

# SUSTAINABILITY REPORT

# 2023

Executive Summary





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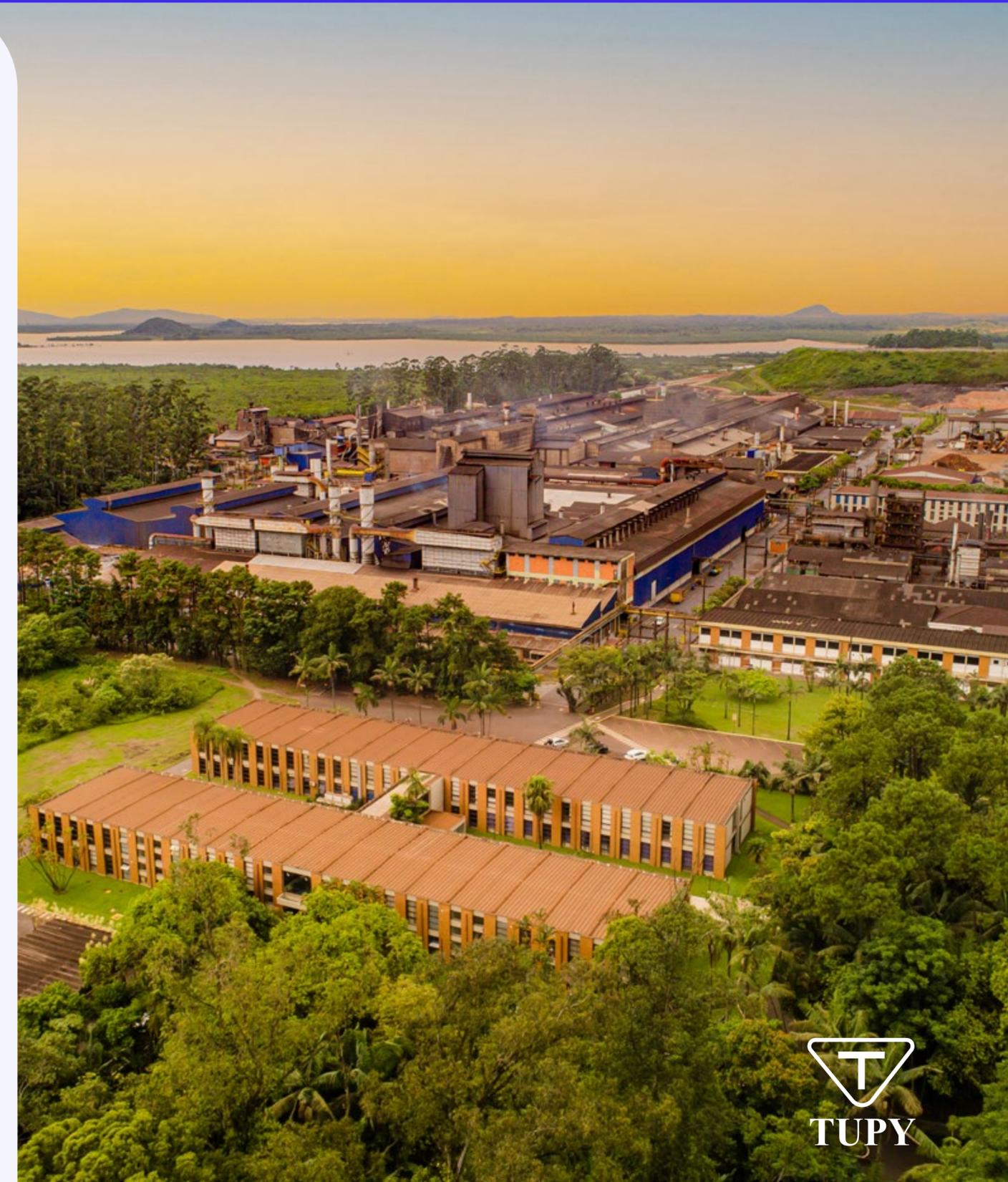
## INTRODUCTION

This document is an executive summary of our 2023 Sustainability Report. It includes our main financial, social, environmental and governance highlights for the period between January 1 and December 31, 2023. The content covers our operations in Brazil and abroad.

More detailed information can be found in our Sustainability Report, which was prepared in accordance with the 2021 Standards of the Global Reporting Initiative (GRI) and the guidelines of the International Framework for Integrated Reporting (IIRC), issued by the Value Reporting Foundation. It also considers disclosure topics and metrics from the Sustainability Accounting Standards Board (SASB) for the Metals & Mining and the Industrial Machinery & Goods industries, as well as the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

Questions and suggestions can be sent to [dri@tupy.com.br](mailto:dri@tupy.com.br), and more information can be found on Tupy's [Investor Relations website](#).

 Click [here](#) to read the full Report



# .01 MESSAGE FROM THE CEO

In 2023, Tupy celebrate its 85th anniversary. Throughout our history, we have developed new skills, which enabled the launch of new products. Looking back at our journey, one key element has never changed: our appreciation for knowledge.

This is how we have done it over the last eight decades and how we plan to take our company into the future: by dedicating ourselves to studying and understanding the world's challenges. Based on that, we will continue to develop technologies, products and services to solve them, while leveraging our skills, which have been expanded through acquisitions—important milestones in our evolution.

There is increased demand for energy, basic infrastructure—water, sanitation, electricity, decent and safe housing, health—and food production and distribution. All these essential needs are met by machines, vehicles and other equipment with which we are directly linked, in Brazil and abroad. To be competitive in this market, we must offer economic, scalable and cleaner solutions, contributing for viable decarbonization and a fair energy transition.

