the measures taken by the company to prevent the impact and mitigate it. It considers the risks associated with a specific context, such as the level of governance safeguards, the presence of procedures for the management of human and workers' rights, due diligence processes on sustainability issues, etc. In addition, geographical risk is considered which could increase the likelihood of an impact occurring.

The output of the impact prioritization process is shown in the following table. Each impact has been associated with a specific GRI Disclosure, defining the list of indicators the Group reported on throughout this Sustainability Report. The whole process was validated by a dedicated workshop carried out with the Top Management of the Group.

Impact	Description	Value chain	GRI
Activities negative contribution to climate change	Metal production and processing are energy-intensive operations, generating GHG emissions, thus contributing to climate change.	**Upstream Core Downstream**	**305-1 305-2**
Environmental damages related to waste mismanagement	Improper management of waste materials can present a significant long-term threat to human health and related ecosystems.	**Upstream Core Downstream**	**306-1 306-2 306-3 306-4 306-5**

Environmental damages caused by fossil fuel energy consumption	Metal processing, casting are energy-intensive processes involving also significant electricity consumption and energy consumption.	**Upstream Core Downstream**	**302-1 302-3**
Deterioration of non-renewable raw materials and related impacts	Metals are subject to rusting, rotting, corrosion, and decay. Raw material deterioration can impact on the environment and ecosystems.	**Upstream Core**	**301-1**
Human rights violation & environmental damages along the value chain	Supply chain risks feature in all aspects of the manufacturing sector including supply of raw materials, component assembly, transportation of components or finished products, impacting on the human right along the value chain.	**Upstream Core Downstream**	**Non GRI**
Water pollution derived from water waste and discharges	Metal processing and production can impact both the availability and the quality of local water resources, thus impacting local communities.	**Upstream Core Downstream**	**303-1 303-2 303-3**
Working conditions and impacts on employees' health and safety	An unsafe working place or working conditions can impact workers, resulting in hazards risks associated with the industry, leading to injuries or related diseases.	**Upstream Core**	**403-1 403-2 403-3 403-4 403-5 403-6 403-7 403-9**
Workforce and local communities' enhancement	Engagement and enhancement of local communities creates value for local economy and favor economic development and job opportunities.	**Upstream Core**	**405-1 2.7**
Development of employees' skills / safeguarding of employees' wellbeing	Employees' training and development improves people skills and support the organization's business goals.	**Core**	**404-1**
Safeguarding of employees' wellbeing	Wellbeing can refer to mental and physical health, as well as more complex aspects such as satisfaction and engagement.	**Core**	**401-1**
Violation of internal norms and regulations related to business ethics	Managing business ethics and maintaining an appropriate level of transparency in communicating with all stakeholders is fundamental for companies in any sector, by respecting all the laws and initiatives developed by national governments.	**Core**	**Non GRI**

Violation of existing laws on socio-economic & environmental compliance	Compliance with socio-economic & environmental laws and regulations is a pivotal aspect for companies involved in globalized markets, thus ensuring their success in conducting efficient operations.	**Core**	**2.27**
Contribution to technological progress	Technological progress refers to the introduction of new methods of producing goods or process, thus contributing to innovation within the applicable sector.	**Core**	**Non GRI**

2. Lifecycle approach in climate change mitigation

2.1 Fostering tomorrow's power systems and energy source solutions

The Gnutti Carlo Group is aware of the effects that its operations and products could have on the environment and the communities where it operates. With the aim of improving and reducing the impacts of its products and production processes, the Group's manufacturing facilities are constantly experimenting with cutting-edge **manufacturing technologies** to promote equipment upkeep, and ongoing monitoring. The Group's test labs and operations functions are fully committed on designing low-emission alternative solutions, as well as ways to reduce waste production, and to decrease the use of related energy, water, and materials.

The Gnutti Carlo Group thus strives to integrate principles of sustainability within its processes and activities, but it also plays its part in promoting a more environmentally conscious future through the design processes of its products. Indeed, the Group is extremely attentive to the evolution of the market and its demand for increased "electrification".

Being aware of the potential of **electric and hybrid vehicles** to promote a shift towards a more sustainable mobility, the High Pressure Die Casting business has been actively working for years to supply die-cast aluminum components for full electric power systems and oil/water pumps for hybrid power systems. Moreover, in 2018 the Powertrain business acquired the order for the construction of a "full electric" transmission component. These two achievements have positioned the Group competitively on the market, opening opportunities for potential future orders in the field of **e-mobility**.

The Die casting business team is also focused on providing solutions for solar panel systems, green source energy integrated in both the manufacturing of the vehicles and in the battery charging during the life of the vehicles.

The application of sustainability principles does not halt at electric and hybrid vehicles but expands to the design of fuel engines as well, working with clients in improving engine performance, especially for heavy-duty transport, and therefore reducing fuel consumption.

This is done in different ways:

- **Engine downsizing**: by working on the geometry of parts, the Group aims at making them as light as possible in relation to the efforts and mechanical strength they must ensure.
- **Decreased lubrication**: the Group uses techniques that guarantee a decrease in friction, wear, and contact phenomena when lubrication is decreased. This enables the development of goods that operate at lower pressures and with low viscosity lubricants, which are less polluting as they do not include additives. Utilizing smaller oil pumps also reduces the need for auxiliary systems, which is beneficial to CO_2 reduction.
- **Engine brake systems**: by creating a variable geometry system, the engine's braking power is boosted while using less energy than in conventional braking systems.
- **VVA Systems**: variable geometry systems (i.e., cylinder deactivation, valve lift variation) have been developed to increase the engine's thermodynamic efficiency.

- **Hydraulic tappets**: they allow to give up on the need for repeated valve clearance adjustments, by guaranteeing the long-term maintenance of the optimal setting that lowers harmful emissions.

2.2 GHG emissions and energy consumption [302-1, 302-3, 305-1, 305-2]

Gnutti Carlo Group's environmental commitment is translated into attention being paid to the **reduction** of **energy consumption** and the associated **GHG emissions**. Therefore, the Group strives to reduce the impacts of energy consumption by making cautious and responsible energy supply decisions: renewable energy is preferred, when possible, to fossil sources; moreover, efforts are made to reduce the overall amount of energy that is consumed trough initiatives such as the replacement of old compressors with new and more efficient ones, as well as the monitoring of consumption of auxiliary utilities to identify potential anomalies.

At Gnutti Carlo SpA, Maclodio, Brescia (Italy) a project of **LED revamping** has been carried out in the last years, with the aim of replacing lamps throughout the whole plant with more efficient ones. In the same plant, smart meters have been installed to effectively **monitor energy consumption**: consumption monitoring is crucial for increasing energy efficiency and for ultimately reducing energy consumption. Finally, an automatic shut-down system of machines which are not being used has been set up. With a similar objective, at Metallfabriken Ljunghäll AB plant of Södra Vi (Sweden) **energy assessments** are regularly carried out to identify opportunities for energy consumption reductions. As a result of these assessments, the cooling system was replaced with a new and more efficient one. Moreover, a dedicated professional figure has been hired, with the goal of managing its sustainability journey, supported by a specialised, external team which focuses on energy management and consumption reduction. New technologies like "micro spray" process, have been designed and made operatives in order to reduce the energy and water consumption of the high pressure die casting process. Furthermore, innovative die design has been developed in order to realize complex products in one single part with a consequent reduction of casting shots and removing of the joint process.

In terms of energy auto-production, Gnutti Carlo SpA has been carrying out a preassessment for the installation of **solar panels** which would cover approximately 10% of its energy needs, while at TCG UNITECH (Austria), solar panels were activated at the end of 2022, and will cover around 4-5% of the energy needs of the 4 facilities making up the Austrian plant.

Energy consumed within the organization (GJ) [302-1]

	2022	2021	2020
Electricity	781,157	781,116	669,170
Natural gas	281,551	310,449	246,343
Propane (LPG)	78,011	83,102	80,913

District heating	22,566	28,916	20,703
Diesel	8,698	7,851	7,678
Diesel (emergency generator)	1,676	1,362	546
Gasoline	1,138	849	791
Total energy consumed	**1,174,796**	**1,213.644**	**1,026,144**

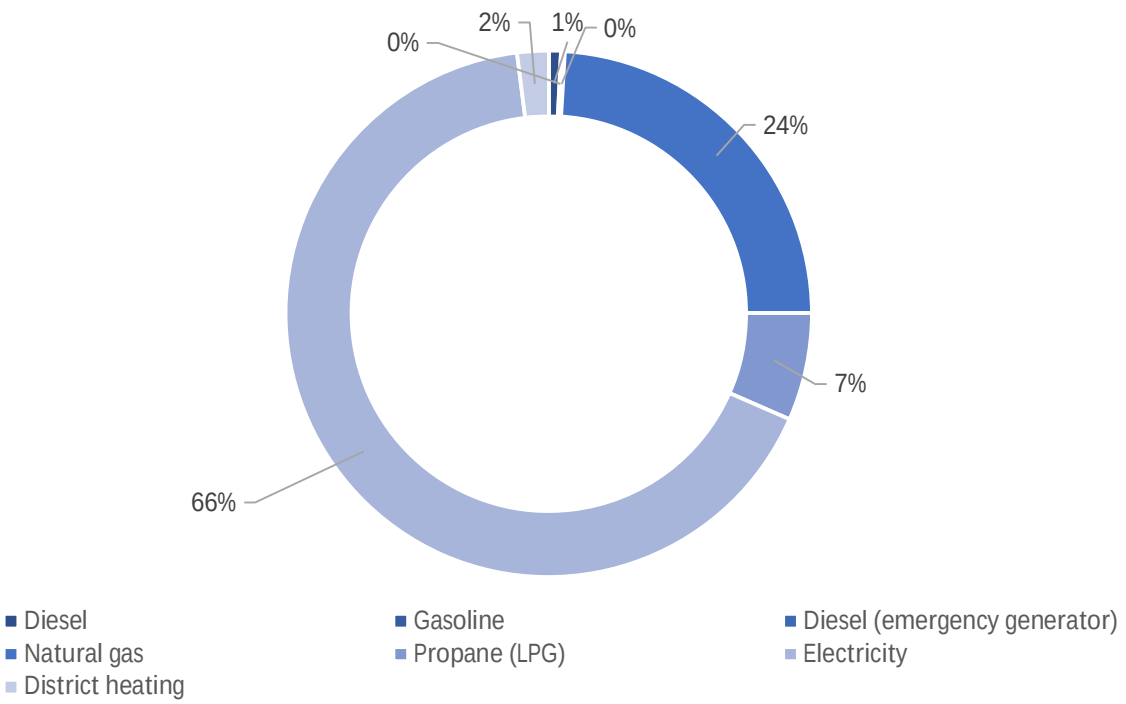
The Group's energy intensity, considering the net increase in sales from 2020 (575,711 k€) to 2022 (809,658 k€), has been consistently decreasing, thanks to the different initiatives implemented by the plants in managing energy sources and purchasing choices.

Energy consumed within the organization (GJ/k€) [302-3]

	2022	2021	2020
Energy intensity	**1.45**	**1.73**	**1.78**

The main source of energy consumed is represented by electricity, adding up to 66% of the total and is consumed to power up the assets and some pivotal production processes of Gnutti Carlo Group's plant, such as Metallfabriken Ljunghäll AB in Södra Vi (Sweden) and TCG UNITECH (Austria). The second most relevant energy source is natural gas (24%), mainly used for melting process in HPDC plants like TCG UNITECH, Ljunghäll Caslav, Ljunghäll Canada and Ljunghäll China and for heating the plants and spaces where the Group carries out its operations. The third most important fuel type is propane, which accounts for 7% of the Group's total consumption for 2022 and is mainly used for melting purposes at Metallfabriken Ljunghäll AB at Södra Vi (Sweden); a minority share of about 2% of the total propane is consumed by the Gnutti Carlo Canada Ltd, Ljunghäll Canada Ltd and Gnutti Carlo USA plants, again for production purposes. On the other hand, the consumption of fuels to power the Group's company cars' fleet and for emergency generators appears to represent an overall small share of the total energy consumed by the Group, amounting to less than 1% of the total.

