



**Acting
sustainably**

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Sustainability at GF

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Message from the CEO

Dear readers,

Many times, I have been asked why I have worked at GF for more than 20 years. The diversity of customers and market segments, the challenging tasks, but also the employees and their spirit are usually the answers I give. But one of the most important reasons is that GF takes its responsibility seriously. GF creates sustainable businesses which have a positive impact on the daily lives of people all over the world.

Environmental, Social and Governance (ESG) topics have increasingly been the focus of investors and customers. For more than 15 years, GF has been providing a deep insight into its sustainability efforts. Every second GF product or solution supplied to our customers enables a social or environmental benefit – a clear increase compared to 2018. We have made some important progress, e.g. by accelerating our innovation pipeline, creating more sustainable products as well as with the reduction of our accident rate.

Sustainability is part of the culture of GF, and we contribute to a range of the Sustainable Development Goals of the United Nations. With GF Piping Systems, we can ensure that less water is wasted from the source to the taps of households. With GF Casting Solutions, we develop new lightweight designs and materials to bring mobility to a more eco-friendly level. As a specialist in sustainable mobility, more than 30 percent of our orders relate to electric or hybrid cars. With our machine tool business and its smart technologies, we offer our customers more efficient use of resources by reducing consumption of materials and energy.

This year, we are facing the unprecedented coronavirus pandemic impacting also GF. Nevertheless, we will not make any compromises on our sustainability goals 2020. As a logical consequence of having sustainability in its DNA, GF has put in place a Sustainability Committee as part of the Committees of the Board of Directors, and we have already started work on the development of the new sustainability targets for 2025. You will read more about it in the months to come.



Andreas Müller
CEO of GF

Key figures 2019

Economic performance indicators

2019 sales with social and environmental benefits

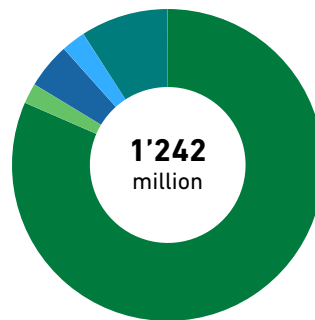
% of total GF sales

54

Examples of identified benefits include but are not limited to: ensuring safe and hygienic potable water in buildings, safe and leak-free distribution of gas and chemicals to ensure less human and environmental accidents, light metals components, including components for electric or plug-in hybrid vehicles, helping to reduce the weight and CO₂ footprint of vehicles, solutions for GF's machining customers to produce their products in a more energy-efficient way.

Net value added 2019

in CHF



- 82% Employees¹
- 2% Lenders
- 5% Corporation²
- 2% Public authorities³
- 9% Shareholders

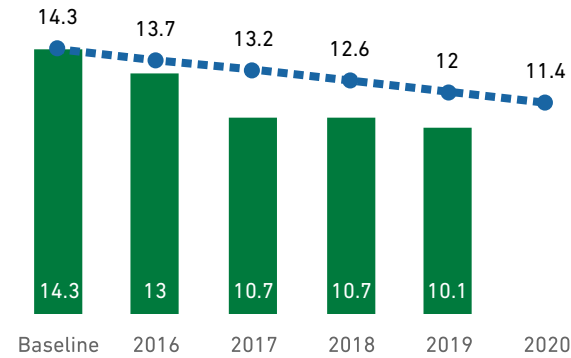
¹ Salaries and wages, employee benefits, and social security

² Retained earnings

³ Income taxes

Social performance indicators

Accident rate⁴
per 1 million working hours



● Target line

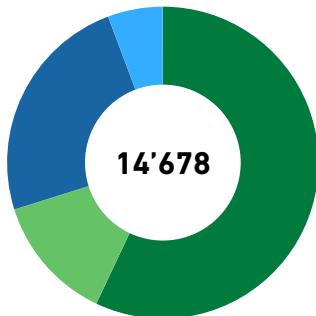
Accident rate⁴
per 1 million working hours

10.1

Absence rate⁴
% of total work days

3.5

Employees by region
headcount



- 57% Europe
- 13% Americas
- 24% Asia
- 6% Rest of world

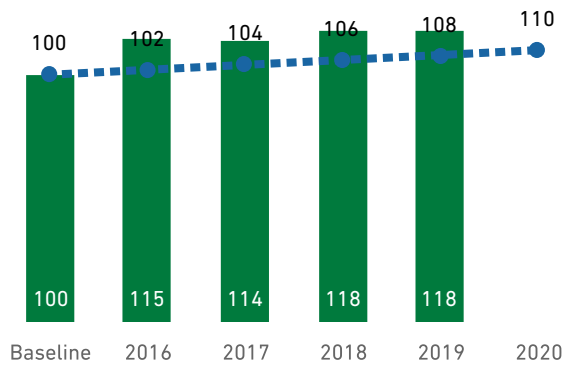
Total employee fluctuation
in %

15.8

Environmental performance indicators

Energy efficiency index⁴

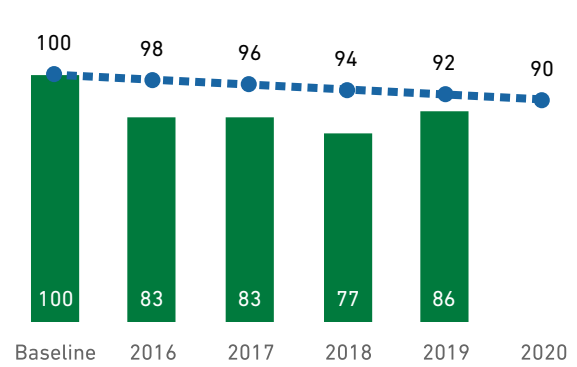
(production volume⁵/energy consumption) in %



● Target line

GHG emissions intensity index⁴

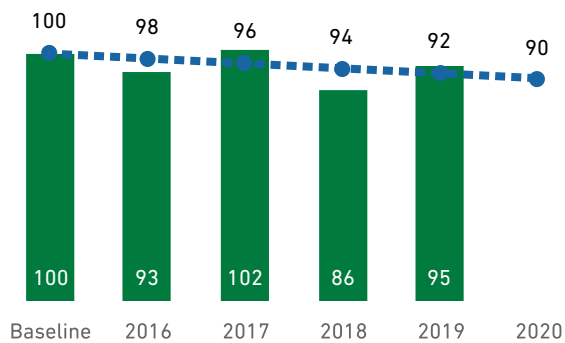
(CO₂e emissions/production volume⁵) in %



● Target line

Non recycled waste intensity index⁴

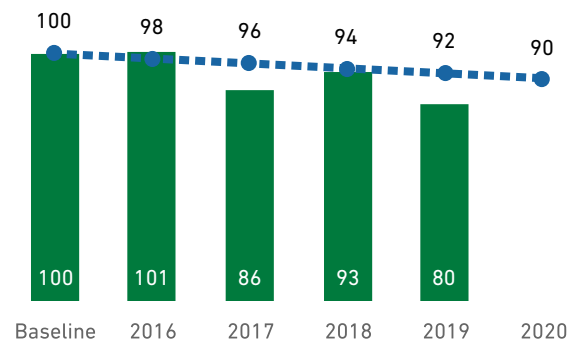
(non recycled waste/production volume⁵) in %



● Target line

Water intensity index⁴

(water consumption/production volume⁵) in %



● Target line

Ticker/Valor symbols

Telekurs, Dow Jones (DJT): FI-N

Reuters: FGEZn

Listing

Zurich, Switzerland: SIX Swiss Exchange ISIN: CH0001752309 Sustainability indices member: SXI Switzerland Sustainability 25^{®6} and Ethibel EXCELLENCE Investment Register⁷

- ⁴ The social and the environmental index KPIs were restated due to the divestment of the iron foundry of GF Casting Solutions in Herzogenburg (Austria). In the calculation of the target relevant KPIs for all the years the iron foundry is considered pro rata (9 months of 2019). The site of GF Casting Solutions in Werdohl (Germany) is excluded due to the shift to the sites in Austria and Romania.
- ⁵ The production volume is defined based on the specificities of the businesses of the individual divisions: as "produced tonnes" for GF Piping Systems, as "gross value added" (it includes all operating income subtracting the costs of materials and products, changes in inventory, and operating expenses) for GF Casting Solutions and as "hours worked" for GF Machining Solutions.
- ⁶ The [index](#) represents the top 25 companies ranked as most sustainable out of the SMI expanded index based on the assessment done by an independent sustainability rating agency.
- ⁷ The independent Belgian agency [Forum ETHIBEL](#) reconfirmed GF for inclusion in the Ethibel EXCELLENCE Investment Register since 08/05/2020. This selection indicates that the company performs better than average in its sector in terms of sustainability.



Our Corporation

GF comprises three divisions: GF Piping Systems, GF Casting Solutions, and GF Machining Solutions. Founded in 1802, the Corporation is headquartered in Schaffhausen, Switzerland and present in 33 countries with 142 companies, 56 of them production facilities. Its 14'678 employees generated in 2019 sales of CHF 3'720 million. GF is the preferred partner of its customers for the safe transport of liquids and gases, lightweight casting components, and high-precision manufacturing technologies.



GF Piping Systems

GF Piping Systems is a leading supplier of piping systems made of plastics and metal. The division focuses on system solutions and high-quality components for the safe transport of water, chemicals and gases, as well as corresponding services. The product portfolio of fittings, valves, pipes, automation, and jointing technologies covers all applications of the water cycle.

GF Piping Systems supports customers in the fields of utility, industry, and building technology in over 100 countries through its own sales companies and representative offices. The division operates more than 30 production facilities in Europe, Asia, and the Americas.

GF Casting Solutions

GF Casting Solutions is one of the leading solution providers of lightweight components in the mobility and energy industry. As a future-oriented company, GF Casting Solutions acts as a driving force for innovation in the foundry and additive manufacturing world and wants to take the lead in shaping the development of sustainable mobility.

GF Casting Solutions manufactures at 13 production facilities in Germany, Austria, Romania, Switzerland, China, and the USA. The division supplies the global automotive industry, aerospace and energy markets, and provides components for off-highway vehicles as well as for industrial applications.



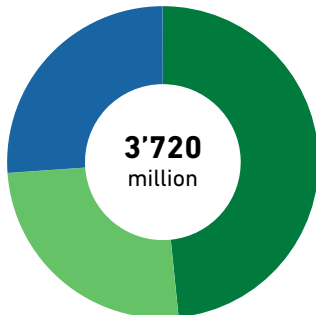


GF Machining Solutions

GF Machining Solutions is one of the world's leading providers of complete solutions to the tool and mold making industry and to manufacturers of precision components. The portfolio includes Milling, wire-cutting, and die-sinking EDM² machines. Moreover, the division offers Spindles, Laser texturing, Laser micromachining, Additive Manufacturing, Tooling and Automation, as well as digitalization solutions.

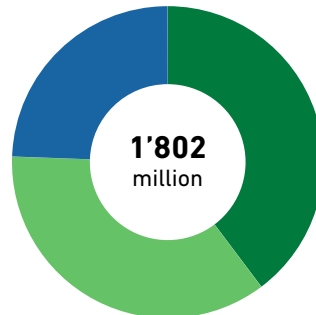
GF Machining Solutions is present with sales offices and production facilities in more than 50 countries. The key customer segments are the aerospace, Information and Communication Technology (ICT), electronic, medical, and automotive industries.

GF Corporation sales by division
in CHF



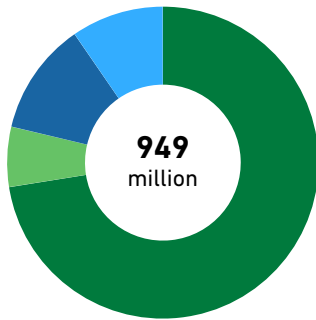
- GF Piping Systems
- GF Casting Solutions
- GF Machining Solutions

GF Piping Systems sales by segment
in CHF



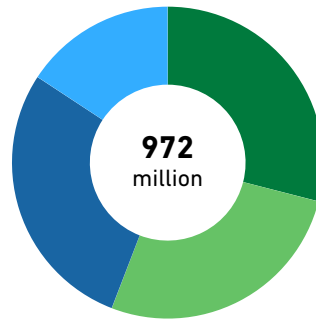
- 40% Utility
- 36% Industry
- 24% Building technology

GF Casting Solutions sales by segment
in CHF



- 72% Automotive (remaining)
- 6% Automotive (divested)
- 12% Industrial applications
- 10% Aerospace/Energy

GF Machining Solutions sales by segment
in CHF



- 29% Milling
- 27% EDM (Electrical Discharge Machining)
- 28% Customer service
- 16% Advanced manufacturing/Automation & Tooling

Worldwide presence

Use the interactive map to find a GF location near you.

[Download the PDF version of the GF worldmap](#)

² Electrical discharge machining

Value Chain

The role and responsibility of GF in society extends beyond the direct operations of the company and includes a broad range of stakeholders. GF addresses the wide spectrum of sustainability topics in all steps of its value chain. The Corporation and the three divisions contribute to various Sustainable Development Goals (SDG).

Sustainability in GF's own operations

Good corporate governance lays the foundation for the way GF's business is conducted day to day. As a company with a 200-year history, GF is built on customer-centricity and on respect for the people who make the operations function. GF strives to achieve the highest levels of quality and create added value for customers while staying abreast of technological developments, innovating, and evolving in step with the times.

GF is an organization representing a wide range of businesses and cultures. As one Corporation, it prides itself on its reputation and seeks to foster a respectful, engaging, and motivating working environment for the diverse family of employees.

As an industrial company, it is GF's key responsibility to implement and improve the safety standards at its facilities and to do its utmost to drive accident-free operations. Therefore, GF places a particularly strong focus on anchoring safety at every site worldwide.

GF also continuously invests in upgrading its production and office locations to make them more efficient and **reduce any negative impact on the environment**.

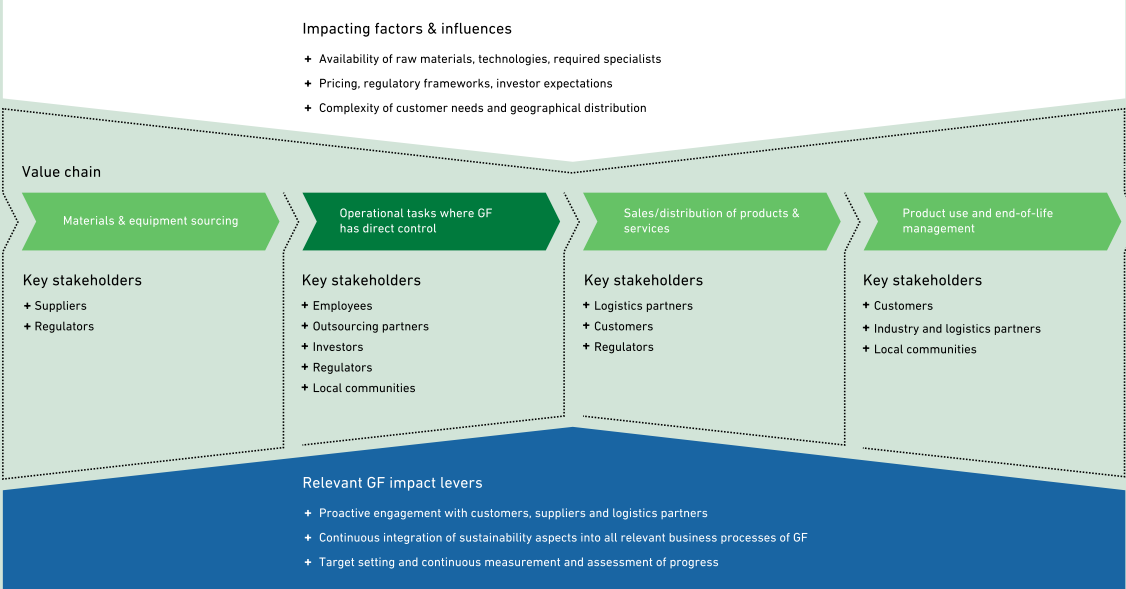


To underscore its commitment to responsible business conduct, GF has been a signatory of the UN Global Compact (UNGC), the world's largest sustainability network for companies and organizations, since 2015. Since 2016, GF has issued an **annual "Communication on Progress" report**. In addition, the guidelines for multinational companies of the Organization for Economic Cooperation and Development (OECD) as well as the agreements of the International Labor Organisation (ILO) form the basis for GF's common understanding of corporate responsibility.

Materials and equipment sourcing

The decisions GF makes in designing solutions for its customers have an immediate link to the upstream activities in its **supply chain**, both on a social and environmental level. GF recognizes this and works toward increasing transparency within its complex purchasing network, as well as working together with its business partners to ensure adherence to GF standards and expectations.

Value chain of GF at a glance



Distribution of products and services, product use, and end-of-life management

The solutions GF develops for its customers **contain sustainability considerations at its core**. GF continuously engages with customers to understand their needs and requirements, to meet and exceed their own expectations of suppliers with regard to social and environmental performance, as well as to **optimize GF's logistics processes** in order to be more efficient for its customers and more environmentally friendly.

Our stakeholders

GF maintains a continuous dialogue with its internal and external stakeholders, enabling key issues to be proactively recognized and addressed. This exchange is promoted through a wide range of activities and measures.



Employees

At the end of 2019, GF employed 14'678 people at locations in 33 countries around the world.



Customers

Lasting customer loyalty is built by GF's products and solutions specialists maintaining ongoing contact with customers and by GF taking part in a variety of trade fairs, organizing in-house events as well as customized training sessions for GF's customers.

In addition, targeted workshops on sustainability are held with customers from key market segments in order to jointly develop future-oriented products, solutions, and services.



Investors

GF is in regular contact with its investors, via roadshows, events, meetings (including the Annual Shareholders' Meeting of the Corporation), or through active participation in annual assessments of the company by sustainability analysts.

In 2019, the Chairman of the Board and the Investor Relations team held a roadshow with investors and ESG¹ teams to discuss environmental, social, and governance topics.



Suppliers

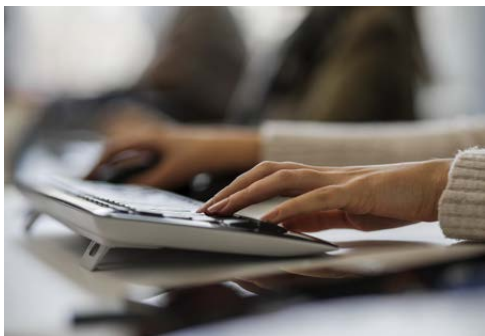
Long-term successful partnerships with GF's procurement and logistics partners are essential for the continuity of the business. Ensuring that they represent and follow the standards that GF applies to itself is of the highest importance to GF.

GF also sees suppliers as crucial collaboration partners to ensure increased environmental efficiency of GF's own operations (e.g. in the case of production equipment), as well as reducing possible social or environmental risks for GF's value chain.



Universities and research institutes

GF maintains close contact with universities and research institutes. Cooperation takes place on a number of levels, both in specific projects and in the provision by GF of internship and diploma work opportunities to students of technical colleges and universities.



Regulators

For GF as an international company, it is crucial to stay abreast of and follow the relevant rules and regulations of each country in which it operates. To facilitate this, GF is a member of a number of chambers of commerce.



Local communities

GF supports and promotes cultural and social programs at various locations, and aims to create an overall positive impact on the local communities where it operates.