To achieve that, we continuously invest in technological innovation. In with regard to materials engineering, for example, we have developed increasingly lighter metal alloys, which have enabled the reduction of the weight of structural components

and, consequently, engines, saving fuel and reducing emissions.

Considering a multi-fuel future, we invested in Research & Development in the areas of biofuels, hydrogen and the circular economy, a model that has been the basis of the company's traditional business of transforming society's waste into high-value-added products. In 2023, 592,000 tonnes of metallic material were turned into cylinder blocks, heads and other structural components.

With the acquisition of MWM, whose indicators are included in this Report, our offering of services and products to drive decarbonization expanded not only in quantity, but also in impact. For agribusiness, for example, in addition to supplying engines for tractors and agricultural machines, motor pumps, generator sets and spare parts, we introduced the concept of Bioplants, a complete and circular solution that brings clean energy, renewable fuel, green carbon dioxide and organomineral fertilizer to rural producers in different regions of the country.

Through our various products and services, we help to facilitate the use of available and sometimes wasted energy. And we also continue to look to the future, investing in technologies that are not yet mature—such as battery recycling and the use of hydrogen as fuel—but that could be relevant in the future,

in a low-carbon economy, and generate new sources of revenue for the company.

We help improve quality of life not just through our products. This is something we care about across our entire value chain, as we consider our social and environmental impact. In 2023, we took an important step to learn more about Tupy's more than 20,000 employees through our first Diversity Census. Based on the results, we will be able to implement initiatives to help create an increasingly healthier, safer and more inclusive environment.

This attention to people extends to our community, through investments in social impact initiatives; to our suppliers, by training and recognizing them for their performance; and to the partners with whom we collaborate to continue to innovate. These are universities, research institutes, other companies and startups that enrich our innovation ecosystem.

This entire network also contributes for the evolution of production processes, with emphasis on those related to environmental management. With a range of products and services that help reduce impact on the environment, it is essential that we are diligent when it comes to our operations as well. The continuous improvement to which we have dedicated our efforts has produced good results. One example is our Greenhouse Gas (GHG) intensity indicator which, in 2023,

was 40% lower than the global average for the steel sector.

This transformation that we have experienced in the company's business and culture has only been possible thanks to the commitment of our people, to whom I am very grateful. Despite a very challenging year, our teams managed to achieve significant results, leading to the highest net revenue (R\$11.4 billion) and net profit (R\$517 million) in our company's history.

I invite you to read our Sustainability Report and learn more details about these challenges, achievements and investments that drive us to be a different company every day. We are transforming and building our future.

**Fernando Cestari de Rizzo, CEO**



# .02 A TUPY

## ABOUT US

We are Tupy, a Brazilian multinational company with an 86-year history. We develop and produce essential structural components of machines, vehicles and equipment that are used by the transportation and freight sectors (including all modes), as well as the maritime, infrastructure, power generation and agribusiness segments. Our products and solutions help improve people's quality of life, enabling access to basic sanitation services, drinking water, food production and distribution, and global trade.

We offer machining, assembly, technical validation and engineering services related to these areas, which were expanded with the acquisition of MWM at the end of 2022. We enhanced our energy and decarbonization portfolio by adding biogas and biomethane engines and generators, evolving into complete and customized solutions that include waste management, biofuel generation, electricity, organomineral fertilizer and green carbon dioxide. We operate in the replacement market, through an authorized network of resellers located throughout Brazil, and also produce and sell vessel propulsion systems to the maritime industry.

We are a team of 21,112 people who are committed to the mission of providing high-value products and solutions. We abide by principles of customer focus, integrity, transparency, health and safety, innovation, economic excellence, environmental protection and positive impact on communities.



Learn more about our products and solutions at [Tupy](#) and [MWM](#).



## PRODUCT AND SOLUTION PORTFOLIO

### Structural components

- ▶ Cylinder blocks and heads
- ▶ Engineering parts
- ▶ Castings

### Manufacturing contracts

- ▶ Machining and assembly services
- ▶ Engineering services

### Energy, agribusiness, decarbonization and new businesses

- ▶ Generator sets
- ▶ Vehicle conversion to biomethane and natural gas
- ▶ Solutions for the biogas chain based on organic waste from agriculture and livestock activities
- ▶ Lighting towers
- ▶ Motorized pumps
- ▶ Battery recycling – being researched
- ▶ Hydrogen economy – being researched

### Distribution, replacement and hydraulics

- ▶ Spare parts
- ▶ Pipe fittings and continuous cast iron bars



# WHERE WE OPERATE

North America

**46%**  
of global sales

Europe

**18%**  
of global sales

Africa, Asia  
and Oceania

**2%**  
of global sales

Central and  
South America

**34%**  
of global sales

**Plants:**

- ▶ Betim, Joinville e São Paulo<sup>1</sup> (Brazil)
- ▶ Saltillo e Ramos Arizpe (México)
- ▶ Aveiro (Portugal)

**Offices:**

- ▶ Arnhem<sup>1</sup> (Netherlands)
- ▶ Detroit (United States)
- ▶ Munich (Germany)
- ▶ São Paulo (Brazil)
- ▶ Turin (Italy)