Energy consumed within the organization in 2022 (%)



Coherently with the size and the characteristics of the sector of reference, data shows the Group's business to be energy-intensive: for this reason, the Gnutti Carlo Group has begun a journey aimed at identifying, monitoring and ultimately reducing its energy consumption and related emissions. The electricity consumption registered at Group plants level showed a stable trend between 2021 and 2022, against the decrease of 2020 mainly attributable to the Covid-19 pandemic. It is remarkable to note that the share of electricity purchased from renewable sources remained stable, reflecting part of the Group's commitment to reduce its environmental impacts.

Electricity consumption (kWh)

	2022	2021	2020
Electricity purchased from the grid	216,988,052	216,976,714	185,880,586
Of which from certified renewable sources (Certificates of Origin)	73,532,197	80,635,797	62,258,495
Self-generated electricity	12,537	-	-
Of which sold into the national grid	860	-	-

	Of which consumed	11,677	-	-
Total electricity consumed		**216,999,729**	**216,976,714**	**185,880,586**

As shown in the table on electricity consumption, in 2022, the Group covered 34% of its total consumption with **certificates of origin**. In addition, it is recorded that, in 2022, the TCG UNITECH plant located in Austria self-produced a portion of energy through the installation of solar panels to produce energy. The Metallfabriken Ljunghäll AB plant of Södra Vi and Gnutti Carlo Sweden AB plant in Kungsör, on the other hand, have been steadfast in their commitment to environmental sustainability by steadily increasing the usage of energy purchased and produced from renewable sources. Beginning with September 2021, Södra Vi plant initiated the purchase of Guarantees of Origin for 33% of its total consumption, and by the end of 2022, it successfully covered its entire annual energy consumption. In 2022 also Kungsör plant purchased the 100% of energy from renewable sources. Additionally, in 2022, Ljunghäll Die-Casting Co., Ltd. plant located in Wuxi (China), procured energy produced from renewable sources and covered by Certificates of origins for its own plants, which accounted for 15% of its total energy consumption.

Overall, while the trend of electricity consumption appears stable between 2021-2022 two-year period, an increase of 17% compared to 2020 was registered, mainly because of the restrictions imposed globally for the Covid-19 pandemic in 2020.

In two plants of the Group, district heating is used as an alternative to natural gas for workspace heating. For example, Gnutti Carlo Sweden AB (Kungsör) plant receives 90% of its heating from renewable sources. Furthermore, TCG UNITECH Austria Plant also procures heat from a district heating system, where most of the heat is generated through fuel cogeneration and industrial waste heat.

District heating (kWh)

	2022	2021	2020
District heating	**6,268,425**	**8,032,356**	**5,750,786**

The collection of data related to the Group's consumption is aimed at calculating its direct (Scope 1) and indirect (Scope 2) in accordance with the GHG Protocol Corporate Accounting and Reporting Standard and summarized within the dedicated table below, showing the trend on the three-year reporting period 2020-2022.

Specifically, **Scope 1 direct GHG emissions** cover all those Green House Gases emissions that are directly emitted by the Group through mobile combustion (gasoline and diesel cars), stationary combustion (natural gas, propane, diesel for emergency generators) and refrigerant gas refills for air conditioning systems.

Direct GHG Emissions (Scope 1) (tCO2eq) [305-1]

	2022	2021	2020
Natural gas	15,816	17,559	13,933
Propane (LPG)	4,991	5,316	5,176
Diesel	617	549	537
F-gas	254	357	256
Diesel (emergency generator)	129	103	41
Gasoline	76	57	54
Total GHG emissions Scope 1	**21,882**	**23,941**	**19,995**

Scope 1 GHG emissions were stable between 2021-2022. However, the latter year shows a slight decrease, primarily attributed to lower natural gas usage. By contrast, **Scope 2 indirect GHG emissions** arise from the generation of purchased electricity consumed by the Group and from other energy purchases such as district heating.

Indirect GHG emissions (Scope 2 Location-based) (tCO2eq) [305-2]

	2022	2021	2020
Electricity purchased from the grid	49,251	49,709	39,656
District heating	1,070	1,371	982
Total GHG emissions Scope 2 (Location-Based)	**50,321**	**51,080**	**40,638**

Indirect GHG emissions (Scope 2 Market-based) (tCO2eq) [305-2]

	2022	2021	2020
Electricity purchased from the grid	48,461	41,307	30,946
District heating	1,070	1,371	982
Total GHG emissions Scope 2 (Market-Based)	**49,531**	**42,678**	**31,927**

In 2022, Scope 2 emissions Location-based remained stable compared to 2021. This stability can be explained with the full restoration of business operations following the limitations imposed by the pandemic in 2020 and the subsequent resumption of the Group's activities.

To enhance the quality of its sustainability reporting and to provide a detailed analysis of the impacts of its distinct core businesses, the Group has decided to also present the information regarding Scope 1 and Scope 2 GHG emissions according to the two Business segments Powertrain and High Pressure Die Casting. This division allows for a comprehensive examination of the specific contributions and effects of each Business within the overall reporting framework. Specifically, the proposed tables show the breakdown of Scope 1 and Scope 2 GHG emissions for the Business segments mentioned above.

Direct GHG emissions (Scope 1) (tCO_2eq) – By Business Segments

	2022	2021	2020
Powertrain	**1,596**	**2,286**	**1,545**
HPDC	**20,286**	**21,655**	**18,451**

Indirect GHG emissions (Scope 2 – Location-based) (tCO_2eq) – By Business Segment

	2022	2021	2020
Powertrain	**12,324**	**11,987**	**9,239**
HPDC	**37,998**	**39,093**	**31,399**

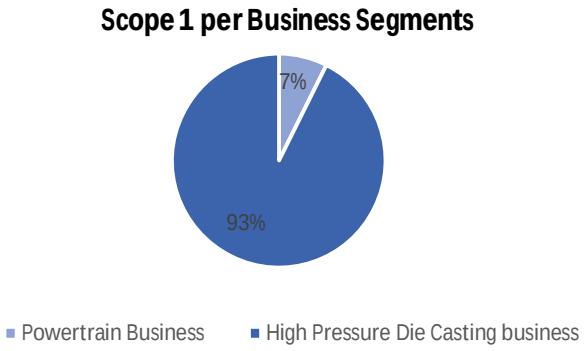
Indirect GHG emissions (Scope 2 – Market-based) (tCO_2eq) – By Business Segments

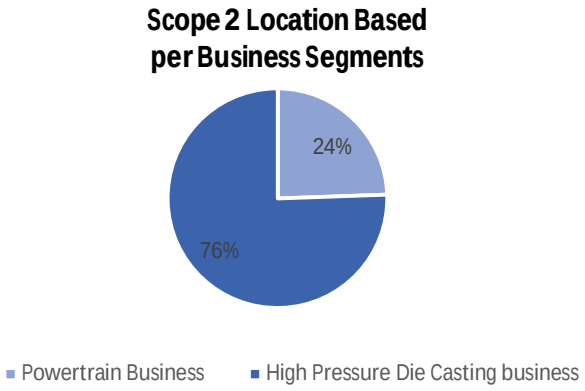
	2022	2021	2020
Powertrain	**14,263**	**14,234**	**10,960**
HPDC	**35,268**	**28,445**	**20,967**

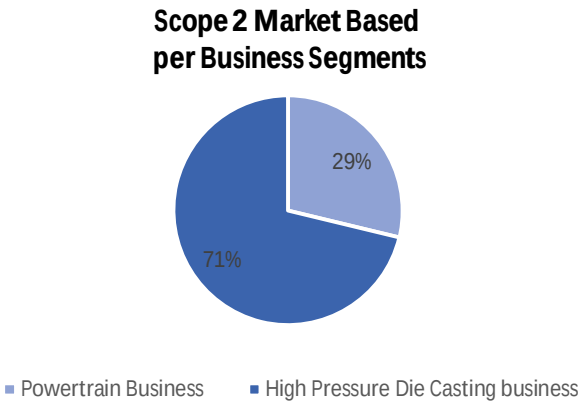
The High Pressure Die Casting business holds the highest impact in terms of CO_2 emissions. This can be attributed to its energy-intensive processes, making it the most energy consuming unit of the Group, both for Scope 1 and Scope 2. Scope 2 GHG emissions are mainly attributed to the Ljunghäll plants for both Location-based and Market-based approach: which, indeed, were responsible for 55% of overall Scope 2 GHG emissions calculated with the location-based method, and for 36% of Scope 2 emissions calculated with the market-based methodology.

The Carbon Disclosure Project (CDP)

The Group's effort to monitor and disclose its emissions did not begin with this Report, its origins date back to 2020, when it participated in the **Carbon Disclosure Project (CDP)** by submitting the Climate Change Questionnaire for Gnutti Carlo SpA (Maclodio, Italy); Metallfabriken Ljunghäll AB (Södra Vi, Sweden); and TCG UNITECH Austria. Through this participation, the Group aims to offer transparent and timely information to consumers regarding its performance in the fight against climate change. The objective of the Group is to employ CDP as a useful instrument to track and benchmark its progress, as well as to uncover risks and opportunities.







Gnutti Carlo Group's commitment extends beyond disclosure, as it also establishes targets on a periodic basis to enhance its operations while striving to reduce the environmental impacts stemming from its business activities. One of the Group's key objectives is for all plants and Business Segments to be aligned in the collective action against climate change. Among the Group's plant, Metallfabriken Ljunghäll AB (Södra Vi, Sweden) and TCG UNITECH Austria, are already involved in reporting and decarbonization initiatives: through these efforts, the Group is making progress towards achieving its medium to long-term goals.

Sustainability ambitions for Metallfabriken Ljunghäll AB (Södra Vi, Sweden)

The Swedish plant has been committed to combating climate change for a long time, and throughout the years, it has developed its own sustainability vision. This vision aims to increase awareness among the workforce in its production facilities while setting short-to-medium-term targets for achieving climate neutrality. Additionally, the plant focuses on protecting and effectively managing natural resources and raw materials, as well as enhancing waste management. In particular, it has set goals in the following areas:

Climate

The ambition is to be a climate neutral business by 2040. Metallfabriken Ljunghäll Södra Vi calculates its climate impact according to the Greenhouse Gas Protocol, by considering all Scopes.

Energy

The aim is to use 100% renewable energy. Metallfabriken Ljunghäll AB Södra Vi's ambition is to replace all non-renewable fuels with fossil free alternatives. By 2025 Ljunghäll Södra Vi will have a concrete roadmap to become a fossil free organisation. The ambition is to continuously work on energy efficiency and to be self-sufficient on heat within the factory.

Water use

Drinking water is a valuable resource and Metallfabriken Ljunghäll AB Södra Vi wants to take its own responsibility in reducing the use of drinking water by reusing as much water as possible in its processes.

Raw material and waste

Metallfabriken Ljunghäll AB Södra Vi's objectives include the use of 100% recycled raw materials in its production processes and a strong emphasis on waste minimization. For waste that cannot be prevented, the plant aims to prioritize reuse or recycling methods.