Media and general public

GF regularly publishes media releases on relevant topics and maintains a continuous exchange of information with journalists. Traditional media conferences are supplemented by the active presence of GF on social media channels Twitter, Facebook, YouTube, LinkedIn, and Xing.



Industry associations and NGOs

As an international company with Swiss roots, GF cultivates an ongoing exchange with international and national associations and organizations. From Swiss trade associations to organizations active on the international level to global networks such as the UN Global Compact – GF is involved in many ways.

¹ ESG here stands for Environmental, Social and Governance

Good governance

As an international industrial Corporation, GF is at home in a variety of segments and countries. Wherever GF operates, it complies with the applicable laws and regulations. GF firmly believes that good Corporate Governance and impeccable ethical conduct determine sustainable and long-term success.

Business conduct

GF's business conduct and Corporate strategy are based on the foundation of **five values**. They shape and embody the philosophy and spirit of GF in its daily work for the benefit of key stakeholders and the Corporation. The values are translated into a set of standards for ethical conduct and integrity, which define GF's Corporate culture and are summarized in the **Code of Conduct document**. The Code of Conduct is published in 18 languages and is binding for all GF employees worldwide¹.

Five values of corporate culture

- We put customers first
- We act fast
- We do what we say
- We reward performance
- We respect people



<https://www.georgfischer.com/en/about-gf/sustainability-at-gf/values.html>

Corporate Governance

The Board of Directors and the Executive Committee are the highest management bodies of GF. They attach great importance to good Corporate Governance. The implementation of the generally accepted principles of Corporate Governance ensures a level of oversight, strategic and tactical management of the Corporation and its entities, and transparent communication with stakeholders.

The Board of Directors is responsible for monitoring the management of the company, for determining its strategic direction, and for financial and accounting policies. The three standing Board Committees (Audit Committee, Nomination Committee, and Compensation Committee) prepare the relevant topics for the Board of Directors as a whole.

The Executive Committee addresses all issues of relevance to the company, takes decisions within its remit, and submits proposals to the Board of Directors. The Chief Executive Officer and the Heads of Corporate Development and Corporate Finance & Controlling make up the Corporate Center² and support the Board of Directors in meeting its responsibilities.

In the interests of its stakeholders, the Georg Fischer Corporation, which is organized in accordance with Swiss law, fulfills all obligations under the guidelines of the Swiss Stock Exchange with regard to information on Corporate Governance. For detailed

information, including but not limited to the [tasks of each Board Committee](#) and the [Compensation Report](#), please see the respective section in the Annual Report 2019.

Public policy

GF is a member of industry-relevant organizations in its home base, such as Economiesuisse and Swissmem. They represent the interests of the Corporation in political and economical matters. Annual membership fees in these organizations amount to less than CHF 0.1 million. In the year under review, no contributions were made to any political parties or to individual politicians.

Risk management

At GF, enterprise risk management is a fully integrated process and systematically applied at all levels of the Corporation. Twice a year, the Corporation, the three divisions and all significant Corporate companies prepare a risk map of the key risks with regard to strategy, markets, operations, management and resources, financials as well as sustainability. In 2018, the sustainability risk catalogue was reviewed by the individual locations. The risk categories were broadened to cover a wider scope of potential sustainability risks going forward, including those in the supply chain and those related to potential climate change impacts (by and on GF). The likelihood of the risk occurring is classified into one of four categories. Where possible and appropriate, the identified risks are subject to a quantifiable assessment, taking into consideration any measures that are already implemented. Alternatively, a qualitative assessment of the risk exposure is applied.

The Head of the Service Center Risk Management & Tax acts as the Chief Risk Officer (CRO) and, in this function, reports directly to the CEO. A non-executive Risk Officer in each division supports the CRO. Supplemented by the Corporate Compliance Officer (CCO), the Heads of Internal Audit, Corporate Sustainability and Corporate Planning, as well as internal experts in Corporate Risk Management, the Risk Officers under the leadership of the CRO constitute the Corporate Risk Council. In 2019, this Council met twice. In addition, the CRO conducted workshops with the management of the three divisions as well as with the Executive Committee to analyze the risk situation, to discuss measures to mitigate risks, and to define the actual top risks for each unit.

The topics of these meetings include the optimization of risk reporting of sustainability risks, the adequate handling and valuation of IT and cyber risks, as well as an analysis of the risk maps. The Executive Committee discussed identified risks and adequate mitigating measures were determined. The resulting risk report was reviewed and approved by the Board of Directors in February 2020.

.....> [Further information on Risk Management](#)

Corporate compliance

Internal Audit and the CCO monitored compliance with the applicable laws and guidelines worldwide as well as with business ethics standards. The CCO reports to the General Counsel or, where necessary, directly to the CEO. The CCO's task, as a member of the Corporate Risk Council, is to ensure that risk management is given appropriate importance within the company.

Additionally, employees have to report any misconduct against legislation or guidelines through a compliance e-mail address directly to the CCO, contact the Corporate Legal Department in Schaffhausen or send the report anonymously. A corporate instruction guides the procedure to be followed by employees for reporting violations of applicable laws or internal instructions and governs the conduct of persons receiving the report. Proven misconduct is subject to appropriate sanctions.

Training is carried out under the direction of the CCO at the Corporate companies by means of e-learning or in person. The Executive Committee determines the respective focus topics together with the CCO. In 2019, a range of internal compliance training sessions were held, including:

- + an e-learning program on Anticorruption/Anti-bribery for about 1'350 employees
- + an e-learning program on Antitrust/Competition Law for about 1'000 employees
- + an e-learning program on Export Controls/Sanctions for about 570 employees
- + on-site training at companies in the EU, China, and the US, and for specific employees with compliance roles.

The training program is ongoing and employees are required to participate every three years. In addition, in 2017, the Corporate Legal Department began offering one-on-one meetings to Senior Managers visiting Schaffhausen from other locations in order to provide general as well as specific legal advice and training to them upon request. During 2019, 21 senior managers took the opportunity to benefit from such personalized legal instruction.

To reinforce the compliance function in the company, the following measures have also been in force since 2015:

- + Consistent implementation of the "GF Compliance Agreement for Intermediaries" and of an "Intermediary Check" to globally secure and prove compliance of GF business partners who act on behalf of or in the interests of GF companies.
- + Implementation of a web-based system to avoid conducting business with sanctioned organizations and individuals (ongoing process).
- + Introduction of a "Compliance Agent" function to identify and assess compliance risks, to carry out initial cursory internal compliance controls on-site, and to support the identification and implementation of appropriate new measures.

.....> [Further information on Corporate Compliance](#)

Product and service information and labeling

GF adheres to all relevant rules and regulations with regard to product safety and relevant labeling and information provided to its customers. This includes but is not limited to

- + enclosing the CE³ and RoHS⁴ labels, when relevant
- + providing customers, where required or upon their request, information regarding conflict minerals (following the Dodd Frank Act) as well as the presence of substances of very high concern in products (according to REACH⁵ legislation)

Dedicated working groups within the divisions address issues related to the environmental, health, and safety standards of GF products. These groups are responsible for tracking new regulations and trends, defining and ensuring necessary internal processes, conducting relevant training, and supporting customer inquiries.

¹ The Code of Conduct is an integral part of each employment contract. For the daily operations of the GF entities, it is complemented by internal policies and regulations implemented at the Corporate and local levels.

² See "Organization of GF" in the respective section of the [Annual Report 2019](#)

³ Conformité Européenne (CE) is the indication of conformity with health, safety, and environmental protection standards for products sold within the European Economic Area (EEA).

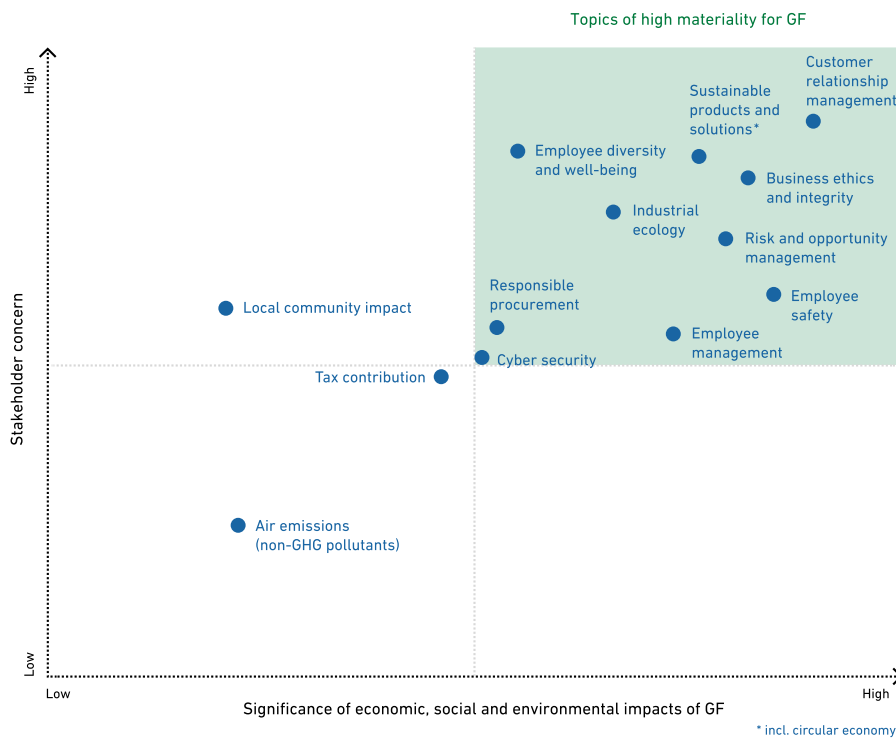
⁴ Indication of conformity with the EU's Restriction of Hazardous Substances Directive.

⁵ Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) is an EU regulation. It addresses the production and use of chemical substances, and their potential impacts on both human health and the environment.

Topics of material importance

The focus of GF activities in 2019 was on the measures defined as part of the **GF Strategy 2020** and the **Sustainability Targets 2020**. In 2019, GF management considered the topics identified as part of a **materiality assessment performed in 2018** to be still relevant for GF's operations.

Details of each category in the matrix and the reasoning behind their position on the graph are described below (see graphic and tables).



Topics of high relevance

Topic	Aspects included	Explanation for high materiality
Customer relationship management	<ul style="list-style-type: none"> - Customer relations - Customer satisfaction 	<p>Customers are one of GF's most important stakeholder groups, and it is crucial to maintain an ongoing interaction with them to understand their needs and thus provide best-fitting solutions for them. Only with customers as partners can GF create a sustainable impact across the three divisions.</p> <p>This is a key element of GF's business case and its strategic intentions.</p>
Sustainable products and solutions	<ul style="list-style-type: none"> - Sustainable products - Innovation - Circular economy 	<p>Customer behavior is changing and resources are becoming scarcer. Therefore, GF regards circular economy as an important consideration for responsible product innovation and development. Gradually, GF is incorporating the questions of how the procurement, production, and use of materials can move away from the "take-make-dispose" model to a circular approach, addressing within its R&D process the considerations of a product's life cycle and whether the materials or components can be re-, up-, and down-cycled.</p>
Business ethics and integrity	<ul style="list-style-type: none"> - Corporate governance - Business ethics and compliance - Human rights 	<p>A well- and responsibly-managed Corporate organization is key for almost all internal and external stakeholders and is ultimately aligned to their interests. It ensures rule-based decisions, clear checks and balances, and sets objectives that are aligned to the social, regulatory, and market environment.</p>
Risk and opportunity management	<ul style="list-style-type: none"> - Risk management - Agility of business 	<p>An effective risk management framework is an important internal task of the company to ensure that the negative or positive future potential impact on and by the business, including social and environmental concerns, is recognized, assessed, managed and/or mitigated.</p> <p>GF regards risk management as important and necessary, in part due to the strategic implication resulting, for example, from harmful events, missed opportunities, etc.</p>
Industrial ecology	<ul style="list-style-type: none"> - Greenhouse gas (GHG) emissions - Energy usage in GF operations - Water management - Circular economy in the use of materials at GF operations - Resource scarcity 	<p>External stakeholders and regulators position climate change and energy-related matters as the highest concern, and the international community is committed to tackling the resulting challenges. As a global company, as part of the precautionary principle, GF also attaches high relevance to this topic.</p> <p>While production and other activities of GF itself are not water-intensive, sustainable water management is of high relevance for society at large (e.g. access to clean water and leak-free water transport) and for the business of GF Piping Systems.</p> <p>As a responsible industrial company (both from a financial and environmental perspective), circular approaches are on the agenda of each division, both in terms of how they use materials within their operations and also how to incorporate them into the R&D process.</p>
Employee diversity and well-being	<ul style="list-style-type: none"> - Employee diversity and inclusion - Employee work-life balance - Employee health and well-being 	<p>Policy and public-related discussions and involved stakeholders position diversity of the highest concern. For GF, the issue is an important element in ensuring its continuing future success by retaining its existing talents and positioning itself as an attractive employer.</p> <p>Demand for flexible working models is growing, especially in the context of a good work-life balance, among the new generation of employees.</p>
Employee safety	<ul style="list-style-type: none"> - Safety at work 	<p>Safety at work is a strategic aspiration of the highest fundamental relevance to GF, with a significant impact on employees, contractors, and their families. It is key to GF's success to care about the people who work for the company and to avoid any risk impacting their health, well-being, and physical integrity by ensuring a culture of safety.</p>
Employee management	<ul style="list-style-type: none"> - Employee relations and management - Talent attraction - Employee training and development 	<p>The broad spectrum of functions and roles within the GF business requires development and maintenance of state-of-the-art human resource management processes and the possibility to engage, develop, and retain employees, while attracting new talent.</p>

Responsible procurement	<ul style="list-style-type: none"> - Supply chain management - Integration of social and environmental topics into procurement processes 	<p>The focus in relation to sourcing and supply chain matters is directly linked to the upstream-related steps of GF's value chain.</p>
		<p>Prudent management of suppliers, while integrating social and environmental topics into the supplier management process, is gaining in relevance. It is part of GF's responsibility to address the impact generated by its operations. It is also of interest to customers, regulators, local communities, and other external stakeholder groups.</p>
Cyber security	<ul style="list-style-type: none"> - Data protection - IT security / system availability 	<p>Data protection is important for GF, also in view of the new EU directive regarding GDPR. GF has appointed a Data Protection Officer to ensure compliance. While GF does not collect sensitive customer data, personal data of employees is stored and saved as required by the legal authorities.</p>
		<p>Given the increasing digitalization trend, the availability, integrity, and security of data are key for GF's IT infrastructure and business systems. GF ensures adequate IT service levels through an external provider with state-of-the-art IT / cyber security measures. In addition, GF has IT security-related training in place.</p>

The following topics were identified as relevant for the business of GF, but has lower materiality. In the future, GF will address these topics to ensure that the corporation leaves a positive impact in these fields with regard to the affected stakeholders.

Topic	Aspects included	Explanation for lower materiality
Local community impact	<ul style="list-style-type: none"> - Consultation and recognition of local communities' needs in order to minimize possible negative effects of operations and ensure their positive impact. 	<p>GF's production sites do not carry material risks for, or have adverse effects on, local communities, and the direct impact is low. Nevertheless, good relations with neighbors and cooperation with them on a local level to achieve common goals are of great importance for GF.</p>
Air emissions (non-GHG pollutants)	<ul style="list-style-type: none"> - Non-GHG emissions (e.g. NO_x, SO_x, dust, and VOC) as part of production processes 	<p>While this topic is of high importance for the environment and local communities in general, the production facilities of GF do not release high quantities of non-GHG pollutants into the atmosphere. For this reason, GF assesses its impact on air emissions as rather low. Nevertheless, ensuring compliance with any regulatory requirements is key for GF's operations as part of the precautionary principle.</p>
Tax contribution	<ul style="list-style-type: none"> - Tax transparency of the organization and its contribution to the local economy wherever it operates. 	<p>GF's businesses have a strong focus on Corporate responsibility, which includes the administration and payment of taxes. GF is committed to following all applicable laws and regulations related to its tax activities and maintaining an open and honest relationship with the tax authorities based on collaboration and integrity. Keeping this in mind, the overall tax strategy is of lower relevance for the organization.</p>

Integration of sustainability in GF's Strategy 2025

In the third quarter of 2019, a project was launched to define the sustainability framework for the years 2021–2025 and a longer-term ambition level (2030+) on sustainability. Dialogue with GF's key stakeholder groups formed part of this process, and inputs of customers and suppliers of the three divisions, as well as that of GF's investors and employees were collected in a series of interviews.

In the first phase, a high-level framework was proposed and agreed with management in October 2019. In a subsequent phase, a broader interdisciplinary team from across the organization was set up to develop detailed measures and concrete goals on sustainability, which forms part of the overall GF Strategy 2025.

Sustainability management at GF

The overall strategic direction of GF is driven through the [GF Strategy 2020](#), defined and communicated by the Corporation in 2016. Proactive management and integration of sustainability-relevant topics within all of GF's operating activities is key to achieving these set goals. Therefore, GF systematically addresses matters related to sustainability through a broad spectrum of relevant initiatives run by GF. Please refer to the section on "[Our progress](#)".

In order to reach the Sustainability Targets 2020, responsibility for continuous integration of sustainability aspects into the daily operations of GF lies with each department and division. The Corporate Sustainability department coordinates and tracks progress towards achieving the set targets with the three divisional sustainability teams.

Corporate Sustainability is positioned within the Corporate Finance function and reports to the Head of Corporate Controlling and Investor Relations.

The Executive Committee bears operational responsibility for sustainability and discusses progress every six months to ensure that the targets are met. The annual performance objectives of the Executive Committee members include at least one related to sustainability (e.g. such as a zero accident rate or reduction of resource consumption in their respective area of responsibility). The individual objectives of a member of the Executive Committee are aligned to the strategic efforts of each division and are being cascaded into the organization.

-----> [Further information on the MBO process at GF](#)

In 2019, the internal policy on sustainability management at GF was revised to anchor the topic into the daily activities of GF.

A variety of communication channels were added for communication with GF employees on sustainability – through a global quarterly sustainability newsletter, in-person thematic events, and an online collaboration group. In the second half of the year, continuing an annual tradition, GF conducted a regional sustainability conference, bringing over 30 environmental and health & safety specialists from GF's Asian locations together. Similar to the European conference from 2018, the objectives of the event were to foster knowledge exchange among participating locations and to increase momentum on goals set within the Sustainability Targets 2020 in the areas of energy efficiency, waste management, and occupational safety.



Participants of the 2019 GF Sustainability Conference – Asia

Contribution to Sustainable Development Goals

GF contributes to solutions toward the international agenda summarized in the United Nation's Sustainable Development Goals (SDG).



GF's contribution
 GF produces high-quality systems and solutions for the safe and hygienic transportation of water. This is particularly relevant in preventing the risk of legionella, which reproduce when water does not circulate or when the temperature is incorrect. GF Piping Systems' Hycleen Automation System ensures a permanent hydraulic balance across all the pipes and guarantees bacteria-free drinking water.



GF's contribution
 In 2018, GF celebrated 100 years of vocational training in Switzerland. In 2019, the apprenticeship model was extended to the US, while 446 young apprentices were trained worldwide.

In several countries, collaborations with universities are in place, whereby students complete their diploma work while working on concrete projects at GF.

In 2019, 72% of GF's workforce attended various training programs, where on average, each GF employee received 2.1 days of training.