<sup>1</sup>Subsidiary

## 2023 HIGHLIGHTS



### MANUFACTURED CAPITAL

**6** plants

**5** offices



### FINANCIAL CAPITAL

**R\$11.4 billion**  
net revenue

**R\$1.3 billion**  
adjusted EBITDA

**R\$517 million**  
net profit

**R\$829 million**  
operating cash flow



### HUMAN CAPITAL

**21,112**  
direct employees

**433,000**  
hours of training

**R\$35 million**  
invested in  
workplace safety



### INTELLECTUAL CAPITAL

**R\$84.4 million**  
invested in Research & Development  
(up 130% compared to 2022)

**128**  
startups registered for ShiftT's third selection [and acceleration cycle  
(up 50% compared to 2022)

**17**  
partnering research and technology institutes

**Highlighted**  
in the Brazilian National Innovation Award from the National Confederation of Industry



### SOCIAL CAPITAL

**5,671**  
active suppliers

**R\$2.8 million**  
invested in social impact initiatives

**2,123**  
hours dedicated to voluntary work

**18,676**  
people impacted by social initiatives

**R\$11.2 billion**  
added to the economy



### NATURAL CAPITAL

**R\$52 million**  
invested in environmental initiatives

**95%**  
of the metal material used comes from recycling

**1.1 million**  
tonnes of recycled waste

**83%** of the water used comes from reuse

## MATERIALITY

In 2023, we reviewed the topics identified as material for the sustainable management of our business, thus aligning the content of the Sustainability Report with business priorities and the perceptions of our main stakeholders. At the end of the process, we identified the same material topics—three environmental, five social and three governance topics — that had been prioritized in the previous assessment, carried out in 2022.



## AWARDS AND RECOGNITION



**Best and Largest 2023** – We moved up 25 positions in the 2023 Best and Largest ranking organized by Exame magazine in partnership with IBMEC, placing 9<sup>th</sup> in the list of best companies in Brazil in the Steel, Mining and Metallurgy sector.



**Valor Inovação** – We place 4<sup>th</sup> in the Capital Goods category of the Valor Inovação ranking, by the Valor Econômico newspaper, which lists the 150 most prominent companies in the segment.



**National Innovation Awards** – We were one of the three companies recognized by the National Industry Confederation with the National Innovation Awards, in the Large Companies – Product Innovation category.



**Santa Catarina Innovation Award** – Our Ultralight Iron Technology case study won the 2022 Santa Catarina Innovation Award – Professor Caspar Erich Stemmer – in the Product Innovation – Industrial Design category, from the Santa Catarina State Research and Innovation Support Foundation.



**Ranking 100 Open Startups 2023** – Our work to connect and promote startups was recognized by 100 Open Startups 2023. We ranked 8<sup>th</sup> in the Top 10 list of companies in the Mining and Metals category, among 5,348 corporations evaluated.



**American Foundry Society Awards** – We received the Howard F. Taylor Award, granted by the American Foundry Society, an organization that represents the global foundry sector.



**Exame Best ESG** – For the second year in a row, we were recognized by Exame magazine as one of the Best in ESG in the Capital Goods and Electronics category.



**Zero Waste Certification** – Our São Paulo site (BR) earned Zero Waste certification based on the Zero Waste International Alliance methodology.

## ESG SCORES

We are evaluated by agencies that analyze and rate companies according to their environmental, social and governance risks. This helps us understand the market's perception of our ESG strategy and practices, which helps to continuously improve our management. One example was the seven-point increase in our score from S&P ESG Ratings, which was above the average of 21 within the Capital Goods/Electrical Machinery and Equipment. Also, our classification by Sustainalytics went from high risk (scores between 30 and 40) in 2021 to low risk (scores between 10 and 20). Our MSCI rating was also upgraded to BB.

|                    | 2021 | 2022 | 2023        | Evolution |
|--------------------|------|------|-------------|-----------|
| SUSTAINALYTICS     | 31.0 | 18.8 | 16.9        | ↑         |
| MSCI               | CCC  | B    | BB          | ↑         |
| S&P Global Ratings | 4    | 31   | 38          | ↑         |
| CDP                | C    | C    | C           | ↔         |
| ecovadis           | NA   | NA   | Silver (60) | ↑         |

## KEY INDICATORS



| INDICATOR   | Unit                           | 2021    | 2022    | 2023                |
|---|--------------------------------|---------|---------|---------------------|
| <b>ENVIRONMENTAL</b>  |                                |         |         |                     |
| Greenhouse Gas (GHG) emissions intensity —scopes 1 and 2— in tonne of CO <sub>2</sub> equivalent per tonne of product | tCO <sub>2</sub> /tonne iron   | 1.30    | 1.08    | 1.17 <sup>1,2</sup> |
| Greenhouse Gas (GHG) emissions intensity —scopes 1 and 2— in tonne of CO <sub>2</sub> equivalent by revenue           | tCO <sub>2</sub> /R\$ thousand | 0.09    | 0.07    | 0.07                |
| Greenhouse Gases (GHG) —scope 1   | tCO <sub>2</sub>               | 482,270 | 560,102 | 560,113             |
| Greenhouse Gases —scope 2   | tCO <sub>2</sub>               | 220,281 | 196,159 | 187,596             |
| Particulate matter  | t MPT/tonne iron               | 0.00199 | 0.00114 | 0.00093             |
| Percentage of metal material from recycled sources used in the process  | %                              | 97      | 93      | 95                  |
| Percentage of water reuse in the process  | %                              | 73      | 93      | 83 <sup>3</sup>     |



|  |             |         |           |           |
|--|-------------|---------|-----------|-----------|
| <b>SOCIAL</b>                                    |             |         |           |           |
| Number of employees                              | Number      | 15,681  | 19,155    | 21,112    |
| Percentage of women at the company               | %           | 8.28    | 8.04      | 9.06      |
| Health and safety rate index (frequency rate)    | Number      | 13.36   | 13.96     | 9.89      |
| Average number of hours of training per employee | Number      | 29.7    | 20.6      | 20.9      |
| Number of people benefited by social investment  | Number      | 15,000  | 19,200    | 18,676    |
| Social investment                                | R\$         | 146,808 | 2,119,199 | 2,888,720 |
| Volunteer hours                                  | Number      | 900     | 970       | 2,123     |
| Value added to the economy                       | R\$ billion | 6.8     | 9.8       | 11.2      |
| Recall incidents                                 | Number      | 0       | 0         | 0         |