2.3 Materials [301-1, 301-2]

An important element of Gnutti Carlo Group's environmental impact is represented by the use of materials for production purposes: the metallurgic sector is indeed responsible for the extraction and employment of substantial quantities of raw materials, which can impact the health of ecosystems and their biodiversity.

The Group carefully considers the disposal of materials, focusing on factors such as material quality, recyclability and compliance with international toxicity guidelines and regulations.

Given the heterogeneity of the products manufactured and its global presence, the Group sources raw materials from different parts of the world. To minimize the use of hazardous substances, the entire supply chain is subject to rigorous selection processes and suppliers must adhere to the Group's stringent quality standards.

The materials purchased by the Gnutti Carlo Group have been broken down in the below tables. To highlight the quantity of each type of good, it was decided to subdivide the purchases based on the nature of the product itself, distinguishing the products among the 4 following categories:

- Raw materials;
- Semi-manufactured goods or parts;
- Associated process materials;
- Materials for packaging purposes.

Materials used by weight - Raw materials (t) [301-1]

	2022	2021	2020
Aluminum	68,660	61,650	58,684
Iron	18,290	18,814	14,812
Plastic	3,235	3,285	2,466
Steel	1,544	1,435	1,283
Bronze	203	203	156
Magnesium	32	44	23
Total	**91,964**	**85,431**	**77,424**

Materials used by weight - Semi-manufactured goods or parts (t) [301-1]

	2022	2021	2020
Steel	17,867	17,282	15,225
Iron	2,218	2,499	2,176
Plastic	954	1,073	1,032
Aluminum	954	898	916

Metal	561	457	349
Bronze	240	218	151
Brass	64	70	48
Total	**22,858**	**22,497**	**19,897**

In line with the full resumption of operations, there has been a notable increase of approximately 8% in raw materials purchased between 2021 and 2022. Among these materials, aluminum holds particular significance as it accounts for 75% of the total amount purchased in 2022. In general, the majority of the raw materials acquired by the Group fall under the broad category of metals or metal alloys.

Similarly, semi-finished metal products, such as components and screws, which are necessary for manufacturing the Group's products, are sourced externally as the Group does not have active production lines for these items. Once again, nearly 100% of the expenditure in this category is allocated to the procurement of metal-based products, including aluminum, steel, and other metals.

The third largest category in terms of purchased product by weight is associated process materials. This category mainly includes cleaning agents, oils, lubricants and cutting fluids.

Materials used by weight - Associated process materials (t) [301-1]

	2022	2021	2020
Propane	1,663	1,898	1,836
Oils and lubricants	1,140	1,066	913
Cutting fluids	123	136	112
Coolant	111	137	174
Chemicals	32	14	25
Cleaning agents	26	27	18
Glass	13	23	16
Other	5	5	1

Total	**3,113**	**3,304**	**3,093**

Lastly, the packaging category encompasses all products acquired to protect and package finished goods during transportation. The Group places significant emphasis on this category aiming to use recyclable materials to minimize the needs for excessive disposal processes. Notably, more than 50% of the packaging purchased in the last three years consists of wood-based materials. This choice ensures high impact resistance during shipping while also reducing the environmental impacts through the recyclability properties of wood. This category brings with it a special feature, namely the degree of renewability of the materials used. In fact, unlike the other products purchased, the Gnutti Carlo Group, on average over the three-year reporting period, purchases 80% of its packaging materials with this property.

Materials used by weight - Materials for packaging purposes (t) [301-1]

	2022	2021	2020
Wood	1,114	1,243	1,064
Plastic	435	460	466
Cardboard	304	322	339
Paper	39	195	200
Total	**1,892**	**2,221**	**2,069**

As shown in the table above, materials purchased and used for packaging purposes other than wood (59%) are plastic (23%), cardboard (16%) and paper (2%).

2.4 Water and waste management and disposal activities [303-3, 306-3; 306-4;306-5]

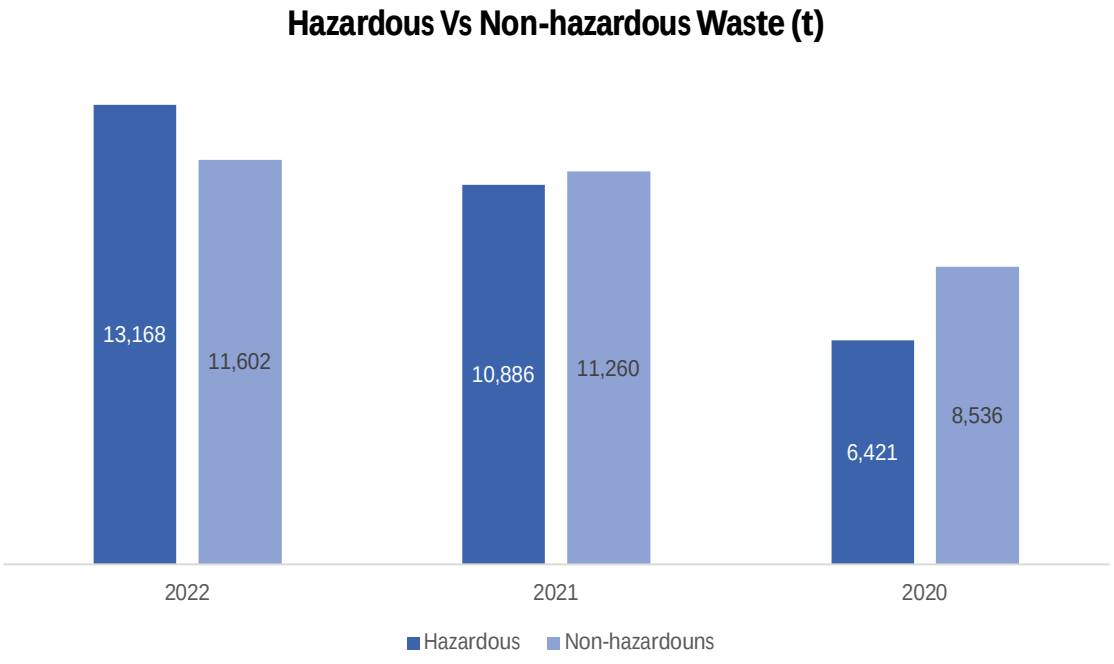
The Gnutti Carlo Group, in view of its size, business sector and expansion trend, generates a consistent waste and scrap every year. For this reason, the Group has historically been attentive to the management and proper disposal of its waste. The table below represents the amount of waste generated during the three-year reporting period 2020-2022 by the entire Group.

Waste (t) [306-3; 306-4;306-5]

	2022	2021	2020
Emulsion	7,952.0	4,128.2	1,982.8
Metal	5,336.1	5,395.9	3,735.5
Aluminum	2,403.8	2,276.8	1,933.8
Commercial & Industrial waste	2,296.7	2,277.7	1,736.9
Aqueous solutions	2,056.6	1,649.1	307.7
Steel	1,471.5	1,324.8	1,135.1
Oil	1,096.8	980.9	807.1
Wood	679.1	607.6	417.0
Sludge	451.8	2,277.6	1,808.3
Chemicals	354.9	427.0	455.8
Absorbent	174.9	146.3	90.0
Plastic	166.4	230.1	194.0
Paper	157.4	174.5	174.4
Cardboard	115.6	178.6	127.3
Glass	16.5	24.6	18.3

Filters	16.5	12.2	18.8
Electronic	8.4	5.3	5.7
Acid	7.5	11.1	7.5
Liquid waste	6.4	16.5	-
Battery	1.3	0.9	1.0
Toner	0.2	0.0	0.1
Paint	0.1	0.1	-
Total	**24,770.4**	**22,145.9**	**14,957.1**

As presented in the table above, in 2022, the greatest share of waste produced was represented by emulsions (32%), used in the processing of raw materials, and metal (22%). These are followed by aluminum, which accounted for 10% of the waste produced in 2022. On a general level, the total waste generated over the three-year period increased between 2020 and 2022 by 67%, mainly because of the restart of operations after Covid-19 restrictions were uplifted; however, between 2022 and 2021, the increase was much less significative (+12%). The total waste generated is classified into non-hazardous and hazardous waste. Hazardous waste accounts for around 52% of the total generated waste.



Circularity is an important element of the Group's waste management strategy: more than 80% of the waste generated between 2020 and 2022 was sent for recycling or reuse; only a small part was sent to disposal, either to landfills or incineration. The Group's ability to allocate a significant share of waste to recycling and recovery allows to generate value by reducing the potential costs and increasing benefits for the environment in line with the logic of circular economy.

In its pursuit of enhanced efficiency and sustainability in operations, the Group has established a series of initiatives focused on effective waste management and waste reduction. These initiatives are designed to ensure proper handling and minimize the volume of waste produced:

- the use of recyclable packaging material, where possible;
- the beginning of a process of digitalization of Gnutti's workplace documentation to reduce the need and use of paper;
- the introduction of oil and water recovery systems from oily emulsions.
- the introduction of systems for the recovery of water from washing machines avoiding the disposal of liquid waste.
- the selection of waste disposers in accordance with legal requirements and based on localization in the area to reduce CO_2 emissions from waste transportation.

Alongside the proper management of the waste produced, the Gnutti Group places great importance regarding the responsible and conscious use of water during all production phases. Indeed, water is used for cooling processes in foundry departments, to produce emulsions and process liquids used during the production cycle, and, finally, for the cleaning phases of products and workplaces in addition to civilian consumption, which comprises a very small part compared to the Group's total consumption. The below table shows data related to water withdrawal expressed in megaliters (ML) for the whole Group, highlighting water supply in water-stressed areas.

Water withdrawal (ML) [303-3]

	2022	2021	2020
Total withdrawal from groundwater (e.g., wells)	**83.02**	**84.57**	**73.70**
of which from water stress area	11.06	11.55	9.44
Total withdrawal from third party water (e.g., public aqueduct)	**111.08**	**106.25**	**85.19**
of which from water stress area	13.83	11.74	8.13
Total water withdrawal	**194**	**191**	**159**
of which from water stress area	25	23	18

Water consumption has been growing between 2020 and 2022, mainly related to the full resumption of the activities. It is recorded that most water withdrawal sources, as reported in the dedicated table, are made through agreements with providers (namely, from groundwater and third-party water), amounting to about 57% for the year 2022. For the period 2020-2022, the Group has not sourced water from sea, surface water or produced water. In addition, only a small part of water withdrawal was consumed in water stress area, equal to 13% out of the total.

Based on a study which was conducted through the Water Risk Atlas tool[14], it was possible to identify which geographical areas are characterized by high-water stress in location where Group's plants are present. To enhance environmental protection and mitigate impacts on water resources, the Group consistently monitors its water consumption to identify opportunities for usage optimization and explore options for reusing process water, thereby minimizing the need for its disposal.

By adopting these measures, the Group aims to improve its water management practices and contribute to the preservation of this crucial resource. As presented in the table below, only 4 out of 12 plants sits on high risks water areas, all located between China and India.