GF's contribution

Large volumes of drinking water are currently lost or contaminated around the world due to poor infrastructure. The products of GF Piping Systems help to ensure leak-free delivery of drinking water. One of its latest projects in São Paulo, (Brazil) helps the city to save 75 billion liters of water annually by replacing 760 kilometers of piping network.

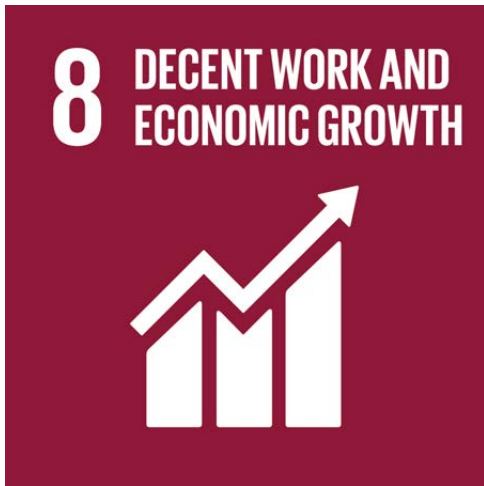
In 2019, GF, its employees, and partners raised CHF 500'000 through the "Walk for Water" to support clean drinking water projects worldwide.



GF's contribution

GF works towards improving the global energy efficiency. On the one hand by increasing the energy efficiency in its own operations (by 10% until 2020) and on the other hand, by developing features to reduce the energy consumption of the products.

GF Machining Solutions' EDM¹ machines contain a new spark generator that reduces energy consumption by over 30% at the same performance levels.



GF's contribution

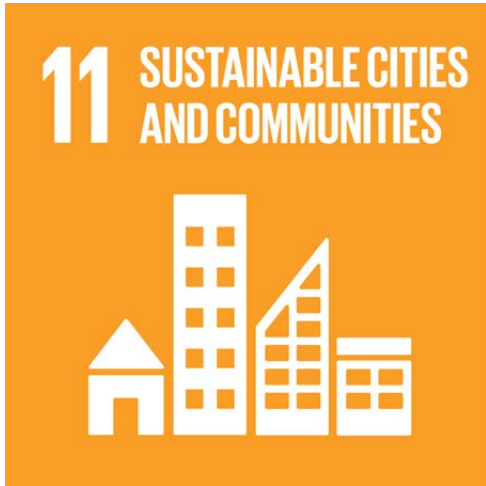
Considering workplace safety as a fundamental requirement to be observed at GF's operations, since 2015, GF runs a corporate-wide Zero Risk Campaign. As of the end of 2019, its ongoing efforts contributed to a 30% reduction in the accident rate since the 2013–2015 baseline.



GF's contribution

GF continuously invests in R&D to create innovative new products and solutions that provide social and/or environmental benefits for customers during the product's usage. Addressing the sustainability issues along the product's value chain is on the agenda of all three divisions of GF.

Among others, GF Casting Solutions focuses on lightweight components for the aerospace and energy sector and GF Machining Solutions offers solutions to increase the energy efficiency of high-precision machines.



GF's contribution

The core expertise and focus of GF Casting Solutions is the design and manufacturing of lightweight components for the automotive and aerospace sectors. As such, GF directly contributes to developing of alternative drive mobility and reducing the weight of vehicles with the aim to reduce CO₂ and other air emissions.



GF's contribution

The efficient use of natural resources has been actively managed by GF since 1997, when the company also published its first environmental report. Since then, the scope of its sustainability program was extended to the Sustainability Targets 2020 and forms the basis of the current sustainability-related activities.



GF's contribution

GF offers a wide range of products and solutions that enable its customers and/or end consumers to reduce their energy consumption and therefore CO₂ emissions during the products use. In GF's own operations, it aims to decrease the CO₂ intensity, with the current target set at a 10% reduction until the end of 2020.

GF obtained a B score in the annual CDP rating on climate action².



GF's contribution

GF is a signatory of the UN Global Compact and an active participant of the Network of Switzerland's working group "Sustainable Supply Chains".

-----> [Further information on the Sustainable Development Goals](#)

¹ Electrical Discharge Machining

² **CDP** (Carbon Disclosure Project) runs the global disclosure system for companies, states, regions and cities to report on how they manage their environmental impacts.

Our progress



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Sustainability Targets 2020

In 2019 GF achieved substantial progress towards achieving the Sustainability Targets 2020.









Products and innovations

Modules and targets	Targets 2020	Level of achievement	Progress status (year-end 2019)
<p>Product responsibility GF products support the customer in saving energy and reducing CO₂-emissions during its use phase.</p>	<p>GF provides CO₂-efficient and safe products to the customer.</p>		<p>All divisions place a strong focus on innovation and continuously work on developing new solutions that provide social (e.g. hygiene) and/or environmental (e.g. energy efficiency, CO₂ reduction, etc.) benefits to the customers.</p>
<p>Eco-design GF products are optimized with regard to their environmental friendliness, resource efficiency, and durability.</p>	<p>Systematic introduction of ecodesign measures in product development in order to promote energy- and resource-efficient products.</p> <p>Each division monitors its environmentally friendly products, which enable reduced energy consumption and/or CO₂-emissions.</p> <p>GF Piping Systems optimizes its products regarding their environmental friendliness, resource efficiency, and durability.</p> <p>GF Casting Solutions focuses on bionic design and lightweight construction.</p> <p>GF Machining Solutions joins the Blue Competence Initiative and reduces average energy consumption by 15% for Milling machines and by 20% for EDM machines.</p>		<p>GF's products and solutions offer a variety of social and environmental benefits to its customers and end consumers. In 2019, 54% of GF's sales were attributed to products with such features. All divisions are committed to deepening the focus on sustainability of their products and solutions with collaboration across the value chain.</p> <p>GF Piping Systems introduced questions on the expected sustainability benefits of their products into the targeted customer interviews conducted by the division to ensure best value added in product and solution development.</p> <p>As a participant of the Blue Competence initiative, GF Machining Solutions continued developing eco-design features across its entire product range with specific focus on increasing energy efficiency of its machines during customer usage.</p>

Procurement and logistics

Modules and targets	Targets 2020	Level of achievement	Progress status (year-end 2019)
<p>Procurement GF suppliers demonstrably comply with GF's Code for Business Partners for eco-friendly and socially responsible supply.</p>	<p>All key suppliers have signed the GF Code for Business Partners.</p>		<p>As of the end of 2019, the majority of GF's key suppliers had signed the Code for Business Partners. The target is on track to be achieved.</p>
	<p>Systematically integrate sustainability aspects into supplier audits. At least ten audits focused on sustainability are carried out every year per division.</p>		<p>During 2019, GF defined a high-level approach on how to systematically address sustainability aspects in its supply chain. Further details will be defined during the course of 2020. A number of pilot sustainability audits of suppliers were conducted during 2019 with lessons learned translated into a broader rollout program.</p>
<p>Logistics GF optimizes its logistics in terms of energy consumption, emissions, and packaging.</p>	<p>Systematically measure and analyze key transport and environmental figures together with the most important transport service providers in Europe.</p>		<p>GF works closely with its logistics partners to evaluate and implement improvement measures. In 2019, the logistics teams of GF Piping Systems and GF Machining Solutions took steps toward gaining better transparency on the environmental footprint of the logistics network in areas where GF has a possibility for influence.</p>
	<p>Define and implement improvement measures together with transport service providers.</p> <p>Reduce GF product deliveries by air freight by 20% worldwide.</p>		<p>Efforts are taken to continuously decrease the share of transportation by air. In 2019, the measures implemented by GF Piping Systems resulted in a 20% reduction of air freight shipments (by switching to sea freight). Both GF Piping Systems and GF Machining Solutions initiated tracking of the CO₂ footprint of their logistics networks.</p>





People and safety

Modules and targets ^{1,2}	Targets 2020	Level of achievement	Progress status (year-end 2019)
Accidents at work GF strives to reduce its severe accidents to zero and bring down the accident rate by at least 20% in every division by the end of 2020.	Zero severe accidents		As a result of continuous efforts to reduce the work-related accidents in the last two years, a continuous reduction in the number of severe injuries was observed. In 2019, 16 severe accidents occurred compared to 24 in 2018 (i.e. a 33% reduction).
	Reduce accident rate by 20%		After a slight increase in 2018, the accident rate was reduced by 30% from the baseline of 14.3 to 10.1 accidents per one million working hours in 2019 – significantly below the set target rate. Efforts to establish a safety culture at GF will remain a high priority in the years to come.
	All companies comply with GF safety standards		As accidents still happen, GF is conscious of further measures needed to ensure compliance with its safety standards. The GF Safety Standards were revised during 2019 and provide up-to-date occupational health and safety information that serves to help GF locations to create safe and secure conditions for all employees and visitors.
Safety audits GF regularly conducts cross-site safety audits in order to constantly improve its safety culture.	Cross-site safety audits are performed per production plant and warehouse at least once a year		In 2019, as in the previous two years, safety audits were conducted at most of the production locations of GF. The learnings of the assessments were analyzed and improvements were put in place.
	Employer responsibility GF strives to be an attractive employer to be able to attract talents, retain our high-performing employees, and develop our workforce. Furthermore, GF acts as a respectful and socially responsible employer.	GF recognized in its industry as an attractive employer	
Fill 70% of vacant leadership positions with internal candidates			The various professional development programs implemented by GF created a stable base within the company. GF filled 62% of vacancies in management in the period 2016–2019 with internal candidates. As of the end of 2019, 67% of all senior management representatives came from within the GF ranks.
Take action to increase and promote diversity in terms of gender, age, and origin			GF sees diversity as an important topic for the organization, especially in the context of boosting its innovation potential. Measures launched to increase greater flexibility at work and thus greater attractiveness of GF, especially for women, were promoted. GF is also using targeted networks to strengthen career development opportunities for women in the organization.
Absences GF strives to lower the absence rate by implementing supportive measures.	Reduce absence rate by 10% across the organization		The absence rate increased in 2019 to 3.5% compared to 3.2% in 2018. Further actions are necessary to ensure the target achievement in a timely manner.

¹ In order to provide newly acquired GF companies with a realistic timeframe for target achievement, those that commenced sustainability reporting after 2017 are not included in the calculation of the achievement of the Sustainability Targets 2020. Instead, they have individual targets.

² The target achievement graphs are shown in the section "Our performance" - "Key figures 2019".

Environment and energy

Modules and targets ^{1,2}	Targets 2020	Level of achievement	Progress status (year-end 2019)
<p>Energy GF production companies actively apply energy efficiency measures and define local targets in order to realize the Corporate goal of increasing energy efficiency by 10% in every division by the end of 2020.</p>	Increase energy efficiency by 10%		On the overall level, energy efficiency exceeded the expected index target line. In the last years, all three divisions continuously increased their energy efficiency. The main drivers of this result are the investment in new buildings and infrastructure and the continuous implementation of efficiency measures.
<p>CO₂e GF strives to reduce its CO₂e emissions from production by at least 10% in every division by the end of 2020.</p>	Reduce CO ₂ e emissions by 10%		The GHG emission intensity index in 2019 was below the index target line. It was strongly influenced by the reduction of energy consumption and the purchase of Guarantees of Origin for the sites of GF Casting Solutions in Austria.
<p>Materials and waste GF strives to reduce its non-recycled waste (i.e. waste sent to landfill or incineration) from production by at least 10%.</p>	Reduce non-recycled waste by 10%		Due to increased production volume and a slight change in the waste categorization at one site of GF Casting Solutions, the amount of non-recycled waste increased in 2019 compared to 2018. As a result, GF did not reach the expected target. As the availability of recycling markets varies among the countries, GF needs to further analyze its waste streams and establish re-use possibilities. Further evaluation will be conducted in the coming year. In 2019, on a Corporation-wide level, 71% of the total amount of waste was recycled.
<p>Water GF strives to reduce its volume of fresh water consumption in water-scarce and water-stressed areas by at least 10% in every division by the end of 2020.</p>	Reduce fresh water consumption in water-scarce and water-stressed areas by 10%		In 2019, the six GF sites in water-stressed areas reached the expected water intensity target.

¹ In order to provide newly acquired GF companies with a realistic timeframe for target achievement, those that commenced sustainability reporting after 2017 are not included in the calculation of the achievement of the Sustainability Targets 2020. Instead, they have individual targets.

² The target achievement graphs are shown in the section "Our performance" - "Key figures 2019".

Products and innovations

A key aspect of GF's Strategy 2020 across the three divisions is the transformation of GF from a pure product and system provider to a provider of integrated solutions.

The goal is to support customers in the most meaningful way with added-value services over the entire life cycle of offered solutions. Here, the sustainability aspects of GF's products play an integral role in achieving the purpose of all its business activities.

For GF Piping Systems, this refers to ensuring and safeguarding long-lasting, leak-free, and high-quality transportation of water, gas, and chemicals.

For GF Casting Solutions, this means designing and producing lightweight components for the next generation of mobility solutions.

For GF Machining Solutions, this is providing customers with modern high-precision machines and solutions that, among other sustainability benefits, significantly improve the energy efficiency of product manufacturing in a variety of the division's customer segments.

GF Piping Systems

Strategy and solutions

"Making flow sustainable" is a clear goal that GF Piping Systems set itself when it comes to its products and solutions. This carries a triple meaning:

1. GF Piping Systems wants to make sure that their customers enjoy sustainable flow of water, gas, or chemicals without safety issues, leakages, and other environmentally challenging consequences.
2. GF Piping Systems wants to make sure that their solutions improve the sustainability of its customers in terms of energy use and CO₂ footprint.
3. GF Piping Systems wants to support the sustainable success of customers by increasing their efficiency during installation and operation of GF's systems compared to traditional systems.

The division, therefore, works on creating solutions that address a variety of issues facing consumers and society:

- + Tackling the problem of waterborne Legionnaires' disease and ensuring that drinking water installations follow the highest hygiene standards.
- + Helping to mitigate the worldwide losses of drinking water due to leakages in aging infrastructure.
- + Creating solutions for the otherwise energy-intensive cooling process of the increasing number of data centers.
- + Contributing to the development of sustainable city infrastructure and the growing green building sector.

The study report "Management of Legionella in Water Systems" estimates that around 52'000 to 70'000 Americans suffer from Legionnaires' disease each year.

¹ Legionnaires disease afflicts and kills more people in the USA than any other reported waterborne disease. [The Hycleen Automation System](#), developed and produced by GF Piping Systems, is a state-of-the-art circulation control system that ensures uniformly high temperatures and water exchange in the piping network, which prevent Legionella infestation thanks to hydraulic balancing and automatic flushing. This system is simple to install and operate, allowing for energy savings due to automated hydraulic balancing.



<https://youtu.be/AksleHZlqvA>

Find here more videos on [sustainable cities and communities](#) as well as [responsible consumption and production](#).

It is expected that the world population will reach close to 10 billion people by 2050, whereby two-thirds of the world population will live in cities. Therefore, sustainable

urban concepts will be key to meet the environmental challenges of the future. The pre-insulated piping system COOL-FIT 4.0 enables customers to work with high efficiency, while reducing maintenance and operating costs. For example: a cold food store uses 1'500 meters of piping to transport cold water for the cooling system. COOL-FIT releases about 100 tons less CO₂ than a metal system during production and operation. This saving is equivalent to a journey of 446'000 kilometers by car.

GF Casting Solutions

Strategy and solutions

In conjunction with the action by governments around the world² to limit CO₂ emissions, including those from the transportation sector, numerous automotive producers have communicated ambitious targets of their own³ and clearly extended their expectations also to their supply chains. Therefore, future development relies strongly on the development of lightweight and alternative drive systems. The reduction of components and the manufacturing of lighter parts, thereby lowering the weight of the vehicle, are indisputably among the most important factors for reducing fuel consumption and emissions during the vehicle's usage.

The vision of GF Casting Solutions is to be the first choice solution provider for lightweight casting components. In 2018, GF Casting Solutions entered the Aerospace and Energy markets through the acquisition of the precision casting specialist Precicast. In November 2019, the division celebrated the opening of a new tool and mold manufacturing center, which is located next to the foundry in Suzhou, China. With state-of-the-art equipment and a high degree of automation, it provides more flexibility, speed, and precision – strengthening the global production of complex lightweight casting components.

GF Casting Solutions is continuously sharpening its innovation focus and working on developing new and optimally suited materials and new technologies (e.g. multi-material design). The division is developing cutting-edge production technologies and in doing so is constantly ensuring that its solutions have the highest level of functional integration. The most successful projects have resulted in casting components that are lighter and more cost-effective and thus provide customers with two distinct benefits.

The division places a strong focus on ready-to-mount solutions and gets involved in the development of new vehicles at an earlier design stage. In addition to this, alternative powertrains and e-mobility have begun to have a significant impact on the automotive sector. Since one of the central challenges of electric vehicles is how to offset the weight of the heavy battery, the expertise of GF in lightweight technology is right on the mark to deliver the required solutions. Aluminum and magnesium high-pressure die-casting is GF's solution for crash-relevant components in a lightweight design. Collaborations exist with a number of well-known customers to develop components for electric vehicles, some of which are already in high-volume production.

GF Machining Solutions

Strategy and solutions

GF Machining Solutions places emphasis on highest quality and innovation in order to differentiate itself from competitors. The division's vision is to be a trusted partner of the global precision machining industry during all phases of a machine's lifecycle. The focus is on the reliability of the products to avoid unplanned interruptions, as well as on supporting customers in significantly improving the efficiency of their manufacturing operations. Increased automation, digitalization and connectivity of the machines, and a progressive increase of their "intelligence" are key parts of this development.

GF Machining Solutions collaborates closely with its customers from the pre-sales production concept phase to the end of the equipment's lifecycle, at which point the used systems are refurbished. With the introduction of remote access solutions, a further step has been taken in order to offer fast response times and remote maintenance capabilities.

Ensuring the energy efficiency of the machines is becoming intrinsic to the expectations of quality by customers is a topic that is steadily attracting rising attention from regulators around the world. For this reason, GF Machining Solutions is continuously working on developing solutions that will allow customers to produce their components with lower energy consumption. Standard energy management solutions allowing systems to shut down during idle periods and auxiliary equipment to switch on have been introduced.

The key focus of product development at GF Machining Solutions is to offer breakthrough solutions that reduce the environmental impact of the customer's production process. As an example, targeted advancements realized by the division in the technology of the EDM machines allowed for increased energy efficiency of 30% to 40% (depending on the type of model) between the machines released in 2015 and in 2019. A further breakthrough in EDM was also the development of Spark Track technology, which won the **2019 Prodex Award** in Switzerland, and allows for increased productivity and lower energy costs per produced part.

A variety of other features developed by GF Machining Solutions offer an improved ecological balance of the machines. These include clean filtration systems with automatic particle separation, separation of chips and cutting fluid, reduction of compressed air consumption, and adaptation of the power of the machine pump according to customers' needs in terms of filtration, cooling, and flushing.

¹ www.nationalacademies.org/news/2019/08/stronger-policies-needed-to-protect-the-public-from-legionnaires-disease, www.nap.edu/catalog/25474/management-of-legionella-in-water-systems and https://www.ecdc.europa.eu/sites/default/files/documents/AER_for_2017-Legionnaires-disease_1.pdf

² E.g. EU, USA, China, etc.

³ E.g. "Ambition 2039" plan of Daimler; Volkswagen's [requirements for suppliers](#), etc.