|   |             |       |       |                  |
|---|-------------|-------|-------|------------------|
| <b>GOVERNANCE</b>                             |             |       |       |                  |
| Percentage of women in the Board of Directors | %           | 33.3  | 33.3  | 22.2             |
| Percentage of independent members             | %           | 33.3  | 33.3  | 100 <sup>4</sup> |
| Taxes and contributions                       | R\$ million | 318.8 | 698.5 | 633.5            |
| Investments in Research & Development         | R\$ million | 25    | 36    | 84.4             |

<sup>1</sup> The São Paulo subsidiary, MWM do Brasil, was not included in the calculation, since it does not have a common denominator regarding unit of measure of production.

<sup>2</sup> The increase in emissions intensity was due to an 8% reduction in equivalent production.

<sup>3</sup> Decrease due to the inclusion of the São Paulo (BR) site and increased water withdrawal at the Ramos Arizpe (MX) site caused by its expanded operations.

<sup>4</sup> On January 1, 2023, the Shareholders' Agreement filed at the company's headquarters expired, freeing all members of the Board of Directors from voting according to guidance from shareholders. Subsequently, the Ordinary General Meeting held on April 28, 2023, which elected the members of the Board of Directors for the 2023-2025 cycle, recognized that all elected directors meet the independence criteria, in compliance with B3 – Brazil Stock Exchange and Over-the-Counter Market Novo Mercado's regulations.

# .03 STRATEGY

## LONG-TERM VISION

Recognizing global challenges and considering climate threats, we remain committed to working in the food production and distribution value chain, in access to basic sanitation and drinking water, and in viable decarbonization to, consequently, improve people's quality of life. Also, in line with trends in the sectors where we operate, we seek to take advantage of the growing demand for efficient and sustainable trucks and machines, and advance in the machining of cylinder blocks and heads and in the assembly of complete engines.



We believe that we can contribute to the future, while also changing the world now. To do so, we allocate our technological investments to three focus areas:

- 1 Increase the overall energy efficiency of equipment for which we supply components or systems.**
- 2 Leverage available and wasted energy sources.**
- 3 Research new technologies with potential to be more efficient in the long term.**



## STRATEGIC DRIVERS

- 1 Capture synergies and reduce costs**  
We plan to increase our production capacity by using sustainable raw materials, leveraging synergies with suppliers and customers, and achieving economies of scale through our recent acquisitions and global presence.
- 2 Add value to our base through machining and assembly**  
We strive to provide complete solutions to our customers, enabling them to add value to foundry products.
- 3 Take advantage of viable and available energy sources**  
We develop decarbonization solutions that leverage the existing capital goods structure, combining different fuels and cleaner energy sources that are often wasted, such as biogas, biodiesel, biomethane, ethanol, natural gas, hydrogen and HVO (hydrotreated vegetable oil, a type of "green" diesel).
- 4 Increase the energy efficiency of products**  
We help our customers increase their energy efficiency through our engineering and metallurgy solutions. This includes the production of more sustainable engines, which lead to reduced Greenhouse Gas emissions and costs.



## TUPY'S PARTICIPATION IN B20

En 2023, our CEO, Fernando Cestari de Rizzo, represented the Brazilian private sector in B20 — a discussion forum that connects G20 with the global business community — as co-chair of the Technology, Innovation and R&D taskforce. In addition to this taskforce, eight other working groups were formed to draft recommendations to G20. Rizzo has been appointed chair of the Digital Transformation taskforce for the year 2024, when Brazil will host both the B20 and the G20 annual meetings.

# R&D, INNOVATION AND DIGITAL TRANSFORMATION

## Research and Development

In 2023, we invested R\$84.4 million in research and development projects, in areas that have synergy with our strategic plan. Among the projects under development, the following stand out:

### ▶ Ultralight Iron Technology

Enables the production of structural parts in cast iron that have the same weight as aluminum. The technology is being developed in partnership with the automotive engineering companies Ricardo PLC (United Kingdom) and SinterCast (Sweden). In 2024, these developments are expected to progress toward commercial projects to introduce the technology into the market.

Compared to aluminum, Ultralight Iron has:

- ▶ Same weight
- ▶ Lower level of noise and vibration
- ▶ 50% lower CO<sub>2</sub> emissions during production
- ▶ Approximately 25% lower cost

#### Technology Readiness Level (TRL)



### ▶ Technologies for Hydrogen Engine

Converts truck engines from diesel to hydrogen, a sustainable alternative for heavy vehicles. The project is being developed in partnership with AVL, an Austrian automotive engineering company, and Westport, a Canadian fuel injection systems company. In 2023, we signed a contract with MAN to become an exclusive supplier of structural components for hydrogen combustion trucks. This solution is scheduled to be available in the market starting in 2025. Some of the advantages already identified include:

- ▶ Lower cost and increased efficiency under high loads
- ▶ Tolerance to the use of non-pure hydrogen
- ▶ Superior durability compared to all other zero-carbon solutions
- ▶ Thermal efficiency of 50.5% compared to 47.6% in diesel engines
- ▶ Increase in power, from 475 kW to 537 kW

#### Technology Readiness Level (TRL)



### ▶ Biomass Briquettes

Biomass briquettes are being tested to replace mineral material in foundry furnaces, to reduce the carbon footprint of the production process. The project is being carried out in partnership with the SENAI Institute for Biomass Innovation (SENAI-MS), University of São Paulo and Federal University of Rio Grande do Sul. Testing will continue in 2024 for the future industrial development of the technology.