Country	Legal Entity	Location	Risk
Austria	TCG UNITECH GmbH	Kirchdorf / Rohr im Kremstal	Low
Canada	Gnutti Carlo Canada Ltd	Huron Park	Low
Canada	Ljunghäll Canada Ltd	Huron Park	Low
USA	Gnutti Carlo USA	Webberville	Low
Czech Republic	Ljunghäll s.r.o.	Čáslav	Low
Sweden	Gnutti Carlo Sweden AB	Kungsör	Low
Sweden	Metallfabriken Ljunghäll AB	Södra-Vi	Low-medium
Italy	Gnutti Carlo Spa	Maclodio	Medium-high
China	Gnutti Carlo Wuxi Engine Components Co., Ltd.,	Wuxi	High
China	Ljunghäll (Wuxi) Die-Casting Co., Ltd.	Wuxi	High
China	Jebsen TCG	Dalian	High
India	Gnutti Carlo India Ltd	Ranipet	Extremely High

[14] Aqueduct | World Resources Institute (wri.org)

3. Responsible human resource management

3.1 Our People: A fundamental part of our added value

The Gnutti Carlo Group values the key role its people play in the success of the Group, and therefore places great importance to the promotion and continuous improvement of their wellbeing, professional development, and working health and safety conditions.

With a global presence spanning across different regions, the Group recognizes the crucial value that **diversity** brings to its operations. Each location represents a unique blend of backgrounds and perspectives, which enriches the collective experience of the Group. To ensure a context where this diversity can truly thrive, the Group is committed to guarantee the greatest working conditions to all employees across the Globe, in terms of health and safety, work-life balance and professional development.

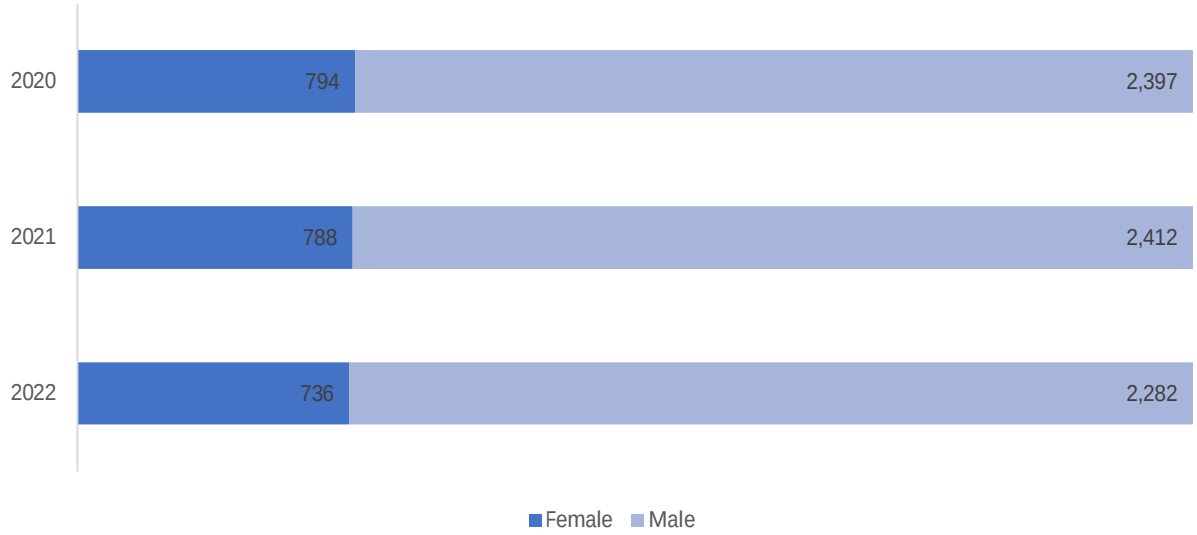
As per **health and safety**, the Group ensures its employees the implementation of strict safety procedures and protocols by conducting thorough risk assessments and minimizing the occurrence of injuries and occupational diseases, in full compliance with national and local legislations. **Training** plays a fundamental role not only in promoting health and safety best practices but also in enhancing **employees' professional development and skills**, also aligning them with shared values and goals while enriching the Group overall knowledge and strategic know-how.

By prioritizing the well-being, growth, and safety of its employees, the Gnutti Carlo Group cultivates an environment that empowers individuals, fosters collaboration, and enables the Group to thrive in meeting the evolving needs of its clients. Indeed, it is its employees' engagement, dedication and know-how which explain the **strength** and the **adaptability** of the Group, as well as its capability to meet clients' demands and transform these needs into high-quality goods.

The composition of our workforce [2-7, 2-8, 2-28, 2-30, 405-1]

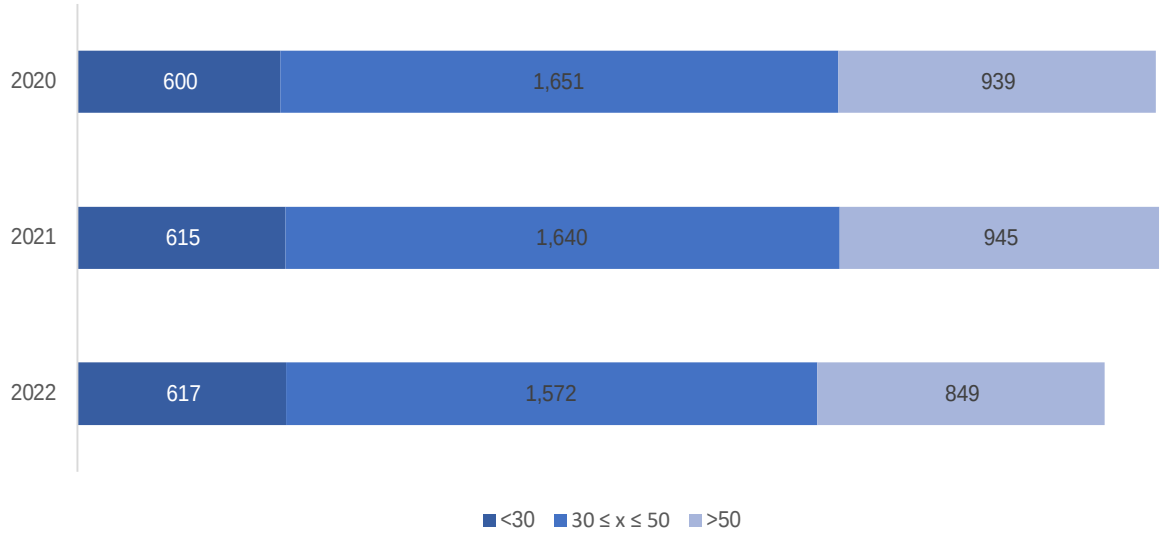
As of 31st December 2022, the total workforce of the Group amounted to **3.018** employees directly hired by the Companies of the Group. Throughout the reporting period 2020-2022, the overall number of employees remained stable, registering a small increase between 2020 and 2021 (+0,3%) and a slight decrease between 2021 and 2022 (-6%). In 2022, men and women represented 76% and 24% of the workforce, respectively, mirroring the prevailing workforce gender composition commonly observed within the automotive sector.

Total number of employees by gender (2020-2022)



When looking at the age composition of the workforce, more than half of the employees is framed in the age bracket 30-50 (52%); 28% of the employees are over the age of 50, and 20% of them are under the age of 30[15].

Number of employees by age group (2020-2022)



Concerning hires and terminations, it is worth to mention that the latter have remained relatively steady during this period, resulting in a consistent turnover rate of 18% for both 2021 and 2022[16].

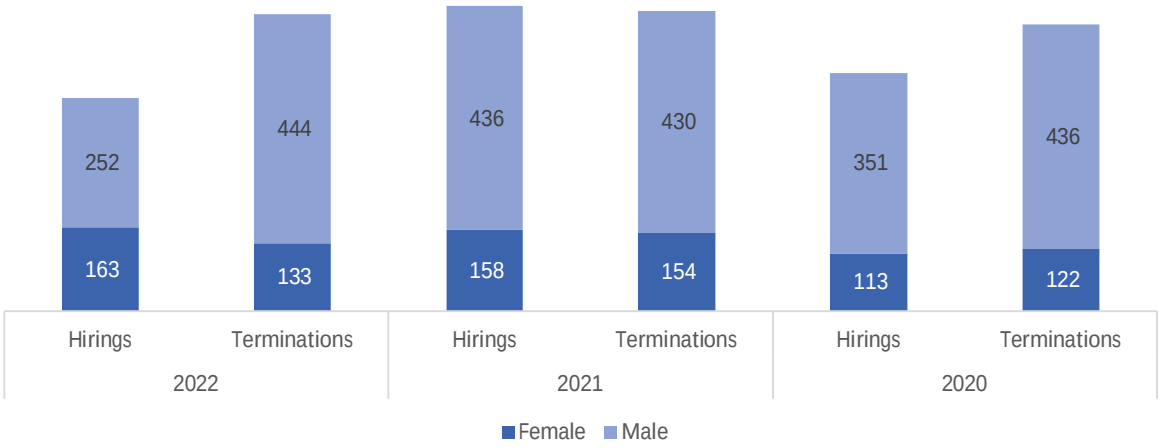
[15] In terms of collective bargaining, 87% of employees are covered by collective bargaining agreements, in accordance with national legislation.

[16] The turnover rate is not available for 2020 as the reporting perimeter does not include number of employees for 2019; the same applies for the Group's hiring rate.

However, the total number of hires has experienced more substantial fluctuations, reaching its highest point in 2021 before decreasing again in 2022.

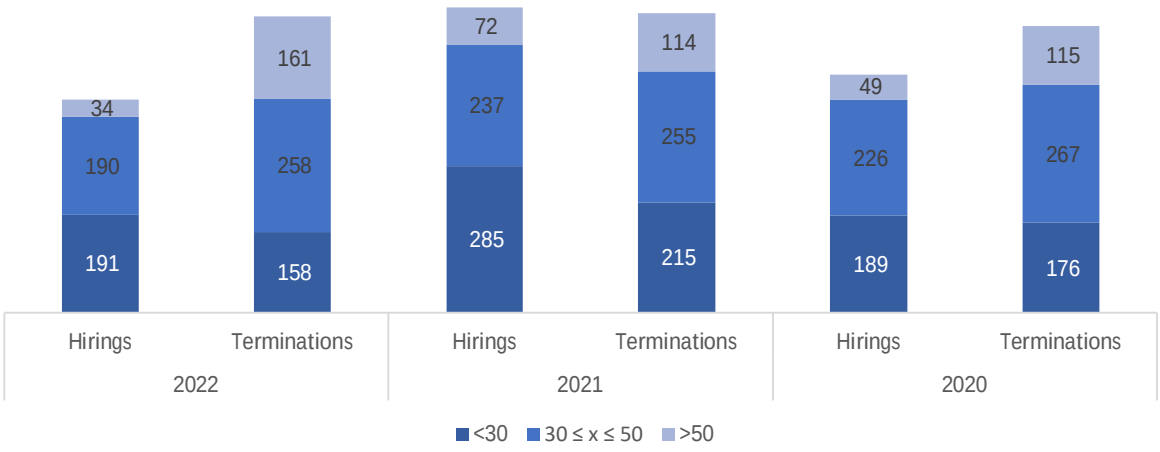
This fluctuation can be partly attributed to the impact of Covid-19 related restrictions, which significantly affected the overall Group's operations in 2020 and 2021, leading to a reduction in production activities, have affected Chinese operations in 2022 as well. As a result of these oscillations, the hiring rate has decreased from 19% in 2021 to 13% in 2022. The percentage of male in the overall hirings and terminations over the course of the three years reflects the composition of the workforce, which – as explained before – is predominantly male throughout the whole business sector.