Success stories

GF Piping Systems



New piping networks in the São Paulo region (Brazil) bring remarkable water savings.

Substantial water loss reduction

A third of the global population live under conditions of severe water scarcity at least one month per year. At the same time, more than 33% of the world's drinking water is lost due to leakages in the municipal networks. This represents a USD 14 billion annual revenue loss, thus causing one of the biggest headaches for utility companies.

As one of the recent partnerships of GF, in 2019, GF Piping Systems entered into a cooperation with a Brazilian water management company, Sabesp. Its current water losses come to 35% of its water distribution due to pipe leakages. GF Piping Systems supports Sabesp's water loss improvement program to bring this ratio down to 30%. The program foresees the replacement of 761 km of piping networks, with expected water savings of 7'400 liters per second in the São Paulo region. Annually, this amounts to 75 billion liters, which is equivalent to 8% of Switzerland's annual drinking water consumption.

Energy-efficient cooling of data centers

Global data centers used about 3% of the total electricity consumption in 2018 – nearly 40% more than the entire United Kingdom. This problem is getting worse, with consumption projected to double every four years. About 40% of the total energy of the data centers is consumed for cooling of the IT equipment. As such, energy-efficient cooling of an increasing number of data centers will become even more critical. **COOL-FIT**, developed by GF Piping Systems, is a comprehensive solution of pre-insulated plastic pipes, valves, fittings and tools. It serves to transport chilled water for cooling of e.g. commercial buildings, data centers or food storage. Key advantages include the reduction of energy consumption of buildings by up to 30%. The system is also 100% corrosion-free and its installation is 50% faster than for conventional systems.



Efficient cooling in datacenters can reduce energy consumption by 30%.

GF Casting Solutions



Unique market position as a specialist for additive manufacturing:
The "AMotion Center" in Stabio (Switzerland)



<https://youtu.be/7DNHvCAeEMc>

Shared competencies under one roof

GF pools its expertise in additive manufacturing in order to leverage its unique position on the market. A competence center established for this purpose has been operating since January 2019 under the name "AMotion Center" in Stabio (Switzerland) and is managed by GF Casting Solutions and GF Machining Solutions.

With additive manufacturing, highly complex components can be produced using metallic 3D printing within just a few hours. This fast production method is possible because firstly, thanks to additive manufacturing, no tools, molds or cores have to be developed and produced in advance. Secondly, several components can be manufactured simultaneously within a single printing process – unlike conventional processes. This saves valuable resources, which customers appreciate. Another benefit: with additive manufacturing, components can now consist of extremely thin-walled designs, which reduces the use of raw materials and enables lightweight construction.

The collaboration between GF Casting Solutions and GF Machining Solutions creates unique synergy effects. Employees benefit by expanding their expertise, and customers enjoy customized solutions from a single provider.

In 2019, the AMotion Center was one of the first competence centers worldwide to obtain Nadcap certification for the additive manufacturing process in accordance with the latest requirements and standards in the aviation and aerospace industry.

Demand for lighter components is GF Casting Solutions' daily business

GF Casting Solutions designs and produces structural lightweight solutions in aluminum high-pressure die-casting for electric vehicles of leading automobile manufacturers. The structural components like the longitudinal member, rear shock towers or front consoles optimize the vehicle's weight considering the heavy battery and increasing amount of electronics.

The EU set new regulations for CO₂ emitted from passenger cars. The long-term goal is to reach 58 g CO₂ /km by 2030. To achieve these ambitious targets, manufacturers focus on the electrification of vehicles, whether fully electric or hybrid versions, or producing cars with smaller internal combustion engines. Either way, the overall weight of passenger cars needs to be reduced; especially those with batteries, as these add several hundreds of kilograms to the weight of the car.

GF Casting Solutions also provides other lightweight components produced from aluminium or magnesium to reduce weight by more than 50%. For example, when considering the benefit of lower weight over the lifetime of an Audi A6 – around 150'000 km over eight years – and taking a conservative annual sales figure of 250'000 cars per year, this translates into a reduction of 375'000 tons of CO₂. This reduction is equal to 40% of the annual CO₂ emissions of a city like Zurich.

Lightweight castings manufactured by GF Casting Solutions exist for a variety of car components, such as shock towers, door frames and front covers with weight reductions ranging from 17% to 45%. Other applications include battery and gearbox housings. These technologies are extended to commercial vehicles, earthmoving equipment or the aerospace industry.



Components made by aluminum or magnesium are essential in electric or hybrid cars to reduce the weight.



Automated high-pressure die-casting process at GF Casting Solutions in Altenmarkt (Austria)

Artificial intelligence in action at GF Casting Solutions

GF Casting Solutions has been driving forward its digital transformation for a number of years. A pilot project launched in 2019 in collaboration with artificial intelligence (AI) pioneer Microsoft in Switzerland represents another key milestone on this journey. The Research & Development department in Schaffhausen (Switzerland) has set up a project with GF's die-casting plant in Altenmarkt (Austria) and Microsoft Switzerland. The aim of the project is to speed up the production process during a component's ramp-up phase, to improve quality, to enhance customer satisfaction and to protect the environment.

The first stage was to establish a solid, data-driven understanding of GF Casting Solutions' complex casting processes, which involve many steps. On this basis, the Microsoft Learning Cloud Service was used to identify the most influential parameters – those that determine whether a produced part will make it all the way to the customer or whether it will need to be scrapped in the course of production. The earlier this step is taken, the more we can lessen the impact on the environment through the reduction in energy consumption. Production costs are lower and scrap rates can be cut.

Ilias Papadimitriou, Technical Expert at GF Casting Solutions, is confident: "By using modern technologies like AI, we will be able to optimize our processes and products on a continual basis, not only for the benefit of our customers, but also for the preservation of the environment. Therefore, we will continue to use our partnership with Microsoft Switzerland to innovate and reduce our environmental footprint through the power of AI."

GF Machining Solutions

Upcycling for wire scrap

Since 2019, GF Machining Solutions in Schorndorf, has been running an exemplary pilot project recycling reusable materials with its partner Berkenhoff (both in Germany). The reusable materials consist of used copper and brass wires – so-called EDM wires from Electrical Discharge Machining. Berkenhoff supplies these wires to GF and takes the used goods back again at the end of their life cycle, thereby ensuring a closed loop system.

Customers like the German company Hainbuch take part in the loop: they return the used EDM wires purchased from GF to them. GF provides Hainbuch with special containers to collect the wires and arranges their return to the supplier Berkenhoff. The scrap wire is then reprocessed by cleaning, melting it and adding it back into the casting process.

This form of upcycling is new, sustainable and extremely convenient for the customer: every year, roughly the same amount of scrap wire is taken back from the customer as was originally sold to it.

For GF, this is a relatively convenient form of raw material procurement. Both GF and Hainbuch benefit from this sustainable system. The scrap wire retains its value, while Hainbuch doesn't have to worry about disposal.

GF Machining Solutions in Schorndorf aims to expand the project in the mid-term in order to raise the total quantity of reusable materials: "This project shows that small things could have a big impact. We are therefore sure that more customers will soon be joining us in our clear and sustainable approach," says Karin Knödler, Head of Sales CS & Tooling at GF Machining Solutions.



Copper alloy wire rods: primary material of EDM wire at Berkenhoff (Germany)

GF Corporation



Safety event at GF Waga (Netherlands): extinguishing a fire

Safety at work – all over the world

GF made further progress in improving safety at work in 2019: the accident rate was improved by around 30% compared to the previous 2013–2015 reference period. A host of activities in all divisions all over the world contributed to this success.

The offering ranged from mandatory safety audits and training sessions in manufacturing facilities, to risk assessments at production sites and workstations, through optimizations of operating procedures, all the way to special events dealing with safety. Furthermore, each site was also able to perform additional activities or carry out further actions as it saw fit.

GF in Seewis (Switzerland), for example, replaced its existing lifting tackle for hoisting heavy loads with new equipment and provided training in how to use this safely. At Shawnee (USA) and many other GF sites, forklifts were fitted with additional blue front and rear lights to increase visibility and ensure the necessary safe distances are observed. One of the largest campaigns, for example at Busalla in Italy, involved replacing conventional cutting devices with safety knives or automatic devices to prevent cuts to the hands. GF in Dallas even held a major conference where regional specialists delivered talks on health and safety at work and gave practical tips to participants.

Stefan Erzinger, Head of Global Quality & Sustainability at GF Piping Systems, comments: “The key success factor for this campaign is the safety awareness of every single person.”

Procurement and logistics

For GF, sustainable management of the company includes the establishment and maintenance of long-term, trusting partnerships with its sourcing and logistics partners.

Beyond the economic considerations, GF has specific expectations regarding ethical conduct and compliance with relevant laws, regulations, and international standards in respect to social and environmentally friendly conduct. GF considers this, as well as environmentally friendly and efficient transport solutions, as not only forming part of good business conduct but also a contribution to achieving business goals.

Procurement

The [Code for Business Partners](#) plays a crucial role in this context. By the end of 2019, the vast majority of GF's key suppliers had signed the Code for Business Partners (GF Piping Systems 90%, GF Casting Solutions 90%, GF Machining Solutions over 95%). All key business partners are expected to sign the document by the end of 2020. Thus, GF is on track to meet the target set for procurement.

A number of sustainability criteria, including questions about human rights, environmental risk exposure, health and safety in the manufacturing process, and conformity with relevant industry regulations (e.g. REACH, the Dodd-Frank Act, and the Consumer Protection Act) form a standard part of the onboarding and periodic evaluation process of GF's suppliers. As an example, GF is committed to ensuring that no conflict minerals are present in its supply chain. Due to the complexity of tracing the origins of these materials, the process is a step-by-step effort. Based on the information obtained from suppliers, GF is unaware of any conflict minerals present in the materials purchased during 2019 for the manufacture of its products.

To develop a deeper insight into the quality of GF's supply chain from a sustainability perspective, in 2019, an approach to the systematic assessment of the commodity groups and respective suppliers of the three divisions was defined. The high level process includes

1. risk assessment of the purchased commodities,
2. self-assessment by suppliers in the categories identified as having higher risks,

3. audits of suppliers identified as having weaker processes, and
4. follow-up and engagement with the suppliers needing improvement.

The rollout is planned for 2020, starting with high-risk segments, and will be progressively extended in subsequent years.

Since early 2019, GF has been an active participant of the “Sustainable Supply Chains” working group organized by the [UN Global Compact’s Swiss network](#). This group serves as a platform for inter-company exchange and best practice sharing on topics such as improving supply chain visibility and traceability, supply chain risk assessment, supplier engagement, and human rights due diligence.

Logistics

Each year, GF purchases a variety of raw materials and goods as part of its supply chain and then delivers the finished products to sales companies and customers around the globe. To ensure that this process is conducted in an environmentally friendly manner, GF has set itself the [target](#) of reducing the energy consumption, carbon emissions, and packaging material.

During 2019, the divisions therefore took steps towards gaining better transparency on the environmental footprint of the logistics network in areas where GF has a possibility for influence. GF Machining Solutions, for example, started collection of CO₂ emission data from all of its airfreight deliveries to use as a baseline for future optimization. The division also plans to introduce a CO₂ emission metric for express couriers, starting with a pilot project with one of its providers. In parallel, GF Piping Systems achieved a reduction of 20% in airfreight shipments as compared to 2018, with 90% of its stock items sent by sea transport. To facilitate broader impacts for the mid-term, the division has initiated discussions with its various transportation partners to reduce CO₂ emissions from their fleet and to train the drivers on methods to optimize fuel use.

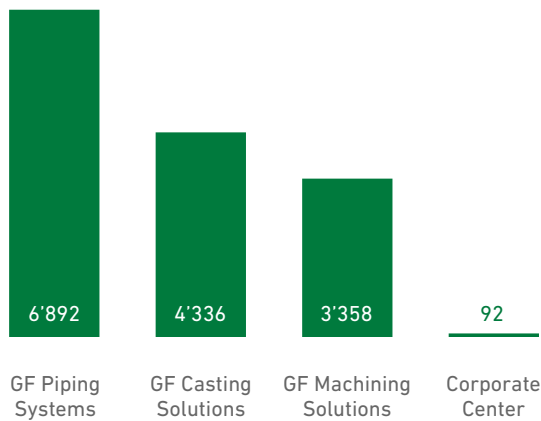
Employees and society

Motivated employees are crucial to the success of a company. GF relies on the commitment of its employees. To promote their engagement, GF offers various prospects and opportunities for their development.

At the end of 2019, GF employed a total of 14'678 people¹ (14'072 Full Time Equivalents). As an employer, GF assumes direct responsibility for their on-the-job safety, health, and well-being.

.....

Our people
headcount



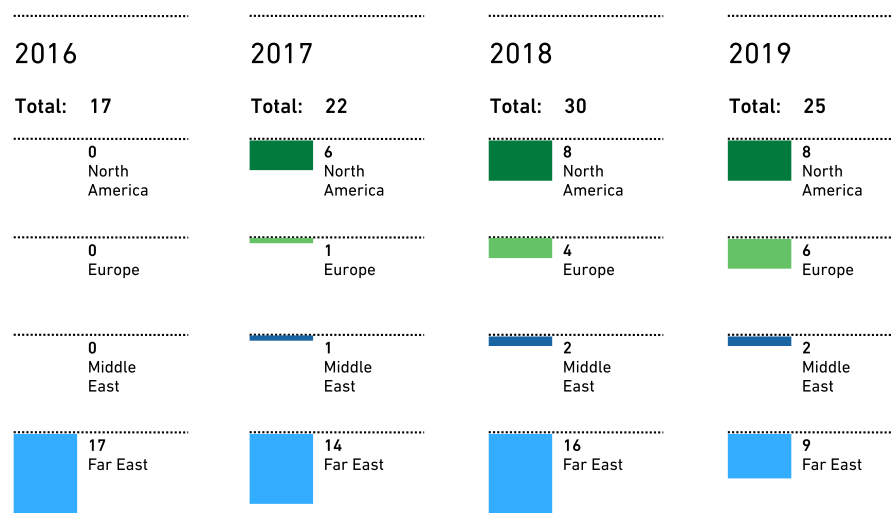
As the realities of a modern workplace are continuously evolving, it is one of the key goals of GF to be agile and remain an attractive employer to its current and potential employees. To promote a collaborative environment and the health and safety of GF's employees, a broad set of continuous learning and development courses and programs, fair and competitive compensation, as well as progressive modernization of production and office facilities are offered.

Diversity and flexibility

GF is a global organization represented by a diverse network of employees from all corners of the world. The diversity of cultures, religions, nationalities, genders, sexual orientations, and ages is a valuable source of talent, creativity, and innovation, which lead to better performance and decision-making.

As a way to foster cultural exchange, GF employees have the opportunity to acquire professional and life experience in different countries over the course of their careers. GF encourages the exchange of exceptionally talented employees across national and cultural borders. Expats and inpats are able to gain the skills necessary to assume global responsibilities within the company and acquire an understanding of other cultures, customs, and traditions.

Long-term international assignments per year and region



One of the **three core strategic goals of GF** is to drive the company toward innovation excellence. A key ingredient required to achieve this goal is the establishment and fostering of a flexible and creative working environment. Through an initiative specific to locations in Switzerland² "future@work", the company continuously analyzes and implements steps toward the fostering of attractive and flexible work models, enabling employees to bring their work and private life better into balance.

In the year under review, 20.2% of employees were women (2'851 FTEs). The proportion of women in management was 16.4% (100 FTEs) compared to 14.8% (88 FTEs) in 2018.

In the last few years, GF has initiated a variety of measures to increase the percentage of women among the workforce and in management. Special events like the female talent dinner at the end of the year with Eveline Saupper and Jasmin Staiblin, GF's **two female members of the Board of Directors**, took place for the third time in 2019. In different locations around the world, female network lunches were kicked-off and often include discussions with senior managers. GF also presents the company at career fairs focusing on female talents and graduates (e.g. Women's Contact Day in Zurich, Switzerland).

When filling vacant management positions, where internal candidates are usually preferred, attention is given to including at least one woman on the shortlist. Women are also increasingly taking up line management functions. For several years now, GF in Switzerland has voluntarily granted all expectant mothers a job guarantee of twelve months from the date of birth in a comparable position, which exceeds the requirements of the collective employment agreement. This program also offers parents of newborns three weeks of maternity or paternity leave in addition to the existing provisions under the collective employment agreement (16 weeks for mothers and five days for fathers). Not only does this help to promote overall gender balance improvement, it also facilitates the easier return of women to work after maternity leave. In other countries, GF is also endeavoring to find economically viable and sensible solutions along these lines, considering legal frameworks.

Additional measures across the locations focus on the recruitment process and finding female candidates for positions key to the core business, on conducting complementary communication within the company, and on strengthening the existing training courses with aspects of modern leadership topics (e.g. raising awareness and sensitizing the participants on the added value of diversity).

The topic of diversity extends beyond gender. Discrimination based on any personal attributes³ is not tolerated, and GF strives to have an accepting and welcoming culture for all. GF welcomes applications from people with a disability and supports their integration into the company. At the end of 2019, there were 129 employees with disabilities working at GF (0.9% of the total workforce).

GF also focuses on employees who are approaching retirement. GF believes that they represent a wealth of know-how and experience. Therefore, an array of possibilities is offered to these employees around the world in order to ensure both the smooth transfer of their expertise to the new generation of GF specialists as well as facilitation of their personal transition to the next phase of their life. In Schaffhausen, Switzerland, GF conducts awareness training sessions on what it means to enter into retirement in terms of management of personal finances as well as on remaining active physically and mentally.

Fostering collaboration

Collaboration within and across divisions and functions is only feasible if a collaborative culture is continuously nurtured. This starts by living the **five values of GF** and is reinforced by training of all employees based on the framework of the **“7 habits of highly effective people”**⁴. Further, collaboration requires appropriate structures in terms of processes, infrastructure, and physical space.

In 2017, a project was launched to standardize Human Resources (HR) processes across the divisions and countries with the purpose of enhancing communication between line management, employees, and the HR department, as well as strengthening the common understanding of the Corporation's values and leadership. This initiative aims to help HR to support the day-to-day operations of GF and provide a boost to the implementation of GF's strategic targets. So far, two parts of the project have been rolled-out: Management by Objectives and Performance Development. Currently, the cross-divisional teams are working on digitalizing and standardizing the recruitment and talent management processes.

In addition to offering modern employment conditions, GF focuses on providing an innovative working environment that strengthens open communication and efficient cooperation, while still making it possible for employees to temporarily withdraw from open space offices to do work requiring elevated levels of concentration. In 2019, GF **invested in modern workplaces** in Romania and Japan, opened the new **Headquarters of GF Machining Solutions in Biel**, and refurbished the **Headquarters of GF Piping Systems in Schaffhausen**.

Training and professional development

Knowledge and hence the development of employees are essential for a company's sustainable success. Therefore, GF supports its employees and strives to strengthen their know-how during their entire career through targeted and customized training and professional development activities.

On the Corporate level, the training and professional development portfolio is designed and implemented by the GF Academy, which coordinates respective Corporate-wide measures and programs that target social and technical management skills for the management and employees of all divisions and regions. For 15 years now, all new employees have been introduced to Stephen Covey's "7 habits of highly effective people" in a training course. The 4DX method (4 Disciplines of Execution) teaches employees important skills that help them successfully implement the Corporate strategy.