#### Technology Readiness Level (TRL)



### ▶ Battery Recycling

This project is based on hydrometallurgy, a chemical process that uses less energy and enables increased reuse of materials compared to the conventional process (pyrometallurgy). It is being conducted in partnership with the Polytechnic School of the University of São Paulo (USP), an Embrapii Tecnogreen site. Some of the advantages already identified include:

- ▶ More than 70% reduction in CO<sub>2</sub> emissions in the process
- ▶ Recovery rate of high purity rare metals of more than 90%



#### Technology Readiness Level (TRL)



## Innovation



### ▶ ShiftT – Startup Accelerator

Our startup accelerator, ShiftT, seeks to attract companies that have synergies with our business. In 2023, we selected four out of the 85 startups registered in our second acceleration cycle:

- ▶ **Microciclo** – Use of biotechnology to regenerate waste foundry sand.
- ▶ **nChemi** – Nanotechnology application to reduce wear in biomethane combustion engines.
- ▶ **Ópera Dados** – Use of internet of things (IoT) sensors to monitor the quality of surface waters.
- ▶ **Nanofábrica** – Manufacturing of foundry tools through additive manufacturing of polymers.



Nanofábrica startup team



For our third cycle, started in 2023, we received 128 applications, a 50% increase compared to the previous cycle.

[Click here](#) to learn about ShiftT's initiatives.

### ▶ Open Innovation Portal

Our platform connects the innovation ecosystem to our strategy. We share important business challenges to attract proposals for viable solutions, which are analyzed and, when approved, taken to a proof-of-concept phase and subsequent implementation.

#### INNOVATION PORTAL RESULTS

**142** proposals received since 2021, 60 of them in 2023

**8** proofs of concept/tests

#### Actors involved:

**44%** startups

**30%** research institutes

**20%** technology companies

**6%** internal employees

**Topics considered:** microbiology; radiology; nanomaterials; briquetting; decarbonization; digital transformation; data analysis

[Click here](#) to visit our Open Innovation Portal

## Digital Transformation

In 2023, we invested R\$ 23 million in more than 35 digital transformation projects, focused on eight strategic pillars: operations, asset management, sustainability, technological leadership, people and knowledge, quality, customers and business management. We prioritized technologies that allow us to enjoy the benefits of industry 4.0 and digitalization.

### COLLABORATIVE ROBOTS

At our Joinville (BR) site, we started using a cobot to mark the serial number of parts by laser, avoiding repetitive work and accelerating the industrial process. Developed in partnership with Occupational Safety, it has a disarming system that allows it to work side by side with employees without the risk of accidents.

[Click here](#) to read the full Report

## SOLUTIONS FOR DECARBONIZATION

### ▶ Bioplants

We design, build and operate bioplants in which organic waste from the food production chain is transformed into renewable energy and fertilizers. We also develop, produce and sell equipment and solutions that use biofuels.



On addition to creating direct and indirect jobs, our Bioplant projects prevent the emission of approximately 63,000 tonnes of CO<sub>2</sub> per year, the equivalent of more than 500,000 trees, with a direct impact on the emissions inventories of our partnering companies (scopes 1 and 2) and their customers (scope 3).

#### PRIMATO

Pig farming waste will produce renewable fuel, electricity, organic mineral fertilizer and green carbon dioxide in a treatment plant that we are building at the Primato agricultural cooperative, in Ouro Verde do Oeste, in the state of Paraná (BR). The complete project will have two similar phases, in which more than 1.2 million liters of waste will be collected from 27 cooperatives daily, involving a total of 65,000 animals. The Bioplant will:

- ▶ Extract 12,650 m<sup>3</sup> of biogas from biodigesters daily, which would be enough to generate 6,850 m<sup>3</sup> of biomethane per day to fuel 33 cooperative trucks, currently powered by diesel, or generate 760 MWh of electricity per month, to be used by the cooperative.
- ▶ Produce 4,560 m<sup>3</sup> of CO<sub>2</sub> daily, as a result of biomethane purification, to replace fossil-based CO<sub>2</sub> used in the internal process of meat-packing companies in the region.

- ▶ Produce 10,000 tonnes of organomineral fertilizer per year from the organic waste solid fraction.

For cooperative members, the bioplant will increase productivity and family income, and reduce Greenhouse Gas (GHG) emissions. For Primato, it means lower costs and gains in product competitiveness, the use of renewable energy and biofuel, and the possibility of selling high-quality organomineral fertilizer.

#### RANCHO DA LUA FARM

The partnership includes the use of poultry farming waste to generate electricity for the property, which is located in Divinópolis, in the state of Minas Gerais (BR), and has approximately 500,000 egg laying chickens. The agreement also includes the sale of a potential 25,000 tonnes per year of organomineral fertilizer resulting from this process.



### ▶ Motorized Pumps for Agriculture

In 2023, we launched a motorized pump for irrigation and fertigation of agricultural crops fueled by biomethane. The pump has an integrated telemetry system and a smart system to replace the gas cylinder platform without having to interrupt the operation. Compared to diesel, biomethane motorized pumps provide:

- ▶ Up to 95% reduction in Greenhouse Gas (GHG) emissions
- ▶ More than 95% reduction in particulate matter emissions
- ▶ Self-sufficiency in the production of biomethane fuel by ethanol and sugar plants
- ▶ Lower operating cost

In places where biomethane is not available, a diesel option is offered.