Hirings and terminations by gender (2020-2022)



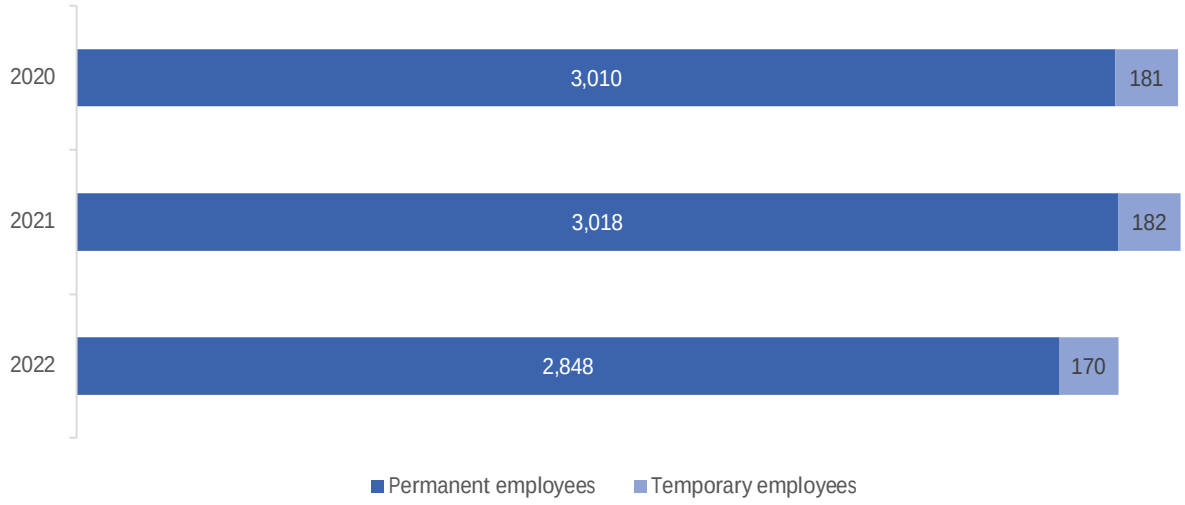
When focusing on the age distribution of terminations and hires, it can be noticed that individuals aged between 30-50 comprised the largest proportion of hires and terminations in 2020, followed by individuals under 30 and those over 50. It is worth noting that in 2021 and 2022, the percentage of hired people aged less than 30 was higher (2021) or equal (2022) to the percentage of hired people aged between 30 and 50, thus signaling the Group's willingness to increase the representation of young people within its workforce.

Hirings and terminations by age group (2020-2022)



Regarding the contract type, the percentage of employees with permanent and temporary contracts has remained stable throughout the three-year period, with 94% and 6%, respectively. This data reflects Gnutti Group's aim to establish long-term partnerships with its employees by promoting stability: by favoring permanent contracts over fixed-term ones, the Group wants to foster a sense of loyalty, commitment, and motivation, while allowing its employees to plan for their futures and make long-term commitments.

Total number of employees by type of contract (2020-2022)



The percentage of employees with a full-time employment has also remained stable throughout the three-year reporting period: between 2020 and 2022, 94% of the employees had a full-time contract, and 6% a part-time one. Part-time contracts offer employees the flexibility to manage their commitments.

Total number of employees by type of employment (2020-2022)

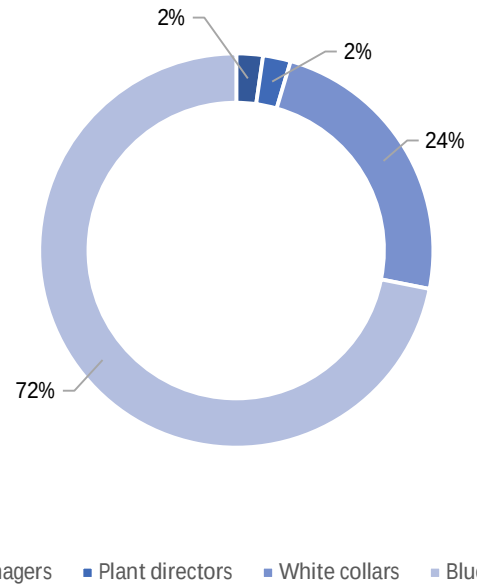
During 2020-2022, the Group did not employ any non-guaranteed hour employees. However, it does engage in collaborations with external individuals, predominantly temporary workers. These individuals are recruited to provide support during peak periods or when additional production lines are required throughout the year. This strategic approach allows the Group to efficiently manage its workforce, ensuring flexibility and responsiveness to fluctuating demands while maintaining a core team of permanent employee.

Workers who are not employees (HC) [2-8]

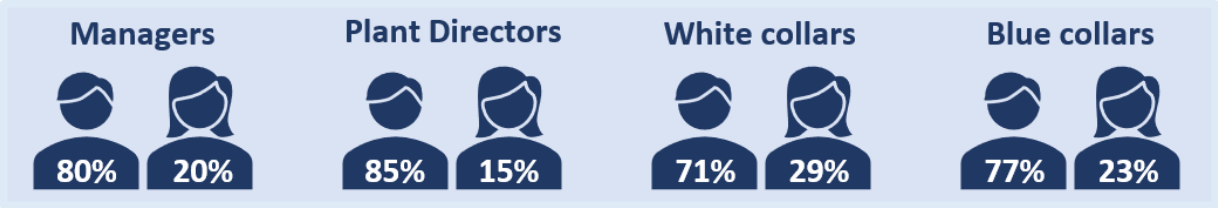
	2022	2021	2020
Temporary workers	1,066	1,043	785
Self-employed workers	3	3	3
Interns	-	5	2
Total	**1,069**	**1,051**	**790**

As per job categories, most of the workforce is represented by blue collars (72%), coherently with the prominence of the production activities. Blue collars are followed by white collars (24%), plant directors (2%) and managers (2%). The category of white-collar employees encompasses both individuals working in the plant offices and those employed at corporate level.

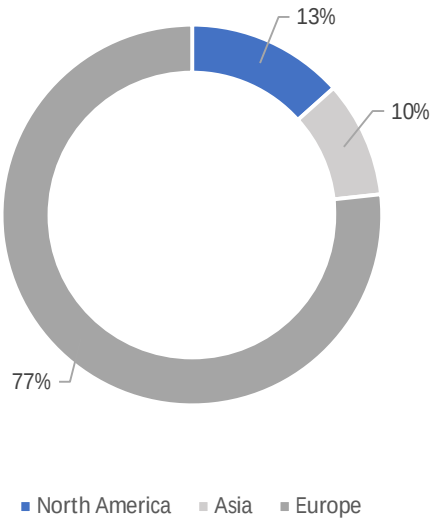
Employees by category (2022)



The Gnutti Carlo Group maintains a global network of plants. This worldwide presence plays an important role in promoting diversity: it enables the Group to meet diverse talent pools, thereby gaining access to a wide range of skills, knowledge, and perspectives. The majority of the Group's employees are in Europe (77%) and, more specifically, in addition to the 10% employed at the Italian Headquarter and Plant, they are employed in Austria at TCG UNITECH GmbH (32%) and in Sweden at Metallfabriken Ljunghäll AB (17%) plants. A smaller part of the workforce works in North America (13%) at Gnutti Carlo Canada Ltd (6%), Gnutti Carlo USA (4%) and Ljunghäll Canada Ltd. (3%). Finally, 10% of employees works in India and China.



Employees by region (2022)



3.2 Growing Together: Employee Training and Development

The Gnutti Carlo Group is deeply committed to providing training experiences to its employees to empower them and to address to evolving challenges and achieve excellence. Knowledge and skills development are essential for personal and professional growth: the Group prioritizes the delivery of both practical and theoretical, dedicated training programs. Through its training initiatives, the Group aims to equip its workforce with the necessary tools and expertise to excel in their roles. Practical training allows employees to gain hands-on experience, enhancing their skills and fostering a deeper

understanding of their tasks, while training on H&S ensures the spread of awareness on the importance of implementing best practices to prevent accidents.

The Gnutti Carlo Academy

The Group pivots around the **Gnutti Carlo Academy**, an internal industrial training academy that centralizes training activities for all employees, ranging from apprentices to top managers. The primary objective of the Academy is to enhance the skills and knowledge of individuals through tailored learning pathways, with the aim of establishing qualification programs for Supporting Functions, as well as Management positions. These training paths are designed as a combination of classroom training, e-learning modules through the Group's Learning Management System (LMS), and on-the-job training based on the Training Within Industry approach - a practical approach to hands-on training, learning, and coaching for supervisors, team leaders, and workers.

Most of the classroom training is facilitated by internal trainers who gained technical expertise in the subject matter and have undergone a dedicated certification process through the Gnutti Carlo Group 'Train the Trainers' program. This program equips them with the necessary knowledge to effectively guide trainees in their learning process. The Academy serves as a strategic asset, acting as the bridge between the Group's organizational structure and training initiatives

Moreover, with a specific focus on executives' training, the Group has launched a collaboration with an external provider for the implementation of a skills and knowledge development program, which includes webinars and live sessions covering topics such as cybersecurity, purchasing, and supply chain management, among others.

Alongside the Gnutti Carlo Academy, each plant delivers training on a variety of different topics, such as health and safety, specific manufacturing processes (e.g., diecasting, machine use), product quality, internal audit, and ISO certifications. The total hours of training have increased by 71% from 2020 and 2022 (considering the heavy restrictions brought in 2020 by the Covid-19 pandemic, which limited significantly the number of training hours). Parallel to the total number of training hours, the average number of training hours per capita also increased from 6.4 in 2020 to 11.4 in 2022 (+79%).

Total training hours (h)

	2022	2021	2020
Total training hours	**34,661**	**28,865**	**20,323**

The onboarding program is another crucial element of the training process at Gnutti Carlo Group: its expansion and the acquisitions undertaken over time have emphasized the importance of implementing a comprehensive induction process for all new employees. This tailored program is designed to provide relevant information specific to everyone's role, enabling them to grasp the

organization's structure, market dynamics, key products, and current and future challenges. By doing so, new hires can quickly familiarize themselves with the Group, feel engaged, and remain motivated from day one.

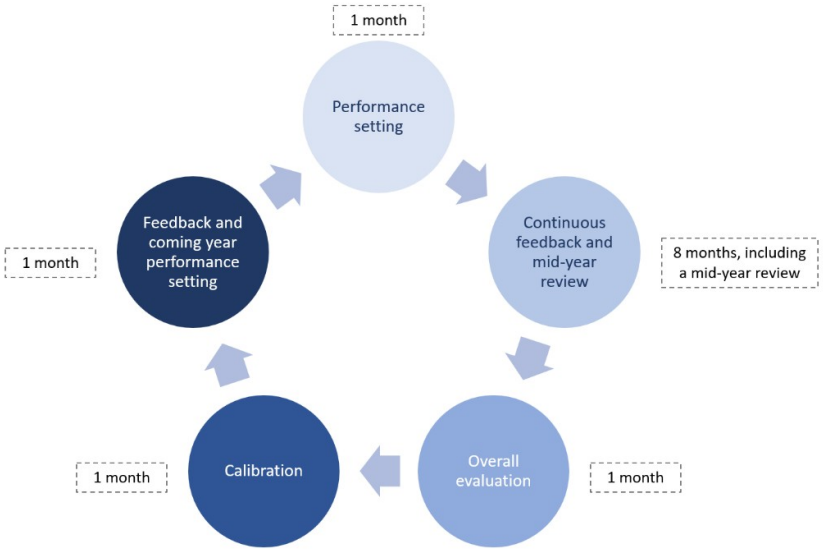
As part of this process, all new employees, regardless of their level or department, are expected to complete the Induction Program facilitated by the Gnutti Carlo Academy. The program modules cover essential topics such as the Group overview, Quality, Lean principles, and Standard Work. Additionally, for individuals with greater responsibilities, an extended calendar is established to facilitate meetings with relevant personnel, including managers, to gain a deeper understanding of their roles and the interconnectedness within the organization.