In 2019, in order to train and coach the senior management for being successful and effective leaders today and tomorrow, the GF Academy launched a new leadership training course. The purpose of the course is to provide our leaders with experiences, concepts, and tools that can help them to become the best leaders they can be by leading engaged people to achieve great results and great customer service. The training covers topics such as "Building up trust", "Purpose of leadership", "Maximizing talents", "Coaching and leading change", and allows the participants to put theory into practice through accompanying team-building activities. In 2019, 94 senior managers were trained.

Complementary to these courses, the divisions also have their own training programs to provide relevant educational support to the operations of specific business areas. These programs focus on applied technical education as well as training in the area of occupational health and safety (i.e. Zero Risk campaign).

An example of divisional training is GF Casting Solutions' young professional program WiN⁵. WiN offers a broad range of possibilities and places emphasis on self-motivation and drive. Once a year, the group meets for training and team-building activities, including modules on conflict resolution, positive leadership, and strengthening of social competencies. In 2020, the program will be revised to reflect the diversification and globalizaion of GF Casting Solutions.

Many of these training programs take place at Klostergut Paradies, the Corporate Training Center of GF in Schlatt, Switzerland. This facility is located within the eight century-old building of a former monastery and is equipped to modern standards with state-of-the-art infrastructure.

Overall, the education and training program has created a stable base within GF, so that the company has been able to fill 62% of vacancies in management in the period 2016 to 2019 with internal candidates. As of the end of 2019, 67% of all management representatives came from within the GF ranks.



Design Thinking Training at Klostersgut Paradies in Schlatt (Switzerland).

Special focus on training

A key element of GF's Strategy 2020 is innovation. To accelerate the transformation of the company and to sharpen its customer focus, GF is implementing the Design Thinking approach across all divisions to make it an integral part of its corporate culture. The core beliefs driving this initiative are that:

- + success depends on clearly defined factors: multi-disciplinary teams, a "try early and fail quickly" culture and a structured process including rapid prototyping as well as ongoing dialogue with customers and
- + innovation is not restricted to R&D – it is a team effort that incorporates all functions.

To date, more than 1'500 employees have been trained on Design Thinking around the globe (whereof 120 people in 2019). The main focus in the last year was providing next level support through project coaching, offering advanced training opportunities, and further anchoring Design Thinking in the innovation process as well as in GF's company culture. Key efforts in 2019 included:

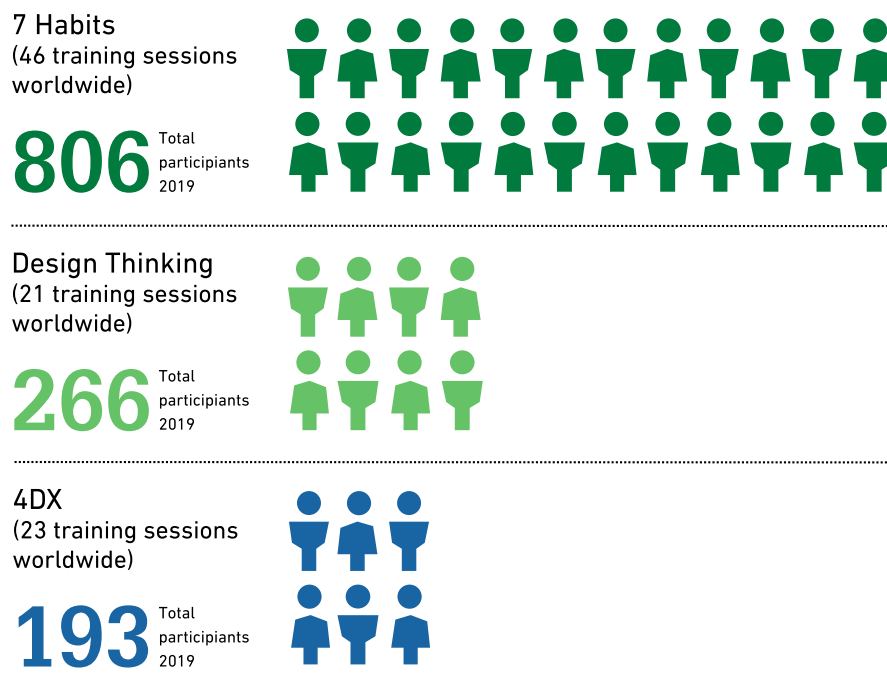
- + specific project coaching in key markets and industries,
- + the setting up of a GF-specific Design Thinking framework and toolbox to support all GF employees in applying new ways of working, and

- + the organization of the Design Thinking Practitioner Days to foster inter-divisional collaboration among the key shapers of customer-centric innovation.

In addition to Design Thinking, a Value Selling approach was implemented within the organization to address the strategic target of realizing business potential in higher value areas. Worldwide, 436 employees received training on Value Selling in 2019 in 44 training sessions.

To provide the best solutions and services fulfilling customers' needs and expectations, the Design Thinking and Value Selling programs form the basis for collaborative work across functional and geographical borders at GF.

Employee training courses at GF in 2019



Collaborations with academia

GF works closely with various technical universities around the world. The company offers possibilities for students specializing in science, technology, engineering, and mathematics to do an internship at GF or to complete their bachelor's or master's thesis by working on challenging projects and case studies. Current collaborations include top technical universities in Switzerland, Germany, Austria, and Australia. Furthermore, GF is continuously developing similar collaborations with universities in China and the USA in order to strengthen access to engineering talent in these key markets.

One such partnership is between GF Signet in El Monte and Harvey Mudd College in Claremont, (both in the USA). GF Signet started this relationship two years ago, as the company was looking for fresh ideas and input for some engineering challenges it was facing. The students participate in each project for the duration of two semesters. As an additional benefit, the collaboration allows GF Signet to replenish its talent pipeline.

Apprenticeships are a long-standing tradition at GF. To date, they have been part of GF for more than 100 years, and the company is committed to maintaining this engagement. There is a broad range of training opportunities offered at various locations spanning a variety of technical and commercial professions. In 2019, GF trained 446 apprentices globally (469 in 2018).

In Switzerland, vocational training is part of the official education system, with GF being one of the first companies in the country to establish such a program. As a supporting measure, GF has internal guidelines to ensure that qualified apprentices, are given preference if there is an open position. In the USA, GF is using the Swiss apprenticeship model. An example thereof is the program at the GF Machining Solutions site in Lincolnshire. Started two years ago, it aims to build up an apprentice program for future professionals in the engineering environment of the division. This initiative has met with strong response, as the USA does not have an officially recognized apprenticeship system like Switzerland and other European countries.

In China, GF is collaborating with many colleges across the country located near its operations. For example, at the division's location in Shanghai, GF Machining Solutions established a 15–18 month program for new engineering graduates.

The goal of all these measures is to prevent the shortage of qualified workers by taking a long-term perspective and developing the company's own specialists. This also helps GF to foster the reputation of being an attractive employer in its local operations.

Employee satisfaction

Employee retention plays a major role in the ongoing success of GF. To measure the satisfaction and commitment of employees, the divisions regularly conduct surveys among their employees. The results and findings are used to design measures for improvement. Following a survey performed in 2018, at the end of 2019, an employee engagement survey was conducted by GF Machining Solutions. The employees were asked, for example, about professional development opportunities and their own level of commitment to and satisfaction with GF, the company values, as well as with the GF Strategy 2020. Over 66% of the division's employees (more than 2'100 people) took part in the survey, giving an overall approval rating of 76%⁶. Based on this feedback, the division defined a range of local improvement measures, which will be implemented in 2020. Examples of these measures include the increased promotion of collaboration, further enhancing professional development opportunities, as well as fostering an open feedback culture.

Corporation-wide, the total fluctuation rate (including dismissals and retirement) in 2019 was 15.8% (compared to 13.3% in 2018). GF attributes this higher figure to the recent reorganizations and relocations at some of the companies.

Employee representation

GF respects the right of its employees to join employee representation bodies. Such agreements therefore exist in a variety of GF locations and entities around the world, including Switzerland, Germany, Austria, China, France, Sweden, Japan, and Taiwan. Where local legislation provides for rights of co-determination for employees, these rights are protected.

Health and safety in the workplace

Reducing the risk of accidents

The health and safety of employees have the highest priority within GF, and therefore the company strives to achieve a 20% reduction in the accident rate by 2020, with the ultimate goal of having zero severe accidents. In order to achieve these targets, GF trains its employees, contractors, and visitors on health and safety topics via the Zero Risk⁷ campaign. Initiated in 2015, this campaign has now been adopted by all three divisions and encompasses communication measures on the divisional and local company levels to raise awareness of the safety culture.

Tracking of accidents that do still occur allows the company to gauge the effectiveness of the applied initiatives. In 2019, GF successfully expanded the Corporate-wide accident reporting system by adding further granularity to the provided data. Health and safety information is incorporated in the monthly reports provided to the Board of Directors.

Around 70% of GF's production sites have their health and safety management processes certified according to OHSAS 18001 or ISO 45001. The locations that were newly acquired by GF Casting Solutions in 2018 – Romania and Switzerland – and the joint venture of the division in the USA developed their management systems during 2019. They aim to obtain certification after the audits have been conducted in 2020.

As an important safety monitoring measure in 2019, all three divisions continued to conduct cross-site safety audits. In the year under review, GF Piping Systems conducted them at 39 sites, GF Casting Solutions at nine sites, while GF Machining Solutions focused on conducting the audits at three major sites. This covers over 90% of all GF's production sites.

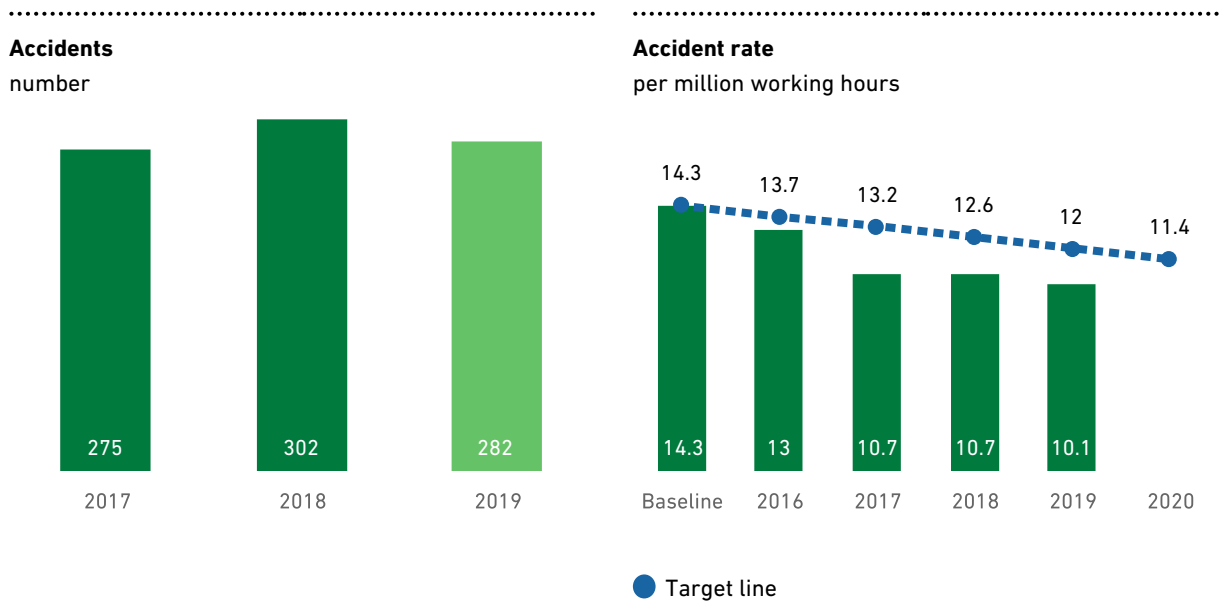
Several companies of GF Piping Systems organized **safety events** at their premises to increase awareness of health and safety. These events were very specific to each site and focused on accident prevention. Among others, GF Piping Systems in Karawang (Indonesia) organized a safety driving course, while GF Piping Systems in Dallas (USA) held a one-day health fair. Furthermore, several other sites organized first aid training sessions.

GF Casting Solutions developed the content of the third phase of the Zero Risk campaign, whereby accident prevention will be the focus of all related activities starting in 2020.

The total number of accidents among GF employees decreased by 7% Corporation-wide to 282 during 2019 from 302 in 2018. Most of the accidents happened in production and processing areas, which resulted in finger and hand injuries. Both GF Piping Systems and GF Casting Solutions reduced the number of accidents among GF employees.

Corporation-wide, it is the fourth year in a row with zero fatalities at GF's companies.

The continuous efforts of the Zero Risk Campaign have proven to be fruitful, as the Corporation-wide accident rate (per one million working hours) declined from 14.3 in the baseline year to 10.1 in 2019. GF is thus on track to meet the accident rate reduction target set for 2020.

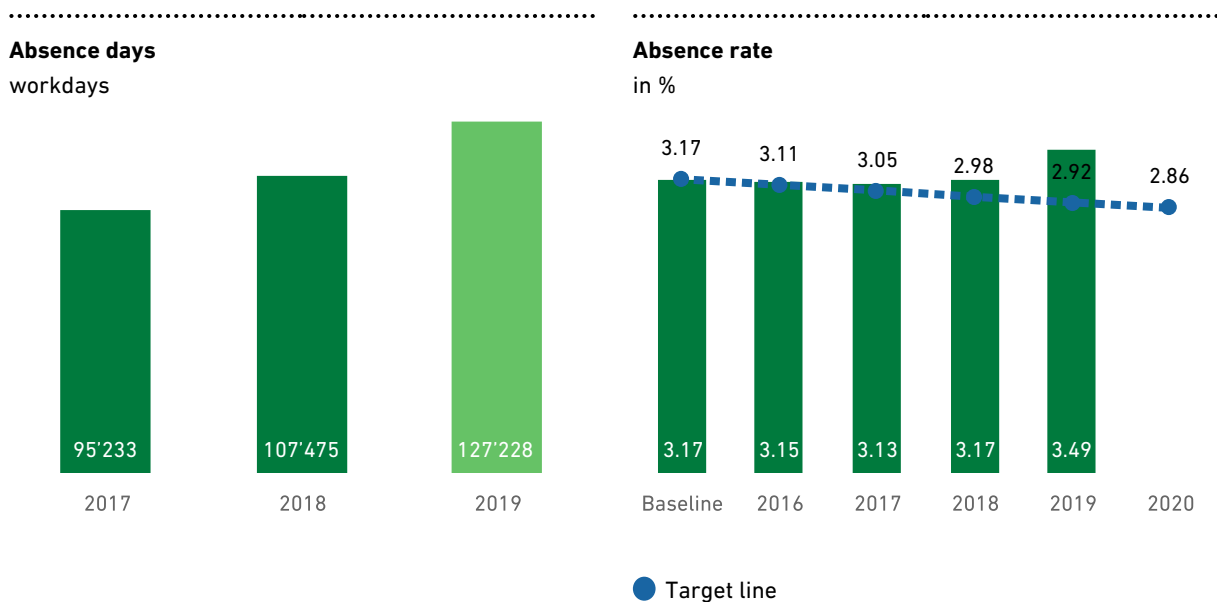


As accidents do still happen, the aim in 2020 will be to continue to build a safety culture and to internalize the main messages of the Zero Risk campaign. Additionally, GF will concentrate its efforts on developing specific measures that will help to reduce the most commonly occurring accidents (i.e. finger and hand injuries).

Employee well-being and absence rate

Besides the focus on fundamental workplace safety, GF also pays particular attention to the promotion of the overall health and well-being of its employees. This is crucial for the retention of existing employees and attraction of new employees for the ongoing success of the company.

In the year under review, all three divisions **inaugurated several new buildings**. These new facilities offer a modern, open working atmosphere and provide ergonomic workspaces to employees, both working in production and in the office.



As an indicator of employee well-being, one of the key data points that GF keeps an eye on is the absence rate. During 2019, it increased to 3.5% from 3.2% in 2018 on a Corporation-wide level. This equaled 8.7 absence days per headcount during the reporting period, whereof 95% of these absences were unrelated to work. A comprehensive analysis is needed to fully understand the underlying reasons.

As one of the ways to reduce the absence rate, GF places its focus on the general well-being of its employees. Following this approach, in 2019, several sites around the globe realized various health and well-being programs. The GF Piping Systems site in Australia conducted dedicated training to provide all employees with the necessary skills to identify mental health issues in the workplace. In a follow-up, the site's management developed a mental health plan, with a six-month follow-up consultation and a respective policy.



Participants of the mental health course at GF Piping Systems in Australia

In other examples, the GF Casting Solutions site in Altenmarkt, Austria conducted workshops on well-being for employees working in shifts, while GF Piping Systems in Spain and Sweden as well as GF Casting Solutions in Herzogenburg (Austria) offer fitness sessions or support exercising costs for their employees. The site of GF Piping Systems in Ratnagiri (India) conducts annual health checkups for all of its employees.

Anchored in the social environment

In accordance with its fundamental values, GF supports and promotes cultural and social programs at its various locations as well as activities that contribute to the common good. In 2019, around CHF 2 million were spent at the Corporation level on social engagement activities. The biggest contributions in 2019 went to the Corporate-owned foundations [Klostergut Paradies](#), [Iron Library](#), and [Clean Water](#). In addition, several GF companies supported local activities by making substantial contributions.

70 years of the Iron Library Foundation

The Iron Library Foundation was established in December 1948. Today, GF proudly owns one of the world's largest private collections of books on the subject of iron and industrialization. Together with the Corporate Archives, it is the center of competence for maintaining the Corporation's historical and cultural heritage. In 2019, the Foundation celebrated its 70th birthday with the special exhibition "From Convent to Cloud".

Improved access to clean drinking water

Through its Clean Water Foundation, GF has supported a total of 151 drinking water projects worldwide since 2002. To date, GF has invested more than CHF 10 million and has improved the lives of more than 300'000 people with improved access to safe drinking water. In the context of this corporate commitment, more than 1'000 GF employees and business partners in four countries took part in the GF "Walk for Water" at the end of September 2019. The event attracted donations of CHF 350'000. GF supplemented this amount to CHF 500'000 through its Clean Water Foundation and donated it to the non-profit organization Water Mission in Charleston, USA – a trusted partner of the Foundation for the past ten years. The funds will be used to support selected clean water projects in Indonesia and Malawi.

¹ Headcount figure

² Current local rules and regulations in certain other countries limit the flexibility to adapt employment conditions to expectations.

³ I.e. gender, race, skin color, origin, disability, religion, sexual orientation, political affiliation, familial status, etc.

⁴ Copyright by the Franklin Covey Corporation. The framework focuses on reinforcing a proactive attitude, outcome-oriented mindset, focus on goals, shared vision, listening and understanding, and on solving problems by celebrating different points of view, as well as the qualities and skills of each individual team member.

⁵ Stands for "Wissen & Netzwerk" in German (meaning "Knowledge & Network")

⁶ Averaged figure for the feedback from the individual companies within the division.

⁷ Details about the Zero Risk campaign, its background, and measures can be found on pages 40–45 of the [Sustainability Report 2015](#).

Environment and energy

Environmental challenges such as climate change, the rise in energy demand, the finite nature of fossil fuels, the scarcity of raw materials, and waste disposal practices are challenging businesses to rethink their production processes and contribute toward sustainable development.