### ▶ More Sustainable Vessels

Brought to Brazil by MWM in 2023, OXE Diesel engines are a quantum leap in the alternative fuel movement to decarbonize the maritime sector. This solution demonstrates the intelligent use of a fuel with a lower carbon footprint and has other advantages, such as:

- ▶ 65% increase in autonomy
- ▶ 42% reduction in fuel consumption
- ▶ 35% reduction in CO<sub>2</sub> emissions
- ▶ Noise reduction
- ▶ Increased safety (less flammable)



### ▶ Vehicle Conversion

This solution consists of replacing original diesel engines of trucks and buses with new engines fueled by natural gas or biomethane. This enables vehicles to operate with similar torque, power and consumption compared to the original diesel engines, but with lower operating costs per kilometer. The advantages include:

- ▶ 85% of the original engine components are preserved
- ▶ Similar maintenance costs
- ▶ 20% quieter
- ▶ 95% reduction in Greenhouse Gas emissions with the biomethane option and 25% reduction with the natural gas option

## TECHNOLOGICAL CENTER

We have the largest engine research and development center in Latin America, with multi-fuel capability and a structure that supports all phases of design and production. We bring together initiatives that already have practical application, such as energy generation, transportation and irrigation using agricultural and livestock waste, and other projects in development, such as technologies based on ethanol and hydrogen.

# .04 GOVERNANCE, INTEGRITY AND ETHICS



Our governance structure is made up of the following decision-making, advisory and supervisory bodies: shareholders, Board of Directors, Supervisory Board, Advisory Committees (Audit and Statutory Risks; Strategy, Innovation and Sustainability; Finance and Investments; and Ethics and Conduct) and Statutory Board.

We are certified by Women on Board (WoB), an initiative supported by UN Women that recognizes organizations that create inclusive corporate environments in which women are part of Board of Directors or Advisory Councils.

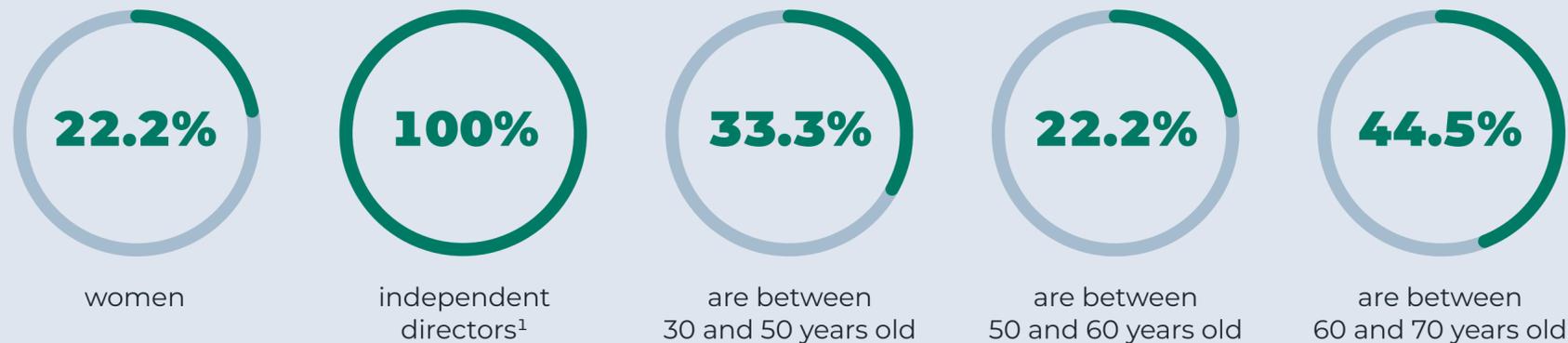
## Strategic Sustainability Vision

Our Strategy, Innovation and Sustainability Committee advises the Board regarding the definition of our strategic guidelines and the analysis of research and innovation initiatives and best practices related to sustainability, as well as the identification and monitoring of risks within its scope of work. The Board ensures that significant risks and relevant impacts are identified and communicated in a transparent and accurate manner, in a way that reinforces our commitment to corporate responsibility and business sustainability.

[Click here](#) to learn more about our governance structure, policies and commitments.

### BOARD COMPOSITION

GRI 405-1



<sup>1</sup> On January 1, 2023, the Shareholders' Agreement filed at the company's headquarters expired, freeing all members of the Board of Directors from voting according to guidance from shareholders. Subsequently, the Ordinary General Meeting held on April 28, 2023, which elected the members of the Board of Directors for the 2023-2025 cycle, recognized that all elected directors meet the independence criteria, in compliance with B3 – Brazil Stock Exchange and Over-the-Counter Market Novo Mercado's regulations.

## ETHICS AND INTEGRITY

We conduct our businesses and relationships with our stakeholders based on ethics and integrity and have policies that guide our work. We carry out regular activities to disseminate and raise awareness of the importance of ethical behavior. In 2023, 100% of employees received information and 6,000 received specific training on anti-corruption procedures and policies.



In 2023, we renewed our participation in the Business Pact for Integrity and Against Corruption, established by the Ethos Institute, to reinforce our commitment to integrity.



## Ethics Channels

We have ethics channels that are managed by an independent, outsourced company and are available to all our stakeholders. Individuals filing complaints can choose to remain anonymous and are guaranteed confidentiality and non-retaliation.

**513** complaints received and addressed

**401** complaints resolved

**190** complaints filed before 2023 and resolved during the year

For incidents that were considered substantiated or partially substantiated, 50 internal processes were revised, and the following measures were taken:

### Internal audiences:

**87** guidance feedback,

**13** warnings,

**7** suspensions and

**21** terminations.

### Suppliers:

**5** notifications



Click [here](#) to learn about our Code of Ethics and to access the channels.