Finally, the Group has a performance appraisal process in place, which aims at achieving several key objectives: these include aligning all individuals involved with the company's values, objectives, and corporate strategy, fostering improved communication between leaders and their team members, and increasing overall motivation within the organization.

On the one hand, this process allows employees to set their own **professional objectives and goals**, identify their personal growth path and monitor their progresses. On the other, it serves as a platform for transparent and **constructive feedback**, enabling leaders to engage in open discussions with their team members regarding goals, strategies, and any outstanding issues. This process fosters trust between managers and employees, facilitating a collaborative relationship.

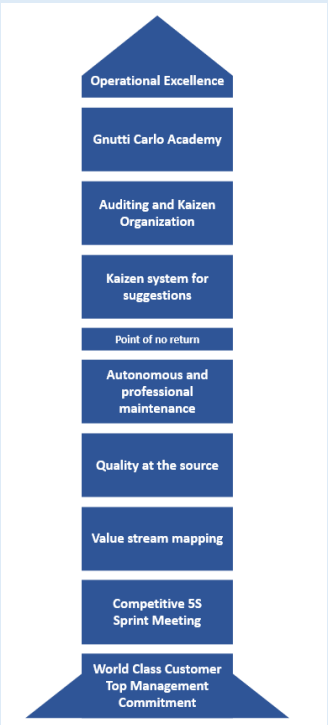
The Group's motto, "**Added Value, in Everything We Do**," reflects its integrated approach to managing individual and collective performance across the entire Group. Through the performance evaluation process, the Gnutti Carlo Group aims at cultivating a high-performance culture and actively involving employees in enhancing organizational effectiveness to achieve Group objectives.

The scope of the performance evaluation process encompasses all managers and several, selected employees across various departments. Evaluators include Managing Directors and leaders at both the corporate and plant levels, who assess their team members based on two critical dimensions: goal achievement and adherence to corporate values. This performance evaluation system follows a continuous cycle characterized by five phases:



Our Lean Journey

In the pursuit of continuous improvement, the Gnutti Carlo Group initiated a Lean Journey, which aims to minimize all forms of waste in internal processes: the primary objective is to consistently reduce complexity by adopting a Lean mindset when designing new processes. The Lean Methodology is indeed a business approach whose core principle is to create more value for customers with fewer resources, while always ensuring the respect for people. The value of employees is deeply recognized, as well as their involvement in decision-making processes, as they are the closest to the work and often have valuable insights for improvement.



The Group's people involvement is therefore fundamental for the success of this project, which is implemented through the "Space Shuttle" approach. The latter involves a lean process throughout the entire value chain, from suppliers to customers.

This Lean Journey is based on **seven principles**:

1. Its introduction and implementation start from the top management, which must support the entire process:
2. It leverages on the continuous contribution from all people with the Group;
3. It aims at creating a clear and transparent system;
4. It introduces methodologies, tools and standards that must be rigidly implemented;
5. It is a way of working, not a project;
6. It is improved by leveraging on everyone's contribution;
7. It is effective because its goal is to 'keep it simple'.

3.3 Working environment [403-1,2,3,4,5,6,7,9]

The Gnutti Carlo Group is committed to promoting the **health and safety of its employees**, by striving to create a work environment that minimizes risks through the implementation of rigorous safety controls and procedures. The Group's comprehensive safety protocols cover every aspect of its processes, from equipment handling to hazardous material management; risk assessments are regularly conducted to identify potential hazards and take proactive measures to mitigate them. Furthermore, because the Gnutti Carlo Group recognizes that knowledge and awareness are key for preventing injuries and occupational diseases, it delivers extensive training programs to all employees to ensure that they gain a thorough understanding of safety procedures. Indeed, as a leading manufacturer of automotive components, the Group recognizes that its success is built upon the well-being and dedication of its workforce. The Group firmly believes that when employees feel safe and supported, they can perform their best, resulting in high-quality products and customer satisfaction.

The Gnutti Carlo Group has implemented an effective approach to manage health and safety matters, as reflected in its **Health, Safety, Quality, and Environmental Policy**. This policy, approved by the CEO of the Gnutti Carlo Group, has been disseminated to all employees and contractors and is readily accessible on the Gnutti Carlo Intranet and website[17]. The company is dedicated to ensuring the highest standards of health and safety for its workforce and has adopted a systematic approach in designing and reviewing workplaces. This approach considers legal requirements, risk analysis, and ergonomic factors using methodologies such as OCRA and NIOSH. The former is a method developed in Italy by the "Osservatorio delle Condizioni di Rischio da Attività Manuali" ("Observatory of Risk Conditions from Manual Activities") to assess the risk of work-related musculoskeletal disorders (MSDs) associated with repetitive movements in the workplace.

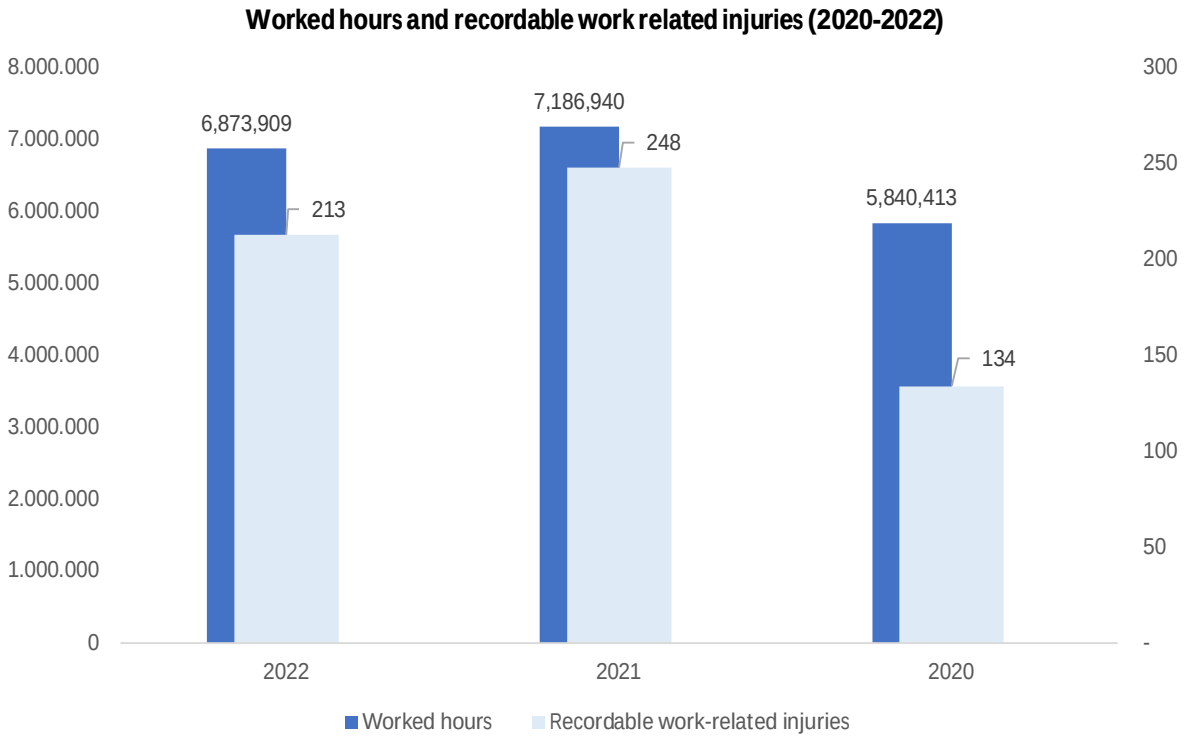
The latter is a method developed by the "National Institute for Occupational Safety and Health" in the United States for the evaluation of risks associated with heavy lifting or repetitive movements in the context of ergonomics. Both the OCRA analysis and NIOSH approach aim to assess and prevent health and safety risks in the workplace, with a particular focus on musculoskeletal disorders associated with repetitive movements. The safety procedures and policies implemented by the Group are extremely relevant in the light of the specific features of the Group's sector: heavy manufacturing process involve the treatment of hazardous materials and substances, whose handling, storage, and disposal require strict adherence to protocols to prevent accidents, spills, and exposure. Additionally, the operation of heavy machinery in these processes introduces risks of mechanical failures, machine crushes and operator error, making it fundamental to ensure appropriate procedures as well as training. The Group has undertaken various actions to enhance individual and collective health and safety standard. To enhance forklift safety, the Group has taken measures to improve forklift signalling, with the aim of preventing collisions. To optimize material handling and minimize workers' physical strain, moreover, weight zeroing systems were introduced, manual forklifts were incorporated, and guidelines were provided to suppliers regarding maximum load limits per packing unit. Finally, to address ergonomic concerns, regular ergonomic audits are conducted to evaluate

[17] GNUTTI CARLO SpA - Quality, Health, Safety, and Environmental Policy

workstations and identify areas for improvement, and periodic meetings are held to discuss the topic. Furthermore, technical staff members receive specialized training to consider ergonomic aspects when designing workspaces, and comprehensive training programs are implemented to provide employees with the necessary knowledge and understanding of ergonomic issues. Through these diverse initiatives, the Group demonstrates its dedication to creating a safe and ergonomic work environment, fostering the health and safety of its employees at every level. Since 2003, Gnutti Carlo Italy has been a pioneer within the Group by obtaining certification according to the **ISO 45001** standard. As part of its commitment to health and safety, the company willingly subjects its Management System to periodic independent third-party audits. Following this achievement, in 2018, all plants within TCG UNITECH also obtained ISO 45001 certification, further solidifying the Group's dedication to maintaining high health and safety standards. In 2022, Gnutti Carlo Sweden (Kungsör) achieved the ISO45001 certification as well. Concerning health and safety **KPIs**, it should be noted that a system of constant monitoring has been implemented regarding the frequency of workplace accidents, which accounts for both permanent employees and non-permanent collaborators (such as temporary workers in production facilities).

The total number of **work-related injuries** in the reporting period 2020-2022 is thoroughly monitored by the Group and it includes injuries incurred by both employees and external workers. As it can be noticed, the number of accidents decreased by 14% between 2022 and 2021, thus demonstrating a significant improvement in the workplace safety; of the 213 injuries which occurred in 2022, zero occurred during commuting[18], 166 involved employees while the remaining 47 involved external workers. Most of the accidents in the three-year period were represented by cuts, burns, ergonomic and skin problems, contusions and machine crushes[19].

[18] GRI disclosure 403-9 requires the organization to disclose injuries because of commuting incidents only in cases where the transport has been arranged by the organization (e.g., company or contracted bus or vehicle).
[19] It should be noted that in the three-year reporting period no fatality occurred.

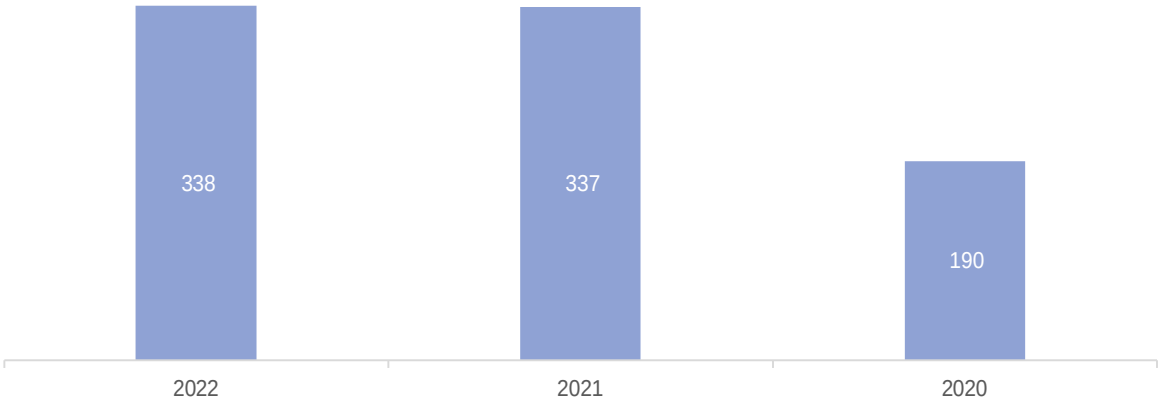


In parallel with the overall number of injuries, the **rate of recordable occupational accidents**[20] has decreased between 2021 and 2022, going from 34.5 to 31 (-10%), calculated based on worked hours. In 2022, worked hours amounted to 6,873,909, which represents a small decrease compared to 2021 (-4%), and a significant increase compared to 2020 (+18%), when activities were restrained because of the Covid-19 pandemic.