Our footprint

GF assessed¹ the environmental effects of its direct operations and found that energy consumption, the resulting greenhouse gas (GHG) emissions, as well as the waste generated in production are the largest contributors to the Corporation's environmental footprint. From a manufacturing point of view, GF's impact on water consumption is less relevant, because most of the processes are not water intensive. However, sustainable water management is a topic of key importance for some of GF's customers. As GF Piping Systems provides solutions for optimal water management, GF plays a crucial role in this regard – especially in water-scarce areas.

In 2015, as part of the overall set of [Sustainability Targets 2020](#), GF defined a set of environmental goals and thus set out on a journey of optimizing its manufacturing processes. These goals focus on reducing energy consumption and CO₂-equivalent (CO₂e) emissions, non-recycled waste, as well as water consumption in water-scarce areas. These targets are binding for all GF production sites worldwide. Since 2015, measures have been defined, leading to several projects being implemented to achieve the reduction targets by 2020.

Energy and related GHG emissions

Energy consumption and the related GHG emissions are of high relevance for GF based on the specifics of its business. Care needs to be taken to avoid potential negative environmental impacts. For the GF operations, this means taking steps to consume energy more efficiently and to promote the use of renewable energy sources.

Over 80% of production sites have environmental management systems in place and are certified to the ISO 14001 environmental management standard. Additionally, sites of GF Piping Systems and GF Casting Solutions² have their energy management standards certified according to ISO 50001. These monitoring systems contribute to an efficient use of resources and allow the sites to take immediate action if the consumption data show significant deviations from the average. Furthermore, quality management systems according to ISO 9001 and IATF (ISO TS) 16949 are implemented at 90% of the production sites as well at a number of sales companies.

Energy consumption

In the year under review, total energy consumption decreased by 1% to 3.5 million gigajoules (GJ) while the order intake increased by 18% as compared to 2018. This positive result reflects the ongoing efforts at GF sites worldwide to increase the energy efficiency of their operations.

The reduction in energy consumption was mainly driven by a 2% decrease in electricity use as compared to 2018. Various small- to medium-size energy saving projects contributed to this development.

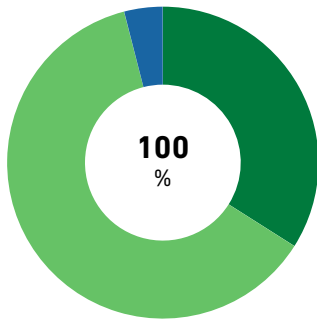
Besides investments into concrete energy efficiency projects, a number of organizational changes that took place in 2019 played a role in the development of GF's total energy consumption as well as the other environmental KPIs.

During the year under review, three existing production sites of GF Machining Solutions in Switzerland were consolidated into a [new building in Biel](#). In September 2019, GF Machining Solutions inaugurated its new innovation and production center in Biel. In the planning of this building, the construction was done to meet modern energy efficiency considerations, which are expected to show clear results in the following years as the activity at the site is brought to its optimal capacity.

At the same time, one production site in Changzhou (China) moved into a bigger building. While these new sites were still in a ramp-up phase in 2019, they were built with the latest technology, and it is expected that it will perform at higher energy efficiency levels compared to the old locations.

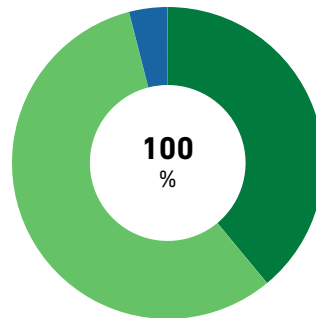
A significant organizational change in 2019 was the [divestment of the iron foundry of GF Casting Solutions in Herzogenburg \(Austria\)](#). This move was taken as part of the strategic focus of the division on light metal casting. As a result, the share of energy consumption among the three divisions changed.

Divisional share of net energy consumption³
in %



- 34% GF Piping Systems
- 62% GF Casting Solutions
- 4% GF Machining Solutions

Divisional share of net energy consumption³ after divestment
in %



- 39% GF Piping Systems
- 57% GF Casting Solutions
- 4% GF Machining Solutions

As part of the **Sustainability Targets 2020**, GF set itself two goals: to increase energy efficiency and to reduce CO₂e emissions, both by 10%. During the year under review, 30 energy efficiency projects were implemented at the production sites of the three divisions.

For example, a plant of GF Piping Systems in Shawnee (USA) conducted a detailed assessment of its energy consumption and implemented several measures, including the installation of programmable thermostats. During 2019, the site invested in new energy-efficient injection molding machines and replaced the old chiller system with more energy-efficient ones. These measures achieved savings of around 500 MWh, which represents 2% of the site's annual energy consumption.



New energy-efficient chiller installation at the plant of GF Piping Systems in Shawnee (USA)

GF Casting Solutions' site in Altenmarkt (Austria) reduced its energy consumption by following the detailed energy management analysis. By optimizing the energy consumption of the furnace for aluminum, changing the energy source of the heating system, installing exhaust modules, as well as switching off each consuming unit when not in use, the site was able to save 2'400 MWh which represents 3% of its annual energy consumption.



Furnace for aluminum with installed exhaust module at GF Casting Solutions' site in Altenmarkt (Austria)

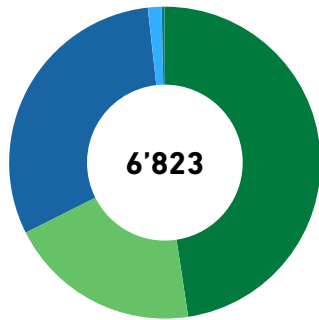
Composition of energy sources

Besides the amount of energy consumed, the composition of energy sources is equally relevant to GF's environmental footprint.

The strategic shift of GF Casting Solutions over the last two years to exit the European iron-casting business was the main contributor to the change in energy composition from 2018 to 2019. Compared to previous years, only coke was used. The amount of energy sold (mainly recovered waste heat) decreased dramatically.

Energy sources 2018

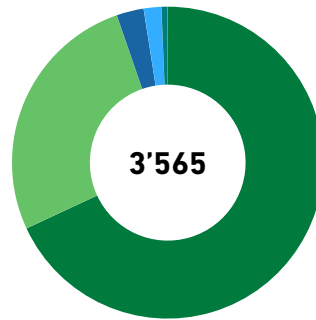
in 1'000 GJ



- 48% Electricity
- 20% Natural gas, biogas, fuel oil
- 31% Coke, lignite
- 1% Fuel use (for internal transportation)
- <1% Other energy sources

Energy sources 2019

in 1'000 GJ



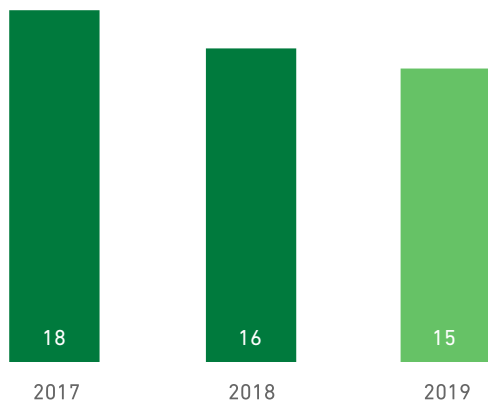
- 68% Electricity
- 26.5% Natural gas, biogas, fuel oil
- 3% Coke, lignite
- 2% Fuel use (for internal transportation)
- <1% Other energy sources

In 2019, GF sourced 530'000 GJ as green electricity and produced 14'000 GJ green electricity, this reflects 15% of total energy consumption.

To increase the share of renewables in GF's energy mix, a dedicated project was conducted at GF Piping Systems to analyze potential for generation of renewable electricity and the possibility of substituting fossil fuels with renewable fuels, such as biogas, at the sites of the division. This project will influence the way GF sources and produces electricity. Currently, six GF sites generate their own electricity, either through solar power or hydropower, while the majority of GF's renewable energy is purchased.

Share of renewable energy

in % (incl. certified green electricity)



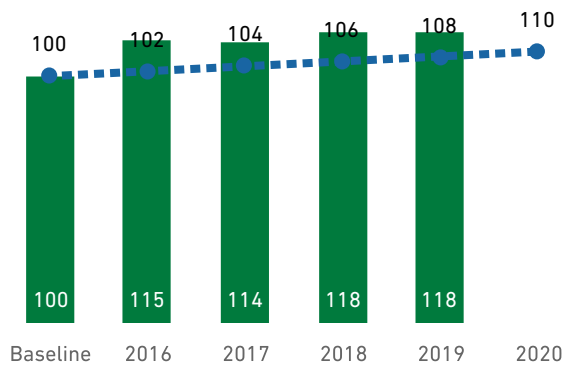
Target achievement: energy efficiency

During 2019, GF's production volumes increased while energy consumption decreased. This development was in line with the intended goal to increase the Corporation's energy efficiency⁴. All three divisions contributed positively to this result and reached the expected target line.

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Energy efficiency index

production volume/energy consumption



● Target line

As 2020 marks the end of the Sustainability Targets 2020 period, GF's efforts are focused on ensuring target achievement while critically evaluating the contribution of the implemented measures to the overall target. This evaluation combined with the future vision for energy efficiency at GF locations will support the company in defining appropriate and ambitious targets for the next strategy cycle to 2025. At the same time, GF aims to increase cross-site and cross-divisional exchange by communicating best practice examples among the locations.

Emissions

To provide an appropriate contribution to the efforts of the international community to meeting the goals of the Paris Agreement, it is important that GF distinguish between the sources of greenhouse gas (GHG) emissions.

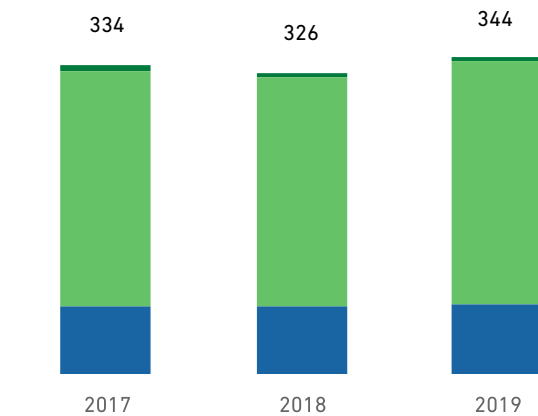
Total CO₂e emissions increased by 5% in 2019. Scope 1⁵ emissions remained stable and Scope 2 market-based emission⁶ increased by 6% in 2019 compared to 2018⁷. 19% are created by GF's companies' consumption of fossil fuels (Scope 1), 80% of GF's GHG emissions stem from electricity consumption and are classified as Scope 2 emissions. The remaining 1% represents business travel (Scope 3).

This means that any action that GF takes to reduce its energy consumption will reduce Scope 1 and 2 emissions and contribute to meeting the global GHG target.

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Total CO₂e emissions

1'000 tonnes



- Indirect emissions (Scope 3)
- Indirect emissions (Scope 2 market based)
- Direct emissions (Scope 1)

In the year under review, GF Casting Solutions invested in Guarantees of Origin for its sites in Austria. The purchase covered 23% of the division's net energy consumption (or 35% of its electricity consumption) and contributed positively to reducing GF's overall Scope 2 emissions.

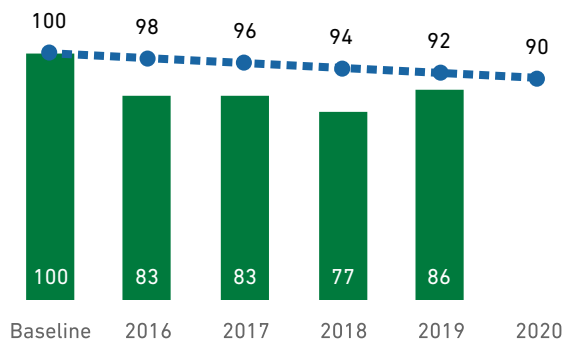
Target achievement: CO₂e emissions

In the year under review, GF achieved the target CO₂e intensity line. Compared to 2018, the intensity index increased as fewer Guarantees of Origin were purchased.

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GHG emissions intensity index

CO₂e emissions/production volume



● Target line

Waste and circular economy

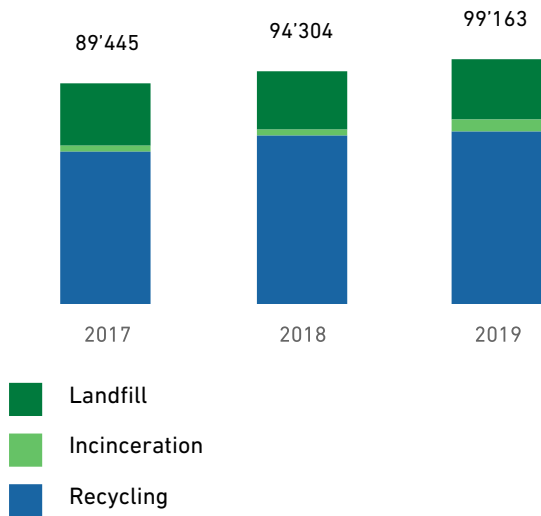
Ensuring prudent and responsible resource and waste management is important for GF. GF aims to redesign its production processes in a holistic way in order to close material loops. In principle, the castings of GF Casting Solutions are 100% recyclable whether they are made of aluminum or magnesium, and these materials are reused in a circular fashion. Additionally, GF integrates re-use opportunities when retrofitting its buildings.

Waste materials from production processes can be used as a resource for other industrial companies and therefore reduce the overall demand for energy and raw materials. Examples include using GF's manufacturing by-products as a substitute for fossil fuels or as an input for the production of cement. GF is constantly on the outlook for such opportunities.

In the year under review, the total amount of waste increased by 5%. The share of hazardous waste increased significantly from 4% to 9%, while the amount of non-hazardous waste remained stable, compared to the previous year. The increase of hazardous waste was mainly due to the increased production volumes of two GF Piping Systems sites and a re-categorization of waste at one site of GF Casting Solutions. GF will evaluate this development with the respective sites and decide on appropriate mitigation measures. The majority of GF's waste is non-hazardous and is being recycled (71%).

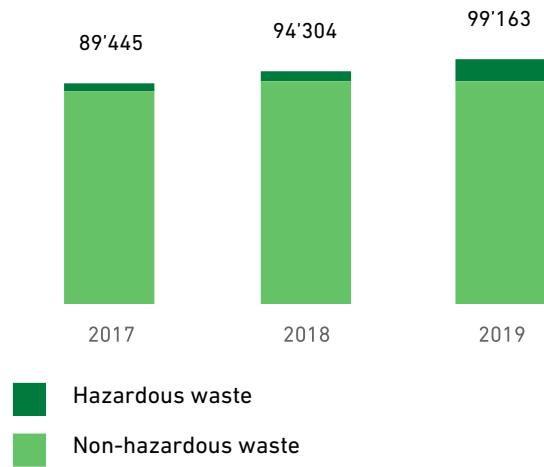
Waste disposal

Tonnes



Composition of waste

Tonnes



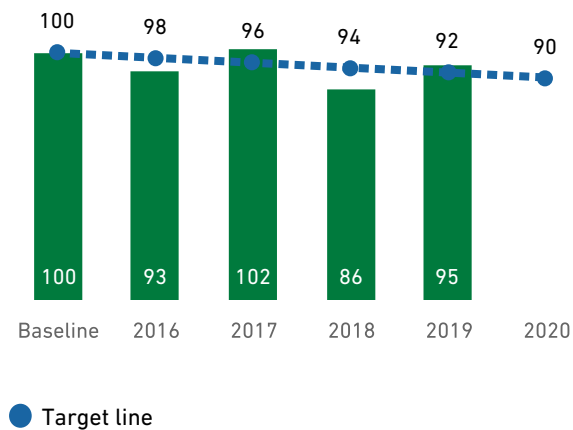
Further initiatives focused on both sourcing of reusable materials and components as well as on revising GF’s waste management processes to facilitate reuse are on the agenda of the three divisions.

Target achievement: non-recycled waste

The overall increase of waste negatively affected the achievement of the non-recycled waste target. During 2019, GF narrowly missed the expected target line.

Non-recycled waste intensity index

non-recycled waste/production volume



● Target line

Water consumption

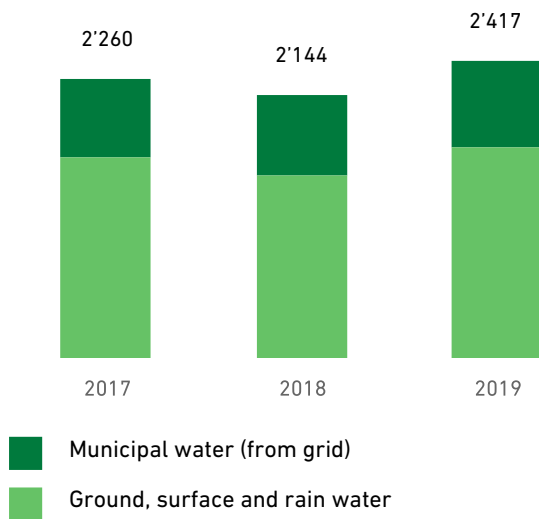
Water is essential to life on our planet, so good stewardship of this finite resource is important to GF. Therefore, GF aims to consume 10% less water in water-stressed and -scarce areas by 2020. In early 2017, an analysis was conducted of GF production sites which are located in water-stressed areas, using the World Resources Institute (WRI) tool.⁸ At the six identified locations (all part of GF Piping Systems), whereof three in China and three in the USA, the GF water target is binding. Over recent years, these production plants continuously monitored their water consumption and implemented improvement measures accordingly.

Water security score from CDP

In the 2019 CDP reporting cycle, GF maintained its B score.

The total water consumption for all GF sites increased by 13% in 2019 compared to 2018, but less than increase in production volume. Additionally, new sites of GF Casting Solutions in Switzerland and Romania adopted the sustainability reporting in the year under review for the first time. Furthermore, a leakage and a breakdown of a cooling tower at a site in Herzogenburg contributed significantly to the overall increase in water consumption.

Water consumption
in 1'000 m³



Water intensity index
water consumption/production volume



- Municipal water (from grid)
- Ground, surface and rain water

Target line

Target achievement: water in water-stressed areas

The production plants located in water-stressed areas reduced their water consumption beyond the targeted reduction path of 2% per year and are in a good position to meet the 2020 target.⁹

In 2019, the GF Piping Systems in Beijing (China) reduced its water consumption by half compared to the previous year. The plant reorganized its on-site cooling system and installed a temperature sensor that turns on the cooling when the outside temperature is above 30°C.

¹ In 2015, when the Sustainability Targets 2020 were defined, and again in early 2018, as part of a materiality assessment process.

² The following sites are ISO 50001 certified: GF Piping Systems: Deka GmbH and GF Fluoropolymer Products GmbH (both in Germany), GF Casting Solutions: Kunshan, Suzhou (both in China), Leipzig (Germany), Altenmarkt, Herzogenburg Services, and Herzogenburg HPDC (all in Austria).

³ Net energy consumption = energy consumed minus energy sold

⁴ The energy efficiency index that we calculate is equal to the inverse calculation of the energy intensity required by GRI (e.g. energy consumption – the numerator divided by production volume – the denominator). Included in the energy consumption are all sources of energy that are consumed within the organization (e.g. electricity and fuel consumption). Energy that is used for business travel (such as fuels for company cars and for planes) is therefore not considered.