# .05 SOCIAL IMPACT

## PEOPLE

People are the foundation of our company. We value the contribution of each employee, offer opportunities for learning and growth, and want to be a space where people can evolve and implement their projects. In 2023, we expanded our training efforts and carried out 433,000 hours of training, and evaluated the performance of 91% of the total number of eligible employees.

In 2023, our workforce included

**23,388**<sup>1</sup> individuals



We total

**20,801** employees, being: **18,939** men and **1,862** women

<sup>1</sup>At the end of 2023, we had 21,112 employees, 9.3% more than in December 2022, including 20,801 employees, 225 apprentices and 86 interns. We also had 2,276 contractors, totaling 23,388 individuals in our workforce.

## OCCUPATIONAL HEALTH AND SAFETY

Protecting the health and safety of our employees is a non-negotiable value for us. In 2023, we invested R\$35 million in occupational safety, aimed primarily at process modernization; protection for machines and equipment; improvements to electrical installations and fire protection systems; and the acquisition of new equipment.

During the year, we had a 29% reduction in our accident frequency rate and a 45% reduction in high potential incidents compared to the previous year.



## OUR FOCUS ON DIVERSITY

Our guidelines aim to:

- **Attract** diverse talent
- **Work** on infrastructure improvements and conditions to guarantee universal access within the company
- **Develop** diverse and inclusive leadership teams
- **Guarantee** freedom to speak up
- **Ensure** career opportunities
- **Guarantee** the well-being of all employees
- **Create** a psychologically safe environment

## DIVERSITY AND INCLUSION

Our diversity and inclusion practices are strategic organizational guidelines that positively impact the business and are part of the annual targets of our statutory directors. Through them, we seek to create a welcoming work environment, ensuring fair treatment, access and equal opportunity for all.

Our main initiatives in 2023 included a Diversity Census, specific leadership training, rounds of discussion with underrepresented groups, and the development of a map of diversity and inclusion opportunities. We also developed a Diversity and Inclusion (D&I) Standard, which includes guidelines and commitments in this area.

## DIVERSITY CENSUS<sup>1</sup>

Our first Diversity Census gathered data to help the creation of policies, guidelines and affirmative action practices. The census had a 70% participation rate, totaling approximately 14,000 respondents, and enabled us to identify our employee population according to around 10 categories, including gender, sexual identity, race and ethnicity, marital status, family status, origin, disability status and generations.

The initiative also enabled us to evaluate our people's perception of our culture of inclusion, considering aspects such as respect and equality; opportunity to speak up; work routine; perceptions of and satisfaction with D&I practices; and trust in our ethics channels.

**Gender**

|                |              |
|----------------|--------------|
| ● Male         | <b>83.5%</b> |
| ● Female       | <b>11.4%</b> |
| ● Non binary   | <b>0.3%</b>  |
| ● Not declared | <b>4.9%</b>  |



**1%**  
self-declared  
transsexual

**Origin**

|                                     |            |
|-------------------------------------|------------|
| ● Living in their country of origin | <b>90%</b> |
| ● Outside their country of origin   | <b>5%</b>  |
| ● Not declared                      | <b>5%</b>  |



**75%**  
of immigrants  
are from South  
American  
countries

**Race and ethnicity**

|                           | Brazil     | México     |
|---------------------------|------------|------------|
| ● White                   | <b>42%</b> | <b>15%</b> |
| ● Brown                   | <b>35%</b> | <b>0%</b>  |
| ● Mixed-race <sup>2</sup> | <b>2%</b>  | <b>37%</b> |
| ● Black                   | <b>12%</b> | <b>3%</b>  |
| ● Indigenous              | <b>1%</b>  | <b>7%</b>  |
| ● Asian                   | <b>3%</b>  | <b>3%</b>  |
| ● Not declared            | <b>5%</b>  | <b>35%</b> |

**47%**  
Black and Brown  
population in  
Brazil

**Sexual identity**

|                |            |
|----------------|------------|
| ● Heterosexual | <b>70%</b> |
| ● LGBTQIAP+    | <b>6%</b>  |
| ● Other        | <b>1%</b>  |
| ● Not declared | <b>23%</b> |



**53%**  
of the LGBTQIAP+  
individuals are married  
or has stable union



**6%**  
have Neurodiverse  
children and/or person  
with disabilities



**Marital status**

|                                  |            |
|----------------------------------|------------|
| ● Married / Stable union         | <b>62%</b> |
| ● Single                         | <b>25%</b> |
| ● Divorced / Separated / Widowed | <b>7%</b>  |
| ● Not declared                   | <b>6%</b>  |

**3%**  
are single  
mothers



**Parental status**

|                 |            |
|-----------------|------------|
| ● With children | <b>67%</b> |
| ● No children   | <b>29%</b> |
| ● Not declared  | <b>4%</b>  |

**61%**  
of the people  
with disabilities  
are between 30  
and 49 years old



**Disability status**

|                             |            |
|-----------------------------|------------|
| ● Able-bodied individuals   | <b>91%</b> |
| ● Persons with disabilities | <b>5%</b>  |
| ● Not declared              | <b>4%</b>  |

**More than half**  
are between 29  
and 44 years old



**Generations**

|                       |            |
|-----------------------|------------|
| ● Millennials (1980)  | <b>57%</b> |
| ● Generation Z (1997) | <b>21%</b> |
| ● Generation X (1966) | <b>19%</b> |
| ● Baby boomers (1946) | <b>2%</b>  |
| ● Not declared        | <b>1%</b>  |

<sup>1</sup> The gender and disability data presented are based on the total number of survey respondents (13,737) and not on the total number of employees, as reported on pages 16 of this Report

<sup>2</sup>Mixed-race: according to the Instituto Nacional de Estadística y Geografía (INEGI), from Mexico, are people of mixed ancestry, generally a combination of indigenous and European heritage. In Brazil, this racial-ethnic classification is not used. The respondents who declared themselves mixed-race in Brazil are of a different nationality.