Giving prevention a crucial role in health and safety management, the Group monitors near-miss events. Indeed, by monitoring close call events, it can identify areas of improvement and implement corrective actions. The number of close-call events has remained stable between 2021 (337) and 2022 (338), while it had significantly increased between 2020 and 2021: it should be noted that the low number of accidents and close call events occurred in 2020 are also strictly linked to the restrictions and the lower worked hours due to the pandemic emergency.

[20] Rate of recordable occupational accidents has been calculated as the total number of recordable work-related injuries over the total number of worked hours multiplied by 100.000.

Number of recorded near-misses/close calls events (2020-2022)



3.4 Social footprint

The Gnutti Carlo Group is aware of its **social responsibility**, and therefore engages in social activities and donations every year: indeed, its impact extends far beyond its immediate operations, and by actively participating in such initiatives, it strives to have a positive impact on communities and individuals. One example of these donations are the different scholarships financed by the Group in cooperation with the education sector, both University and secondary schools.

With plants and offices scattered across regions worldwide, the Group understands the importance of supporting local communities and addressing their specific needs; through these initiatives, the Group aims to contribute to their overall wellbeing and development.

The Gnutti Carlo Group also supports **Croce Bianca** of Brescia, building upon a longstanding partnership established years ago. The dedicated volunteers of Croce Bianca tirelessly serve on the frontlines, available round the clock, every day of the year.

In India, four schools were chosen to participate in an **educational program**, including the organization of the "Gnutti Science Day Event." In addition, an environmental initiative was initiated in collaboration with the local forestry department, focusing on tree planting. Moreover, eye exam and general health check-up were offered to all employees by setting up an outpatient clinic at Gnutti Carlo India factory.

Methodological note

Reporting principles and criteria

Gnutti Carlo Group's 2022 Sustainability Report has been prepared in accordance with the GRI Standards 2021. Contents of this Report reflect the results of the materiality analysis as defined by the Standards, as well as the disclosure practices on the Group's material topics.

Scope of reporting [2-3]

The present Sustainability Report details objectives, actions, and key performance metrics relating to the period between January 1st, 2022, through December 31st, 2022, and it is updated annually. Moreover, as of this Report's publishing date, no noteworthy event occurred in 2023 that necessitates reporting beyond what has already been described. The drafting process of this Report enabled the Group to strengthen its awareness and commitment towards ESG topics and impacts.

The scope of the reporting includes the following legal identities of the Group[21]:

- Gnutti Carlo S.p.A., Maclodio, Brescia, Italy;
- Gnutti Carlo Sweden AB, Kungsör, Sweden;
- Gnutti Carlo Canada Ltd, Huron Park, Ontario, Canada;
- Gnutti Carlo India Ltd, Ranipet, Tamil Nadu, India;
- Gnutti Carlo (Wuxi) Engine Components Co., Ltd., Wuxi (Jiangsu), Xishan, China;
- Gnutti Carlo USA, Webberville, MI, United States.
- Metallfabriken Ljunghäll AB, Södra VI, Sweden;
- Ljunghäll s.r.o., Čáslav, Czech Republic;
- Ljunghäll (Wuxi) Die-Casting Co. Ltd, Wuxi (Jiangsu), Xishan, China;
- Ljunghäll Canada Ltd, Huron Park, Ontario, Canada.
- TCG Unitech GmbH, Kirchdorf an der Krems, Rohr im Kremstal, Micheldorf, Austria;
- Jebsen TCG Automotive Systems (Dalian) Co., Ltd, Dalian, China. [2-2]

Quality reporting principles [2-5]

In accordance with the reporting principles defined by the GRI Standards 2021, the Gnutti Carlo Group's 2022 Sustainability Report adheres to the criteria of accuracy, balance, clarity, comparability, completeness, sustainability context, timeliness, and verifiability. Compliance with the requirements of the GRI Standards 2021 enables the Group to ensure the correct representation of information, with a high degree of detail and quality of the data reported, thus allowing readers to objectively assess the Group's performance and contributions towards sustainable development.

This Sustainability Report is not subject to external assurance.

[21] As specified in Chapter 1, the Group also comprises one sales company in Germany (Gnutti Carlo Gmbh), and one customer support location in the United Kingdom (Gnutti Carlo UK Ltd), both not included in the reporting perimeter of this 2022 Sustainability Report.

Calculation methodologies and assumptions [2-2]

Below are described methodology and assumptions used to compute the indicators of this Report:

- data related to injuries refer to the Group's employees and contractors. Commuting injuries where the employee/contractor used their own means of transportation, and first aid cases are not included, as per guidance from the GRI Standards;
- the rate of recordable work-related injuries has been calculated as the total number of injuries divided by the overall number of hours worked in the reporting period and multiplied by 1,000,000;
- Gnutti Carlo (Wuxi) Engine Components Co., Ltd. and Ljunghäll (Wuxi) Die-Casting Co. Ltd have two work shifts of 8 hours per day plus 4 hours of overtime working;
- Gnutti Carlo S.p.A. sets a threshold for significance of monetary fines at € 10,000;
- Gnutti Carlo India Ltd only tracks training hours provided within Gnutti Carlo Academy and not the overall training hours;
- For specific cases, data regarding the number of employees, hires and terminations have been estimated. In particular:
    - Ljunghäll Canada Ltd 2021 and Gnutti Carlo India Ltd 2020-2021-2022 permanent and fixed term employees have been estimated due to the lack of information;
    - Gnutti Carlo USA 2020-2021-2022 hirings and terminations have been estimated based on the total number of employees over the years;

Whether and how the consolidation process of information differs across the disclosures, it has been appropriately highlighted through footnotes within the text.

The following table shows the conversion factors that have been used to perform energy consumption calculations and estimates:

Typology	U.o.M.	Source
Fuel density	l/t	UK Department for Environment, Food & Rural Affairs (DEFRA), Conversion factors – Full set, 2020, 2021, 2022
LCV (Lower Calorific Value)	GJ/t	UK Department for Environment, Food & Rural Affairs (DEFRA), Conversion factors – Full set, 2020, 2021, 2022
Volume	US gallon/l	UK Department for Environment, Food & Rural Affairs (DEFRA), Conversion factors – Full set, 2020, 2021, 2022
Volume	Cubic feet/m^3	UK Department for Environment, Food & Rural Affairs (DEFRA), Conversion factors – Full set, 2020, 2021, 2022

Scope 1 emissions were calculated as follow:

GHG emissions – Scope 1			
Source	**Activity data**	**Emission factor**	**GWP**
Car fleet	Fuel consumption (petrol and diesel)	UK Department for Environment, Food & Rural Affairs (DEFRA), Conversion factors – Full set, 2020, 2021, 2022	CO_2 equivalent.
Fuels for heating and melting	Fuel consumption (natural gas and propane)	UK Department for Environment, Food & Rural Affairs (DEFRA), Conversion factors – Full set, 2020, 2021, 2022	CO_2 equivalent.
Fuels for emergency generator	Fuel consumption (diesel)	UK Department for Environment, Food & Rural Affairs (DEFRA), Conversion factors – Full set, 2020, 2021, 2022	CO_2 equivalent.
Leakages from air-conditioning systems of refrigerant gases	Leakages (kg)	-	Global Warming Potentials (GWPs) are taken from IPCC Fifth Assessment Report (AR5) and sixth Assessment Report (AR6).

Regarding Scope 2 emissions caused by the consumption of purchased electricity from the national grid, two calculating methodologies have been followed: location and market-based approaches. The first metric shows the average emissions intensity of grids, considering both renewable and non-renewable generation, whereas the second metric indicates emissions from electrical sources that the Group has purposefully selected. Scope 2 emissions are calculated as follow:

GHG emissions – Scope 2			
Source	**Activity data**	**Emission factor**	**GWP**
Electricity purchased from the national grid (location-based approach)	Electricity consumption	Terna international comparisons on Enerdata figures, 2019	Only CO_2.
Electricity purchased from the national grid (market-based approach)	Electricity consumption	AIB, European Residual Mixes, 2019, 2020, 2021	CO_2 equivalent.
		USA - Green-e Energy Residual Mix Emissions Rates, 2019, 2020, 2021	

		Terna international comparisons on Enerdata figures, 2019	
District-heating purchased from the waste-to-energy plant	Heat consumption	UK Department for Environment, Food & Rural Affairs (DEFRA), Conversion factors – Full set, 2020, 2021, 2022	CO_2 equivalent.

Appendix

Tables - Environment

Fuel consumption from non-renewable sources – Group level

	U.M.	2022	2021	2020
Natural gas	m^3	7,846,069	8,629,540	6,847,600
Propane (LPG)	kg	1,697,950	1,808,758	1,761,115
Diesel	l	241,163	218,441	213,636
Diesel (emergency generator)	l	46,617	37,479	15,015
Gasoline	l	35,027	26,033	24,279

Fuel consumption from non-renewable sources – breakdown by Business Segment

	U.M.	2022	2021	2020
Natural gas	**m^3**	**7,846,069**	**8,629,540**	**6,847,600**
Powertrain	m^3	484,258	848,168	579,138
HPDC	m^3	7,361,811	7,781,372	6,268,462
Propane (LPG)	**kg**	**1,697,950**	**1,808,758**	**1,761,115**
Powertrain	kg	18,431	15,894	11,569
HPDC	kg	1,679.519	1,792,864	1,749,546
Diesel	**l**	**241,163**	**218,441**	**213,636**
Powertrain	l	87,111	67,189	71,711
HPDC	l	154,052	151,252	141,925
Diesel (emergency generator)	**l**	**46,617**	**37,479**	**15,015**

Powertrain	I	26,611	17,479	15,015
HPDC	I	20,006	20,000	-
Gasoline	**I**	**35,027**	**26,033**	**24,279**
Powertrain	I	9,216	4,990	3,759
HPDC	I	25,811	21,043	20,520

Electricity consumption (kWh) – breakdown by Business Segment

	2022	2021	2020
Electricity purchased from the grid	**216,988,052**	**216,976,714**	**185,880,586**
Powertrain	44,852,245	43,572,323	34,543,258
HPDC	172,135,807	173,404,391	151,337,328
Of which from certified renewable sources (Guarantees of Origin)	**73,532,197**	**80,635,797**	**62,258,495**
Powertrain	13,893,650	814,452	659,731
HPDC	59,638.547	79,821,345	61,598,764
Self-generated electricity (only for TCG Unitech Austria)	**12,537**	**-**	**-**
Of which consumed	11,677	-	-
Of which sold into the national grid	860	-	-
Total electricity consumed	**216,999,729**	**216,976,714**	**185,880,586**