⁵ Fossil fuels (Scope 1) are consumed because GF uses natural gas, oil, and coke (e.g. for heating and process heat), as well as petrol, LPG, and CNG gases (e.g. for internal transportation).

⁶ Indirect emissions (Scope 2) stem from purchased and consumed energy at GF plants and are not emitted by the company itself. GF publishes both the amount of Scope 2 market-based emissions and location-based emissions. Market-based emissions figures show emissions with instruments that were applied to neutralize them. For example, the purchase of green energy certificates is considered as an instrument, and it is directly subtracted from the total amount of emissions.

⁷ Due to the significant contribution of the divestment of the Singen and Mettmann iron-casting plants on Scope 1 emissions, the figures for previous reporting periods have been restated to allow for a like for like comparison.

⁸ www.wri.org/our-work/project/aqueduct

⁹ In the year under review, an adjustment was made to the calculation of the progress regarding the water intensity target and the water consumption of GF Piping Systems. Therefore, the path towards achieving the target was recalculated for all the previous years as well.

Our performance

Economic performance indicators	S. 82
Social performance indicators	S. 84
Environmental performance indicators	S. 86

Economic performance indicators

CHF million	2019	2018	2017	2016	2015
Order intake	3'692	4'521	4'274	3'749	3'662
Orders on hand at year-end	563	623	773	614	612
Income statement					
Sales	3'720	4'572	4'150	3'744	3'640
EBITDA	374	529	491	443	422
Operating result (EBIT) before one-offs	281	382	352	311	296
One-offs	46				
Operating result (EBIT)	235	382	352	311	296
Net profit/loss after minorities	173	281	252	216	188
Cash flow					
Cash flow from operating activities	318	397	410	400	328
Cash flow from investing activities	-186	-404	-280	-265	-140
Free cash flow before acquisitions/divestitures	137	147	204	231	190
Free cash flow	132	-7	130	135	188
Balance sheet					
Assets	3'344	3'444	3'610	3'202	3'083
Liabilities	1'906	2'016	2'241	2'002	1'953
Equity	1'438	1'428	1'369	1'200	1'130
Net working capital	856	926	899	838	819
Invested capital (IC)	1'473	1'494	1'466	1'333	1'279
Net debt	232	238	183	214	238
Key figures					
Return on equity (ROE) %	12.0	19.9	20.1	19.3	17.7
Return on invested capital (ROIC) %	12.4	22.4	20.3	19.3	18.9
Return on sales before one-offs (EBIT margin before one-offs) %	7.6	8.4	8.5	8.3	8.1
Return on sales (EBIT margin) %	6.3	8.4	8.5	8.3	8.1

Asset turnover	2.5	3.1	3.0	2.9	2.8
Cash flow from operating activities in % of sales	8.5	8.7	9.9	10.7	9.0
Employees					
Employees at year-end	14'678	15'027	15'835	14'808	14'424
Europe	8'373	8'721	9'658	8'845	8'783
Asia	3'545	3'725	3'807	3'713	3'502
– Thereof Rest of Asia	548				
Americas	1'922	1'740	1'503	1'348	1'262
Rest of world	838	841	867	902	877

Social performance indicators

Social performance indicators ¹	Unit	2019 ²	2018 ³	2017	2016	2015
Employees						
Number of employees ⁴	Headcount	14'678	15'027	15'835	14'808	14'424
	FTE ⁵	14'073	14'413	15'163	14'105	13'783
Female employees	Headcount	2'958	2'512	2'347	2'245	2'162
	FTE	2'851	2'397	2'213	2'055	1'805
	% of headcount	20.2	16.7	14.8	15.2	15.0
Student interns	Headcount	133	174	145	182	154
Apprentices	Headcount	446	469	525	540	509
Women in management positions ⁶	FTE	100	88	90	95	87
	% of total management positions	16.4	14.8	14.2	17.0	15.0
Women on the Executive Committee	Number	0	0	0	0	0
Women on the Board of Directors	Number	2	2	2	2	2
	%	22.2	22.2	22.2	22.2	22.2
Total departures ⁷	Headcount	2'162	1'796	1'603	1'512	1'127
Total employee fluctuation ⁷	%	15.8 ⁸	11.9	11.3	11.6	8.9
Employee fluctuation, unwanted by GF	%	5.6	4.0	4.1	3.7	3.1
Part-time employees	Headcount	400	457	373	398	363
	%	2.7	3.0	2.4	2.7	2.5
Employees with disabilities ⁴	Headcount	129	280	298	308	290
	%	0.9	1.9	1.9	2.1	2.0
Employee surveys ⁹	Number of employees surveyed	5'448	6'341	6'987	1'300	8'000
Investigated incidents of discrimination ¹⁰	Number	1	3	1	1	2
Training and professional development						
Training and professional development	Number of GF employees with training (headcount)	10'517	11'558	12'192	10'635	10'125
	%	71.7	76.9	77.0	71.8	70.2
Training days	Work days	30'527	36'974	38'822	33'160	34'264
	Days per employee	2.1	2.5	2.5	2.2	2.4
Health and safety						
Work-related accidents involving injury ⁴	Number	282	425	407	468	447

Sustainability Targets 2020: Accident rate	per 1'000'000 working hours	10.1 ⁸	10.7	10.7	13.0	11.6
Sustainability Targets 2020: Target line accident rate ¹¹	per 1'000'000 working hours	12.0	12.6	13.2	13.7	14.3
Fatalities, work-related	Number	0 ⁸	0	0	0	1
Absence days due to work-related accidents or illness	Work days	6'605	8'675	6'750	7'542	7'676
Absence rate due to work-related accidents or illness	% of total work days	0.2	0.2	0.2	0.2	0.3
Total absence days	Work days	127'228	148'361	139'407	133'383	121'142
Sustainability Targets 2020: Total absence rate	% of total work days	3.5	3.2	3.1	3.1	3.1
Sustainability Targets 2020: Target line absence rate ¹¹	% of total work days	2.9	3.0	3.1	3.1	3.2
Community						
Order volume from workshops employing disabled people	CHF million	2.6	2.9	2.4	2.2	2.1
Charitable donations	CHF million	3.5	4.0	4.5	4.0	3.6

¹ The social performance indicators include all GF companies with ten or more employees.

² Due to the divestment (as of 30 September 2019) of the iron plant in Herzogenburg of GF Casting Solutions, the social performance indicators presented here include the data from the respective site until end of September 2019.

³ The 2018 social performance indicators here are presented according to the consumption at two divested plants of GF Casting Solutions (Singen and Mettmann, both in Germany) while part of the GF Corporation (11 months of 2018). In the calculation of the target-relevant social indicators for all the years in this overview, the two divested sites are excluded.

⁴ The reduction in these KPIs is mainly as a result of the divestment of the sites of GF Casting Solutions in 2018 and 2019.

⁵ FTE stands for Full Time Equivalent.

⁶ Management positions are defined as members of the management board of each business entity or managers who report to a managing director.

⁷ The relocation of GF Machining Solutions, Switzerland, as well as the acquisitions of GF Casting Solutions in Romania and Switzerland resulted in an increase in the number of departures and accordingly in the fluctuation rate during 2019. The latter sites have a higher number of departures compared to the overall figure at GF.

⁸ 2019 PwC assured

⁹ The figure represents the number of employees who were requested to participate in the survey.

¹⁰ The reported case that occurred in 2019 was resolved, as appropriate measures were taken.

¹¹ The target line is calculated linearly based on the baseline data and according to the defined target.

Environmental performance indicators

Environmental performance indicators ¹	Unit	2019 ²	2018 pro rata ³	2018 ⁴	2017	2016	2015	2014
Energy								
Gross energy consumption	1'000 GJ	3'565	3'583	6'823	6'941	6'605	6'392	6'317
Electricity	1'000 GJ	2'427	2'472	3'249	3'296	3'168	2'878	2'835
Natural gas, biogas, fuel oil	1'000 GJ	949	912	1'363	1'247	1'205	1'262	1'186
Coke, lignite	1'000 GJ	101	101	2'092	2'265	2'121	2'156	2'192
Fuel use (for internal transportation)	1'000 GJ	65	76	97	110	92	80	72
Other energy sources	1'000 GJ	22	22	22	23	19	16	30
Energy sold	1'000 GJ	-1	-1	-82	-103	-96	-105	0
Net energy consumption	1'000 GJ	3'564	3'582	6'742	6'838	6'509	6'287	6'317
Renewable energy (incl. green electricity)	%	15	16	9	10	11	11	11
Sustainability Targets 2020: Target line energy efficiency index ⁵ (production volume/energy consumption ⁶)		108	106	n/a	104	102	100	
Sustainability Targets 2020: Energy efficiency index ² (status at year-end)		118	118	n/a	114	115	100	
GHG emissions (in CO₂e)⁷								
Total CO ₂ e emissions ("market based" approach)	1'000 tonnes	344	326	630	668	610	580	580
Scope 1 (Direct emissions: fuel-related energy consumption)	1'000 tonnes	77 ⁸	75	312	325	307	313	313
Scope 2 market-based ⁹ (Indirect emissions: electricity and district heating)	1'000 tonnes	263 ⁸	247	312	337	299	264	264
Scope 2 location-based ¹⁰ (Indirect emissions: electricity and district heating)	1'000 tonnes	333 ⁸	346	411	468	438	407	416
Scope 3 (Indirect emissions: business travel)	1'000 tonnes	4	4	6	7	4	3	3
Sustainability Targets 2020: Target line GHG emission intensity index ⁵ (CO ₂ e emissions/production volume ⁶)		92 ⁸	94	n/a	96	98	100	
Sustainability Targets 2020: GHG emission intensity index ² (status at year-end)		86	77	n/a	83	83	100	
Air emissions								
Nitrogen oxides (NO _x)	1'000 tonnes	0.01	0.03	0.05	0.04	0.03	0.03	0.03

Sulfur oxides (SO _x)	1'000 tonnes	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Water and wastewater								
Total water consumption	1'000 m ³	2'417 ⁸	2'144	2'759	2'966	2'808	2'875	2'712
City water from public supply	1'000 m ³	702	663	697	662	633	653	596
Ground and rain water	1'000 m ³	1'715	1'481	2'062	2'304	2'175	2'222	2'116
Wastewater volume	1'000 m ³	1'961	1'765	1'961	2'098	1'977	1'961	878
Wastewater to sewage systems	1'000 m ³	750	647	814	944	897	890	830
Wastewater returned to nature, unpolluted	1'000 m ³	1'211	1'119	1'147	1'153	1'081	1'071	47
Sustainability Targets 2020: Target line water intensity index ⁵ (water consumption/production volume ⁶)		92	94	n/a	96	98	100	
Sustainability Targets 2020: Water intensity index (status at year-end)		80	93	n/a	88	101	100	
Waste and recycling								
Total waste	1'000 tonnes	99 ⁸	94	306	326	314	309	315
Normal waste, recycling	1'000 tonnes	67	67	245	263	249	233	250
Normal waste, landfill or incineration	1'000 tonnes	24	24	43	44	45	54	43
Hazardous waste	1'000 tonnes	9 ⁸	4	18	18	20	22	21
Hazardous waste, recycling	1'000 tonnes	3	2	16	16	14	15	15
Hazardous waste, storage or incineration	1'000 tonnes	5	2	2	2	6	6	6
Sustainability Targets 2020: Target line non-recycled waste intensity index ⁵ (non-recycled waste/production volume ⁶)		92	94	n/a	96	98	100	
Sustainability Targets 2020: Non-recycled waste intensity index ² (status at year-end)		94	86	n/a	102	93	100	
Business trips								
Air travel	1'000 km	35'096	31'100	31'379	36'872	31'863	14'305	22'342
Monetary values								
Expenditure for environmental protection	CHF million	5	7	18	18	15	16	13
Energy costs	CHF million	72	79	130	128	103	118	131
Water and wastewater costs	CHF million	2.5	2.6	4	3	3	3	3
Waste disposal costs and recycling credits ¹¹	CHF million	3	-1	9	8	8	7	9

¹ The environmental performance indicators include all GF production companies.

² Due to the divestment of the iron plant in Herzogenburg (Austria) of GF Casting Solutions as of 30 September 2019, the environmental performance figures are presented according to the consumption at this site while still part of the GF Corporation (9 months of 2019).

³ To ensure data consistency and comparability over time, the pro-rata 2018 data column shows how the comparable consumption would have looked like in 2018. In the calculation of the target-relevant environmental indicators for all the years in this overview, we applied the respective 9/12 ratio for the respective site.

⁴ The 2018 environmental performance indicators include the consumption of the two plants of GF Casting Solutions (Singen and Mettmann, both in Germany) while part of the GF Corporation (11 months of 2018).

⁵ The target line is calculated linearly based on the standardized baseline consumption (=100) and according to the defined target.

⁶ The production volume is defined based on the specificities of the businesses of the individual divisions: as "produced tonnes" for GF Piping Systems, as "gross value added" (it includes all operating income subtracting the costs of materials and products, changes in inventory, and operating expenses) for GF Casting Solutions and as "hours worked" for GF Machining Solutions.

⁷ CO₂-equivalent is a unit used to transform other greenhouse gases into CO₂e (CO₂=1) according to their global warming potential. The applied emission factors are based on the GHG Protocol 2016.

⁸ 2019 PwC assured

⁹ Market-based emissions refer to specific emission factors, e.g. from local utility provider and they account for market instruments such as guarantees of origin that might be purchased in order to reduce Scope 2 market-based emissions.

¹⁰ Location-based emissions refer to the average emission factors of the area where the electricity consumption takes place, e.g. average emission factor of one country.

¹¹ The reduction in the amount of waste disposal and recycling credits is mainly explained by the divestment of the mentioned sites of GF Casting Solutions in the years 2018 and 2019.

About the report

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Disclosure information

This report covers the reporting period from 1 January – 31 December 2019, and it has been prepared in accordance with the GRI Standards: Core option (2016).

Starting with the first environmental report in 1997, GF has been continuously expanding the recording and collection of sustainability-relevant data. Initially, only environmental indicators were collected, and since 2005, social indicators have been included in the report.

Reporting cycle

The comprehensive Sustainability Report has been published every two years since 2005, with an interim report published in the intervening years. Sustainability Reports from previous periods are available on the [GF website](#). Additionally, information on energy consumption, CO₂e emissions and management of water as a resource is also provided annually to CDP (Carbon Disclosure Project).

Scope of data collection and reporting

In the year under review and in line with the organizational adjustments of GF, the scope of reporting was adopted accordingly:

- + As part of the strategic realignment of GF Casting Solutions and to strengthen its positioning in the aluminum and magnesium light-metal segments, the iron foundry in Herzogenburg (Austria) was divested as of 30 September 2019. The foundry contributed a significant share to GF's environmental footprint. For this reason and to ensure data consistency and comparability over time, the environmental data presented in this report, in the KPI tables, and the indicators relevant for target achievement apply a 9/12 ratio (9 months of 2019) according to the site's respective consumption in the year under review.
- + Additionally, during 2019, the production capacities as well as 300 jobs were shifted from GF Casting Solution's location in Werdohl (Germany) to Romania and Austria. Due to the nature of the shift, its impacts will be transferred to two different locations as of reporting year 2020. For the year under review, the consumption data of this site is included in the data shown in the KPI tables. However, the calculation for target achievement indices does not include the site in Werdohl for all the previous years and is adapted accordingly compared to the information shown in the Sustainability Report 2018.
- + Two companies with three locations acquired by GF in the previous years (GF Precicast SA, Novazzano (Switzerland), GF Precicast SRL, Arad and GF Casting Solutions SRL, Pitești (both located in Romania)) were incorporated in the Sustainability Report in 2019 for the first time. Therefore, their data is included in the absolute figures presented in the KPI tables. However, as stated in the Sustainability Report 2017, these sites are excluded in the Sustainability Targets 2020.

In line with the previous reporting periods, the information presented in this Sustainability Report accounts for the equity share that GF owns in the individual companies under the Corporation's control. This is aligned with the approach used in financial reporting and is based on the following criteria:

- + All companies in which GF owns 50% or more of equity are consolidated at 100% and
- + For companies where GF has a joint venture participation of 50% or less, environmental and health and safety data are weighted accordingly.

Scope and calculation of Sustainability Targets 2020

The target achievement for the environmental indicators are calculated in relation to the production volume. The average consumption in the years 2013–2015 serves as a baseline to reflect a more realistic consumption path.¹

The Sustainability Targets were introduced in 2015 and have to be achieved within five years, i.e. by 2020 at year-end. In order to provide companies with a realistic timeframe for target achievement, companies that joined GF before 2017 are included in the calculation for the achievement of the Sustainability Targets 2020. Companies that joined later have individual targets. Business acquisitions, divestments as well as closures can also affect the results. Organizational adjustments during 2019 are explained in the section "Scope of data collection and reporting."

The companies acquired during 2019 have three years to be consolidated in the social and environmental reporting system. Economic performance indicators cover all of the companies under the scope of Corporate consolidation, as reported in the Annual Report 2019.

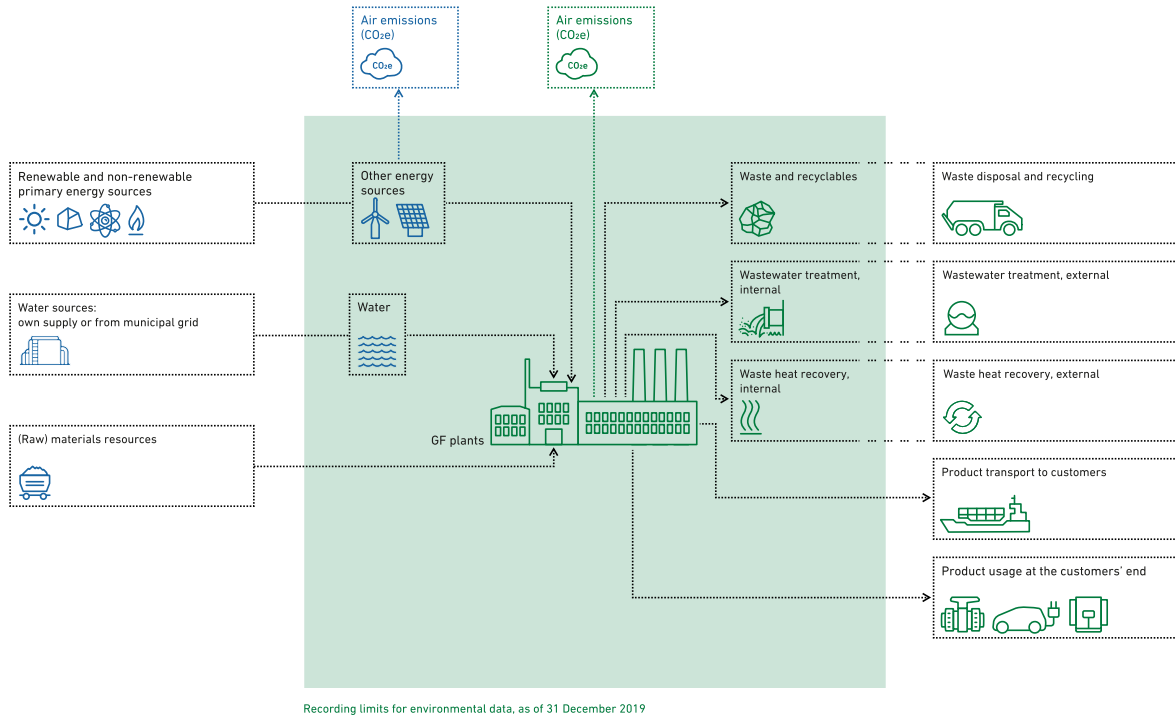
In the year under review, GF had 142 companies. About 72% of them report their indicators, which covers over 98% of the production sites and 96% of the total workforce.