## SUPPLIERS

We have a Supplier Management Policy, a [Supplier Manual](#) and a [Code of Ethics and Conduct](#), which cover, among other issues, child, forced and compulsory labor.

Our processes for selecting and registering new suppliers include steps to assess risks related to supply, quality and technical capacity. In 2023, for 25.3% of new suppliers, we also considered environmental criteria, according to the nature of the products supplied.

**5,671**  
active suppliers

**24%**  
local suppliers, near our sites

**67%** national suppliers  
(Brazil, Mexico and Portugal)

**9%**  
global suppliers

**R\$8.3 billion**  
procurement spending



## TRAINING ON SUSTAINABLE PRACTICES

In 2023, we trained more than 600 suppliers on the guidelines of our Code of Ethics and Conduct and on issues related to integrity. We also held the Sustainable Supply Chain workshop involving more than 40 companies in Brazil and Mexico. Information about our Integrity Program and our integrity, anti-corruption and anti-bribery policies were sent to 100% of our active suppliers.



## COMMUNITIES

We aim to leverage our positive impact on communities through the continued growth of private social investment. We support and develop projects focused on education, equity and inclusion, environment, and health and safety.

**R\$2.8 million** invested in social projects

**18,676** people benefited from social initiatives

**2,123 hours** of volunteer work

**R\$11.2 billion** injected into the economy<sup>1</sup>

<sup>1</sup> This number was calculated considering: (1) inputs purchased from third parties; (2) employee wages, social charges, FGTS, profit sharing, management remuneration; and (3) federal, state and municipal taxes, fees and contributions.

# .06 ENVIRONMENTAL AGENDA

We continuously implement initiatives to eliminate or minimize our impact on the environment. We strive to reduce the use of natural resources; invest in energy efficiency; and monitor air emissions and air quality, groundwater and surface water, noise levels at our sites, and waste generation and final disposal.

Our approach is guided by an Integrated Environmental Policy and an Environmental Management System (EMS), which has ISO 14001 certification in 100% of our sites.



In 2023, we invested R\$52 million in environmental control and monitoring systems, energy efficiency initiatives, technologies to improve the quality of air, soil and surface and underground water, and to increase the recirculation of effluents in our processes.

## CIRCULAR ECONOMY IN ACTION

### Material Recycling

Our main raw material is ferrous scrap, which comes from items discarded by people and by the metalworking and automobile industries, in addition to parts, machines and equipment. In 2023, we used 592,000 tonnes of this material. Per year, each tonne of scrap used in our processes prevents the emission of 1.2 tonnes of CO<sub>2</sub>, since its carbon footprint is 92% smaller than pig iron, a metallic raw material produced from iron ore.

Our recycling numbers in 2023:

**95%** of all metal materials used to manufacture our products came from recycling

**385,000** tonnes of waste foundry sand were transformed into new sand by the more than 10 regeneration facilities in our plants

**100%** of the metal chips generated in the machining process of our automotive components is compacted and transformed into raw material.

**5,110** tonnes of CO<sub>2</sub> emissions prevented through the use of recycled coke

**1.3 billion** liters of water were saved through water reuse

**807** tonnes of post-consumer packaging were recycled



### Waste and Co-products

In 2023, we increased the percentage of recycled waste per tonne produced by approximately 11%. This improvement resulted from circular economy pathways to transform industrial waste into co-products that can be used by other industries, such as cement, chemical, steel and automobile.

- More than **1.1 million** tonnes of waste recycled
- **63,000** tonnes of waste foundry sand used in construction, landscape restoration, and by the cement and ceramics industries
- More than **164,000** tonnes of co-products used as raw material by other industries
- **R\$29 million** in co-product revenue

## AIR EMISSIONS

In 2023, we invested R\$26.1 million to mitigate the impact of our sites' air emissions. The main initiatives included expanding the air quality monitoring network and replacing emission control systems with more efficient equipment. As a result, we reduced our particulate matter emissions by 18% compared to the previous year.

 **18%**

**reduction** in particulate matter emissions



## ENERGY AND CO<sub>2</sub> EMISSIONS

Three strategic routes help us manage the decarbonization of our production process:

-  **Energy efficiency** – Reduce energy consumption in our sites through the use of more efficient equipment, heat reuse and thermal conservation.
-  **Alternative fuels** – Expand the use of alternative fuels based on studies and investigations, such as replacing mineral coke with biomass briquettes.
-  **Innovation** – Evaluate and develop low carbon emission processes with superior economic results.

Our key emissions reduction measures include:

- ▶ Energy efficiency projects.
- ▶ Use of recycled coke, which has a lower carbon intensity than mineral coke and prevented the emission of 5,110 tonnes of CO<sub>2</sub> equivalent in 2023.
- ▶ 82% of the energy consumed in the Betim site (BR) has I-REC, an international certificate that tracks and proves the generation of energy through renewable sources, which enabled us to offset 6,000 tonnes of CO<sub>2</sub>. In 2024, 100% of the energy included in the contract will come from renewable sources.
- ▶ Our power purchasing agreement in Mexico has a CO<sub>2</sub> emissions rate 10.2% lower than energy from the national grid.

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## Tupy on social media



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