District heating (kWh) – breakdown by Business Segment

	2022	2021	2020
Powertrain	274,000	418,000	290,000

HPDC	5,994,425	7,614,356	5,460,786
Total District heating	**6,268,425**	**8,032,356**	**5,750,786**

Direct GHG Emissions (Scope 1) (tCO2eq) [305-1] – breakdown by Business Segment

	2022	2021	2020
Natural gas	**15,816**	**17,559**	**13,933**
Powertrain	976	1,726	1,178
HPDC	14,839	15,833	12,755
Propane (LPG)	**4,991**	**5,316**	**5,176**
Powertrain	54	47	34
HPDC	4,937	5,270	5,142
Diesel	**617**	**549**	**537**
Powertrain	223	169	180
HPDC	394	380	357
F-gas	**255**	**357**	**255**
Powertrain	250	285	102
HPDC	5	71	152
Diesel (emergency generator)	**129**	**103**	**41**
Powertrain	73	48	41
HPDC	55	55	-
Gasoline	**76**	**57**	**53**
Powertrain	20	11	8

	HPDC	56	46	45
Total GHG emissions Scope 1		**21,883**	**23,941**	**19,996**

Indirect GHG emissions (Scope 2 Market-based) (tCO2eq) [305-2] – breakdown by Business Segment

	2022	2021	2020
Electricity purchased from the grid	**48,461**	**41,307**	**30,946**
Powertrain	14,216	14,162	10,911
HPDC	34,245	27.145	20.035
District heating	**1,070**	**1,371**	**982**
Powertrain	47	71	50
HPDC	1,023	1,300	932
Total GHG emissions Scope 2 (Market Based)	**39,517**	**42,678**	**31,927**

Indirect GHG emissions (Scope 2 Location-based) (tCO2eq) [305-2] – breakdown by Business Segment

	2022	2021	2020
Electricity purchased from the grid	**49,251**	**49,709**	**39,656**
Powertrain	12,277	11,916	9,189
HPDC	36,974	37,793	30,467
District heating	**1,070**	**1,371**	**982**
Powertrain	47	71	50
HPDC	1,023	1,300	932
Total GHG emissions Scope 2 (Location-Based)	**50,321**	**51,080**	**40,638**

Tables – Human Resources and Health and Safety

Employees (headcount) [2-7] – breakdown by region

	2022	2021	2020
Employees	**3,191**	**3,200**	**3,018**
North America	349	416	403
Asia	284	295	298
Europe	2,558	2,489	2,317
Full-time employees	**3,065**	**3,079**	**2,892**
North America	349	416	403
Asia	284	295	298
Europe	2,432	2,368	2,191
Part-time employees	**126**	**121**	**126**
North America	-	-	-
Asia	-	-	-
Europe	126	121	126
Non-guaranteed hour employees	-	-	-
Permanent employees	**3,010**	**3,018**	**2,848**
North America	349	416	403
Asia	131	142	155
Europe	2,530	2,460	2,290
Temporary employees	**181**	**182**	**170**

North America	-	-	-
Asia	153	153	143
Europe	28	29	27
Non-guaranteed hour employees	-	-	-

Diversity of governance bodies and employees (headcount) [405-1]

	2022		2021		2020	
Gender	**n.**	**%**	**n.**	**%**	**n.**	**%**
Female	794	25	788	25	736	24
Male	2,397	75	2,412	75	2,282	76
Age group	**n.**	**%**	**n.**	**%**	**n.**	**%**
<30	600	19	615	19	605	20
30 ≤ x ≤ 50	1,652	52	1,640	51	1,566	52
>50	939	29	945	30	847	28

Diversity of governance bodies and employees (headcount) [405-1]

	2022		2021		2020	
Employee category	**n.**	**%**	**n.**	**%**	**n.**	**%**
Managers	66	2	62	2	58	2
Plant directors	68	2	72	2	68	2
White collars	715	24	748	23	727	24
Blue collars	2,169	72	2,318	72	2,338	72

Work-related injuries [403-9] – Group

	U.M.	2022	2021	2020
Worked hours	h	**6,873,909**	**7,186,940**	**5,840,413**
Number of fatalities as a result of work-related injuries	n.	**-**	**-**	**-**
Number of high consequence work-related injuries (excluding fatalities)	n.	**5**	**7**	**2**
of which commuting	n.	**-**	**-**	**-**
The number of recordable work-related injuries	n.	**213**	**248**	**134**
of which commuting	n.	-	3	2
of which with over 0 days of incapacitation	n.	37	34	15
of which with over 3 days of incapacitation	n.	23	35	15
of which with over 7 days of incapacitation	n.	79	72	55
Total number of recorded near-misses/close calls events	n.	**338**	**337**	**190**
Rate of recordable occupational accidents	%	**31.0**	**34.5**	**22.9**
Rate of high consequence work-related injuries	%	**0.7**	**1.0**	**0.3**
Fatality rate	%	**-**	**-**	**-**
Severity rate	%	**76.4**	**70.7**	**53.0**

Employee Hires (headcount) [401-1]

	2022	2021	2020
Total number of hires	**415**	**594**	**464**
Gender			
Female	163	158	113
Male	252	436	351
Age group			
<30	191	285	189
30 ≤ x ≤ 50	190	237	226
>50	34	72	49
Hirings rate	**13%**	**19%**	**-**

Employee Terminations (headcount) [401-1]

	2022	2021	2020
Total number of terminations	**577**	**584**	**558**
Gender			
Female	133	154	122
Male	444	430	436
Age group			
<30	158	215	176
30 ≤ x ≤ 50	258	255	267
>50	161	114	115
Turnover rate	**18%**	**18%**	**-**

GRI Content Index

GRI 1: UNIVERSAL STANDARDS	
Statement of use	Gnutti Carlo S.p.A. has reported in accordance with the GRI Standards for the period 1st January 2022 to 31st December 2022
GRI 1 used	GRI 1: Foundation 2021
Applicable GRI Sector Standards	[N/A]

GRI Standard	Disclosure	Location	Notes	Omission
GRI 2: GENERAL DISCLOSURES 2021				
The organization and its reporting practices				
2-1	Organizational details			
2-2	Entities included in the organization's Sustainability reporting			
2-3	Reporting period, frequency, and contact point			
2-4	Restatements of information		Indicator not applicable as 2022 marks the first Report drafted in accordance with the GRI standards.	
2-5	External assurance			
Activities and workers				
2-6	Activities, value chain and other business relationships			
2-7	Employees			
2-8	Workers who are not employees			
Governance				
2-9	Governance structure and composition			
2-10	Nomination and selection of the highest governance body			
2-11	Chair of the highest governance body			
2-12	Role of the highest governance body in overseeing the management of impacts			
2-13	Delegation of responsibility for managing impacts			
2-14	Role of the highest governance body in sustainability reporting			
2-15	Conflicts of interest			
2-16	Communication of critical concerns			
2-17	Collective knowledge of the highest governance body			
2-18	Evaluation of the performance of the highest governance body			
2-19	Remuneration policies			
2-20	Process to determine remuneration			

GRI Standard	Disclosure	Location	Notes	Omission
2-21	Annual total compensation ratio			Information not disclosed due to confidentiality constraints.
Strategy, policies, and practices				
2-22	Statement on sustainable development strategy			
2-23	Policy commitment			
2-24	Embedding policy commitment			
2-25	Process to remediate negative impacts			
2-26	Mechanisms for seeking advice and raising concerns			
2-27	Compliance with laws and regulations			
2-28	Membership associations			
Stakeholder engagement				
2-29	Approach to stakeholder engagement			
2-30	Collective bargaining agreements			
GRI 3 MATERIAL TOPICS 2021				
3-1	Process to determine material topics			
3-2	List of material topics			

GRI Standard	Disclosure	Location	Omissions
MATERIAL TOPICS			
ENVIRONMENTAL PERFORMANCE INDICATORS			
DETERIORATION OF NON-RENEWABLE MATERIALS AND RELATED IMPACTS			
GRI 3: Material topics 2021			
3-3	Management of material topics		
GRI 301: Materials 2016			
301-1	Materials used by weight or volume		
ENVIRONMENTAL DAMAGES CAUSED BY FOSSIL FUEL ENERGY CONSUMPTION			
GRI 3: Material topics 2021			
3-3	Management of material topics		
GRI 302: Energy 2016			
302-1	Energy consumption within the organization		
302-3	Energy intensity		
WATER POLLUTION DERIVED FROM WATER WASTE AND DISCHARGES			
GRI 3: Material topics 2021			
3-3	Management of material topics		
GRI 303: Water and effluents 2018			
303-1	Interactions with water as a shared resource		
303-2	Management of water discharge-related impacts		

GRI Standard	Disclosure	Location	Omissions
303-3	Water withdrawal		
ACTIVITIES' NEGATIVE CONTRIBUTION TO CLIMATE CHANGE			
GRI 3: Material topics 2021			
3-3	Management of material topics		
GRI 305: Emissions 2016			
305-1	Direct (Scope 1) GHG emissions		
305-2	Energy indirect (Scope 2) GHG emissions		
ENVIRONMENTAL DAMAGES RELATED TO WASTE MISMANAGEMENT			
GRI 3: Material topics 2021			
3-3	Management of material topics		
GRI 306: Waste 2020			
306-1	Waste generation and significant waste-related impacts		
306-2	Management of significant waste-related impacts		
306-3	Waste generated		
306-4	Waste diverted from disposal		
306-5	Waste directed to disposal		
SOCIAL PERFORMANCE INDICATORS			
VIOLATION OF EXISTING LAWS ON SOCIO-ECONOMIC & ENVIRONMENTAL COMPLIANCE			
GRI 3: Material topics 2021			
3-3	Management of material topics		
GRI 2: GENERAL DISCLOSURES 2021			
2-27	Compliance with laws and regulations		
SAFEGUARDING OF EMPLOYEES' WELLBEING			
GRI 3: Material topics 2021			
3-3	Management of material topics		
GRI 401: Employment 2016			
401-1	New employees hires and employee turnover		
WORKING CONDITTIONS AND IMPACTS ON EMPLOYEES' HEALTH AND SAFETY			
GRI 3: Material topics 2021			
3-3	Management of material topics		
GRI 403: Occupational health and safety 2018			
403-1	Occupational health and safety management system		
403-2	Hazard identification, risk assessment, and incident investigation		
403-3	Occupational health services		
403-4	Worker participation, consultation, and communication on occupational health and safety		
403-5	Worker training on occupational health and safety		
403-6	Promotion of worker health		
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships		

GRI Standard	Disclosure	Location	Omissions
403-9	Work-related injuries		
WORKFORCE AND LOCAL COMMUNITIES' ENHANCEMENT			
GRI 3: Material topics 2021			
3-3	Management of material topics		
GRI 405: Diversity and equal opportunity 2016			
405-1	Diversity of governance bodies and employees		
NON GRI INDICATORS			
DEVELOPMENT OF EMPLOYEE SKILLS			
GRI 3: Material topics 2021			
3-3	Management of material topics		
	Total training hours		
HUMAN RIGHTS VIOLATION AND ENVIRONMENTAL DAMAGES ALONG THE VALUE CHAIN			
GRI 3: Material topics 2021			
3-3	Management of material topics		
	Cases of non-compliance during the reporting year		
VIOLATION OF INTERNAL NORMS AND REGULATIONS RELATED TO BUSINESS ETHICS			
GRI 3: Material topics 2021			
3-3	Management of material topics		
	Cases of violation of internal norms and regulations		
CONTRIBUTION TO TECHNOLOGICAL PROGRESS			
GRI 3: Material topics 2021			
3-3	Management of material topics		
	Contribution to technological process and R&D activities		