The financial performance indicators follow Swiss GAAP FER principles (Swiss Generally Accepted Accounting Principles Accounting and Reporting Recommendations) and are consistent with those reported in the GF Annual Report 2019.

The social performance indicators are presented in this report based on the data collected from all sales and production companies worldwide with more than ten employees. They report this information to the sustainability teams at the divisional and Corporate levels on a monthly and bi-annual basis using the Sustainability Information System. Environmental performance indicators are reported by the production companies according to the same cycle.

With regard to environmental figures, GF tracks and records the energy and water consumption (on the input side) and air emissions, waste, and wastewater (on the output side). The environmental impact of transportation within GF's locations, as well

as business travel by plane or company car, is also calculated. The environmental footprint of purchased materials, the construction of facilities and buildings, as well as the use of products by customers are not yet covered at this point in time.



External assurance

Transparent and verified reporting is important to GF. Therefore, the Sustainability Report is externally assured by PricewaterhouseCoopers AG (PwC). This includes the validation and verification of selected environmental and social performance indicators relevant to the GRI-Standards: Core option.

¹ In any given year, some of the indicators may be influenced by random weather fluctuation, such as a cold winter, which translates into an increase in energy consumption for heating.

GRI content index

102 General Disclosures

GRI reference number	Disclosure title	Location of content		
		Sustainability Report 2019	Annual Report 2019	Other
Organizational profile				
102-1	Name of the organization	Landing page		
102-2	Activities, brands, products, and services	Our Corporation		
102-3	Location of headquarters	Worldwide presence		
102-4	Location of operations	Worldwide presence		
102-5	Ownership and legal form		Organization of GF GF share and shareholders	
102-6	Markets served	Our Corporation		
102-7	Scale of the organization	Worldwide presence	Key figures 2019	
102-8	Information on employees and other workers	Our people Social performance indicators	Key figures 2019	
102-9	Supply chain	Value Chain Procurement and logistics		
102-10	Significant changes to the organization and its supply chain		Georg Fischer Ltd statement of changes in equity 4. Corporate Structure	Media release regarding divestment of GF Casting Solutions
102-11	Precautionary principle or approach	Business conduct Topics of material importance		
102-12	External initiatives	Value Chain CDP Climate Change CDP Water Security		UN Global Compact CDP
102-13	Membership of associations			UN Global Compact
Strategy				

102-14	CEO statement	Message from the CEO	
	Ethics and integrity		
102-16	Values, principles, standards, and norms of behavior	Business conduct	Values Code of Conduct
	Governance		
102-18	Governance structure	Governance bodies	
	Stakeholder engagement		
102-40	List of stakeholder groups	Our stakeholders	Our stakeholders
102-41	Collective bargaining agreements	Employee representation	
102-42	Identifying and selecting stakeholders	Value Chain	
102-43	Approach to stakeholder engagement	Our stakeholders	
		Topics of material importance	
102-44	Key topics and concerns raised	Topics of material importance	
		Stakeholder dialogue	
		Employee satisfaction	
	Reporting practice		
102-45	Entities included in the consolidated financial statements	Scope of data collection and reporting	Scope and principles of consolidation
102-46	Defining report content and topic boundaries	Topics of material importance	
102-47	List of material topics	Topics of material importance	
102-48	Restatements of information	Scope of data collection and reporting	
102-49	Changes in reporting	Topics of material importance	
		Scope of data collection and reporting	
102-50	Reporting period	Disclosure information	
102-51	Date of most recent report		Short version – GF Sustainability Report 2018 Comprehensive version – GF Sustainability Report 2017
102-52	Reporting cycle	Reporting cycle	
102-53	Contact point	Contacts	
102-54	Claims of reporting in accordance with the GRI Standards	Disclosure information	
102-55	GRI content index	GRI content index	
102-56	External assurance	External assurance	
		External assurance	

200 Economic Topics

GRI reference number	Disclosure title	Location of content		
		Sustainability Report 2019	Annual Report 2019	Other
Economic performance				
103-1/2/3	Management approach disclosures	Message from the CEO	Letter to the shareholders	
201-1	Direct economic value generated and distributed	Key figures 2019	Georg Fischer Ltd income statement	
		Economic performance indications	1.5 Income taxes	
			Key figures 2019	
Indirect economic impacts				
103-1/2/3	Management approach disclosures	Value Chain		
203-1	Infrastructure investments and services supported	GF's contribution to SDG 6		
		Clean water foundation		
Anti-corruption				
103-1/2/3	Management approach disclosures	Value Chain		
		Good governance		
205-2	Communication and training about anti-corruption policies and procedures	Corporate Compliance		
Anti-competitive behavior				
103-1/2/3	Management approach disclosures	Good governance		
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices		Internal Audit and Corporate Governance	

300 Environmental Topics

GRI reference number	Disclosure title	Location of content		
		Sustainability Report 2019	Annual Report 2019	Other
Materials				
103-1/2/3	Management approach disclosures	Topics of material importance subpoint industrial ecology Waste and circular economy		
301-1	Materials used by weight or volume ¹			
Energy				
103-1/2/3	Management approach disclosures	Sustainability in our own operations Environment and Energy Sustainability Targets 2020 - our progress		
302-1	Energy consumption within the organization	Energy consumption Key figures 2019 Sustainability Targets 2020 - our progress Environmental performance indicators		
302-3	Energy intensity ²	Target achievement energy efficiency Key figures 2019 Sustainability Targets 2020 - our progress Environmental performance indicators		
302-4	Reduction of energy consumption	Energy consumption Key figures 2019 Sustainability Targets 2020 - our progress Environmental performance indicators		
Water				
103-1/2/3	Management approach disclosures	Sustainability in our own operations Water consumption Sustainability Targets 2020 - our progress		
303-1	Water withdrawal by source	Environmental performance indicators		
Emissions				
103-1/2/3	Management approach disclosures	Sustainability in our own operations		

		Emissions	
		Sustainability Targets	
		2020 - our progress	
305-1	Direct (Scope 1) GHG emissions	Emissions	
		Environmental	
		performance indicators	
305-2	Energy indirect (Scope 2) GHG emissions	Emissions	
		Environmental	
		performance indicators	
305-3	Other indirect (Scope 3) GHG emissions	Emissions	
		Environmental	
		performance indicators	
305-4	GHG emissions intensity	Key figures 2019	
		Target achievement CO ₂ e	
		emissions	
		Sustainability Targets	
		2020 - our progress	
		Environmental	
		performance indicators	
305-5	Reduction of GHG emissions	Key figures 2019	
		Sustainability Targets	
		2020 - our progress	
		Emissions	
		Environmental	
		performance indicators	
305-7	Nitrogen oxides (NO _x), sulfur oxides (SO _x), and other significant air emissions	Environmental	
		performance indicators	
		Effluents and waste	
103-1/2/3	Management approach disclosures	Sustainability in our own operations	
		Water consumption	
		Waste and circular economy	
		Sustainability Targets	
		2020 - our progress	
306-1	Water discharge by quality and destination	Environmental	
		performance indicators	
306-2	Waste by type and disposal method ³	Waste and circular economy	
		Environmental	
		performance indicators	
		Environmental compliance	
103-1/2/3	Management approach disclosures	Sustainability in our own operations	
		Good governance	
307-1	Non-compliance with environmental laws and regulations ⁴		
		Supplier environmental assessment	
103-1/2/3	Management approach disclosures	Value Chain	
		Procurement and logistics	
308-1	New suppliers that were screened using environmental criteria	Sustainability Targets	
		2020 - our progress	

- ¹ **Omission** No comprehensive information is available at this point in regard to the total weight or volume of materials that are used to produce and package GF's primary products during the reporting period. The topic will be included in the environmental data collection process.
- ² **Comment** As per defined Sustainability Targets 2020, GF sets the goal to increase energy efficiency. The calculation thereof is a direct inverse of that for energy intensity.
- ³ **Comment** The types of waste disposal used by GF sites are indicated in the breakdown provided within the "Environmental performance indicators" table. No other disposal methods are applicable. The information on waste disposal methods is collected from and provided to the sites by waste disposal contractors.
- ⁴ **Omission** To the best of our knowledge, no incidents of non-compliance with environmental laws or regulations took place during the reporting period

400 Social Topics

GRI reference number	Disclosure title	Location of content		
		Sustainability Report 2019	Annual Report 2019	Other
Employment				
103-1/2/3	Management approach disclosures	Our stakeholders Employees and society Sustainability Targets 2020 - our progress		
401-1	New employee hires and employee turnover	Employee satisfaction Social performance indicators		
401-3	Parental leave ¹	Diversity and flexibility		
Occupational Health and Safety				
103-1/2/3	Management approach disclosures	Health and safety in the workplace Sustainability Targets 2020 - our progress		
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Health and safety in the workplace Employee well-being and absence rate		
Training and education				
103-1/2/3	Management approach disclosures	Training and professional development Sustainability Targets 2020 - our progress GF's contribution to SDG 4		
404-2	Programs for upgrading employee skills and transition assistance programs	Training and professional development		
Diversity and equal opportunity				
103-1/2/3	Management approach disclosures	Diversity and flexibility		
405-1	Diversity of governance bodies and employees ²	Social performance indicators		
Non-discrimination				
103-1/2/3	Management approach disclosures	Diversity and flexibility		Code of Conduct
406-1	Incidents of discrimination and corrective actions taken	Social performance indicators		
Freedom of association and collective bargaining				
103-1/2/3	Management approach disclosures	Employee representation		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Sustainability Targets 2020 - our progress Employee representation		
Human rights assessment				
103-1/2/3	Management approach disclosures	Value Chain		

		Business conduct	
412-1	Operations that have been subject to human rights reviews or impact assessments ⁴		Internal Audit
	Supplier social assessment		
103-1/2/3	Management approach disclosures	Value Chain	
		Sustainability Targets	
		2020 - our progress	
414-2	Negative social impacts in the supply chain and actions taken	Procurement and logistics	
	Public policy		
103-1/2/3	Management approach disclosures	Our stakeholders	
415-1	Political contributions	Public policy	
	Customer health and safety		
103-1/2/3	Management approach disclosures	Product service information and labeling	
416-1	Assessment of the health and safety impacts of product and service categories ⁵	Product service information and labeling	
	Marketing and labeling		
103-1/2/3	Management approach disclosures	Product service information and labeling	
417-1	Requirements for product and service information and labeling	Product service information and labeling	
	Socioeconomic compliance		
103-1/2/3	Management approach disclosures	Value Chain	
		Business conduct	
419-1	Non-compliance with laws and regulations in the social and economic area ⁶		

¹ **Omission** Information is not available for all the countries where GF operates. In the future, the data collection process will be expanded.

² **Omission** Breakdown of governance bodies and employees by age group is not available at this point in time.

³ **Comment** One workplace incident, which was amicably resolved with the help of an external mediator.

⁴ **Omission** Human rights topics are included in internal audit procedures at individual locations. The selection of these locations is based on systematic and disciplined risk assessments in internal auditing. Details on the specific locations cannot be disclosed due to the underlying confidentiality as required by the internal audit charter.

⁵ **Omission** Information on the exact percentage of significant product and service categories assessed for health and safety impacts is currently unavailable.

⁶ **Omission** To the best of our knowledge, no incidents of non-compliance with laws and regulations in the social and economic area took place during the reporting period. GF does not disclose any details on its commercial litigation as a matter of internal policy, and in line with the applicable laws. GF can, however, confirm that no fines or non-monetary sanctions have been imposed on GF in 2019.

Georg Fischer AG

Schaffhausen

Independent Limited Assurance Report on the selected data and information of Georg Fischer Sustainability Report 2019

to the Board of Directors



Independent Limited Assurance Report

on the selected data and information of Georg Fischer Sustainability Report 2019

To the Board of Directors of Georg Fischer Ltd, Schaffhausen

We have been engaged to perform assurance procedures to provide limited assurance on the selected data and information of the 2019 Sustainability Reporting of Georg Fischer Ltd, Schaffhausen and its consolidated subsidiaries ("Georg Fischer Corporation") published in the Sustainability Report 2019.

Scope and subject matter

Our limited assurance engagement focused on the selected data and information disclosed in the Sustainability Report of Georg Fischer Corporation for the year ended on 31 December 2019:

- Selected sustainability indicators: 'GHG emissions – Scope 1' on page 86, 'GHG emissions – Scope 2 – location-based' on page 86, 'GHG emissions – Scope 2 – market-based' on page 86, 'GHG emission intensity index' on page 86, 'Total water consumption' on page 87, 'Total waste' on page 87, 'Hazardous waste' on page 87, 'Accident rate' on page 85, 'Fatalities – work-related' on page 85, 'Total Employee fluctuation' on page 84;
- The management and reporting processes to collect and aggregate the data as well as the control environment in relation to the data aggregation of these sustainability indicators.

The information covering the reporting period other than the year ended on 31 December 2019 where verified by another firm.

Criteria

The management reporting processes with respect to the sustainability reporting process and sustainability indicators were prepared by Georg Fischer Corporation based on the Georg Fischer sustainability reporting guidelines in accordance with the 'GRI Standards' published in October 2016 by the Global Reporting Initiative and on the Greenhouse Gas Protocol Initiative of the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) (hereafter referred to as the 'suitable Criteria').

Inherent limitations

The accuracy and completeness of sustainability indicators are subject to inherent limitations given their nature and methods for determining, calculating and estimating such data. In addition, the quantification of the GHG emissions is subject to inherent uncertainty because of incomplete scientific knowledge used to determine GHG emission factors and the values needed to combine e.g. emissions of different gases. Our assurance report should therefore be read in connection with Georg Fischer's guidelines, definitions and procedures on the sustainability reporting and the suitable Criteria.

Georg Fischer's responsibility

The Board of Directors of Georg Fischer Ltd is responsible for both the subject matter and the suitable Criteria as well as for the selection, preparation and presentation of the selected data and information in accordance with the suitable Criteria. This responsibility includes the design, implementation and maintenance of related internal control relevant to this reporting process that is free from material misstatement, whether due to fraud or error.

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Our independence and quality controls

We are independent of the Georg Fischer Corporation in accordance with the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants (IESBA Code) that are relevant to our audit of the financial statements and other assurance engagements in Switzerland. We have fulfilled our other ethical responsibilities in accordance with the IESBA Code.

Our firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our responsibility

Our responsibility is to express a limited assurance conclusion on whether anything has come to our attention to indicate that the identified sustainability indicators selected and contained in this report are not stated, in all material respects, in accordance with the suitable Criteria.

We planned and performed our procedures in accordance with the International Standard on Assurance Engagements (ISAE 3000) (Revised) 'Assurance engagements other than audits or reviews of historical financial information', and, in respect of greenhouse gas emissions, with the International Standard on Assurance Engagements (ISAE 3410) 'Assurance Engagements on Greenhouse Gas Statements'. These standards require that we plan and perform the assurance engagement to obtain limited assurance on the identified sustainability information prepared, in all material aspects, in accordance with Georg Fischer's internal policies and procedures.

A limited assurance engagement under ISAE 3000 (Revised) and ISAE 3410 is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks. Consequently, the nature, timing and extent of procedures for gathering sufficient appropriate evidence are deliberately limited relative to a reasonable assurance engagement and therefore less assurance is obtained with a limited assurance engagement than for a reasonable assurance engagement. The procedures selected depend on the assurance practitioner's judgement.

Summary of the work performed

Our assurance procedures included, amongst others, the following work:

- *Evaluation of the application of Corporation guidelines*
Reviewing the application of the Georg Fischer Corporation internal sustainability reporting guidelines;
- *Site visit and management inquiry*
Remote site visit procedures at Georg Fischer Casting Solutions Kunshan and Georg Fischer Piping Systems Shanghai in China. The selection was based on quantitative and qualitative criteria;
Interviewing personnel responsible for internal reporting and data collection at the site and at the Georg Fischer Corporate level;
- *Assessment of the key figures*
Performing tests on a sample basis of the evidence supporting selected sustainability indicators regarding their completeness, accuracy, adequacy and consistency;
- *Review of documentation and analysis of relevant policies and principles*
Reviewing relevant documentation on a sample basis, including Georg Fischer Corporation sustainability policies, management of reporting structures and documentation.

We have not carried out any work on data other than outlined in the scope and subject matter section as defined above. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our assurance conclusions.

Conclusion

Based on our work performed nothing has come to our attention causing us to believe that in all material respects:

- a) The sustainability indicators on page 84 to 87 in the Sustainability Report 2019 of Georg Fischer Corporation and marked with a footnote '2019 PwC assured' are not stated in accordance with suitable Criteria; and

- b) The management of reporting processes with respect to the Sustainability Report and the preparation of sustainability indicators as well as the related control environment in relation to data aggregation of these key performance indicators are not implemented as designed.

PricewaterhouseCoopers AG



Stephan Hirschi

Konstantin Meier

Zurich, 18 June, 2020

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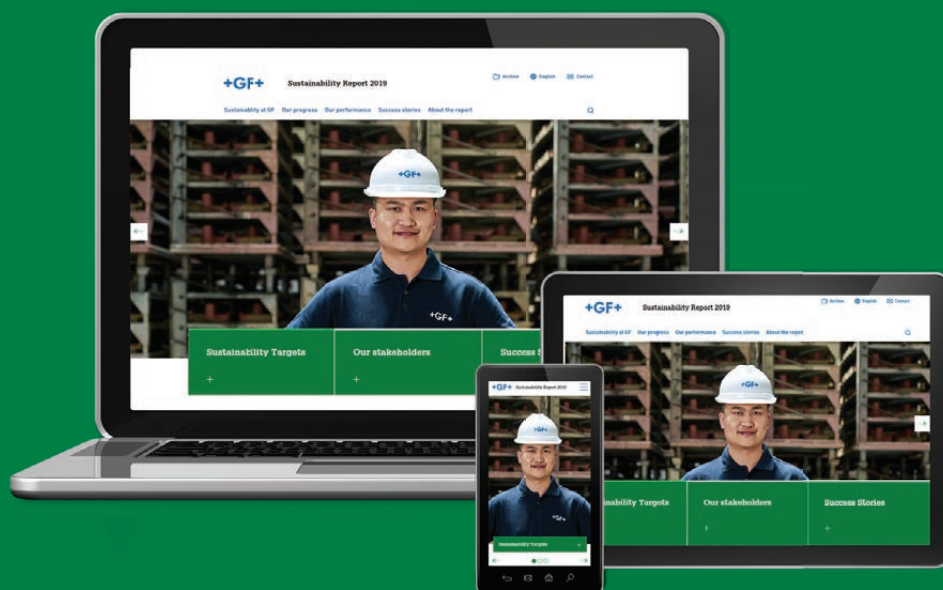
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Online Sustainability Report 2019

Find out more about GF's sustainability targets, progress and performance at sustainability-report.georgfischer.com/19/en



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Disclaimer

The statements in this publication relating to matters that are not historical facts are forward-looking statements that are not guarantees of future performance and involve risks, uncertainties, and other factors beyond the control of the company.

The Sustainability Report 2019 of GF is also available in German. In the event of any discrepancy, the English version shall prevail.

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