

Sustainability Report 2020/2021

GROSCHOPP 
Drives & More
Nachhaltigkeit durch Qualität

Thinking Today
For Tomorrow



This report provides information about current and planned activities in respect of sustainability in our production locations and subsidiaries in Europe and Asia.

All quantitative information presented relate to every company-owned production location. Operating figures were compiled for the years 2020 and 2021.

This report is available in both German and English.

The masculine form is exclusively used for the reason of legibility. However, the information given is understood to include all gender identities.



NingboGeShuo Motors Co., Ltd.



Foreword from the CEO

Dear Reader,

the years 2020/2021 were not just for our company but also for every individual extremely difficult. These years were affected by specific challenges, and we had to learn to adjust to new social and economic targets during the SARS-CoV-2-pandemic period. Yet, we did not allow ourselves to neglect the importance of Sustainability for by now it is a priority objective in society and economics, as well as in the political sphere.

We, supported by our staff, have worked together in close cooperation even during these difficult times and have made progress in sustainability. However, this does not mean that we can rest on our laurels, for a lot more work is still to be done. One of our major goals is to improve our present carbon footprint. Our highly motivated staff is engaged in entrepreneurial responsibility, and it is a matter of course for them to be mindful in using resources not only for the processing of projects but also for any other activity during their daily work.

We also aim to create a more transparent global supply chain. Coherent sourcing standards and guidelines for our suppliers have been issued. Our motto “Sustainability through Quality” not only vouches for quality and supply assurance but also guarantees fair wages for all employed along the supply chain.

Let us confront and tackle all tasks involved in a united effort.

Viersen, January 2022

Wolfgang Pflug

-CEO-

Groschopp at a glance

1948: EMW Elektromotoren-Feinbauwerk Groschopp & Co. GmbH
begins with the production of electric motors

2000: Groschopp becomes AG and trades under
Groschopp AG -Drives & More-
Founding of Groschopp BV, Netherlands



2002: Founding of Gesellschaft Groschopp SARL, France

2006: Founding of Ningbo Geluoshi Sai Nuo, China as a trading company

2007: Founding of Ningbo Geshuo Co. Ltd., China as a manufacturing plant
for serial production



2008: Founding of Groschopp Vertriebsgesellschaft mbH, Viersen



2011: Joining Global Compact

2016: Founding of Groschopp Systems Solutions, Serbia



Groschopp at a glance

Main factory and headquarters of Groschopp AG in Viersen

with approx.

100

employees

Turnover 2020 in TEUR

19.500

from

16

nations



Our subsidiary in China

with approx.

70

employees

Turnover 2020 in TEUR

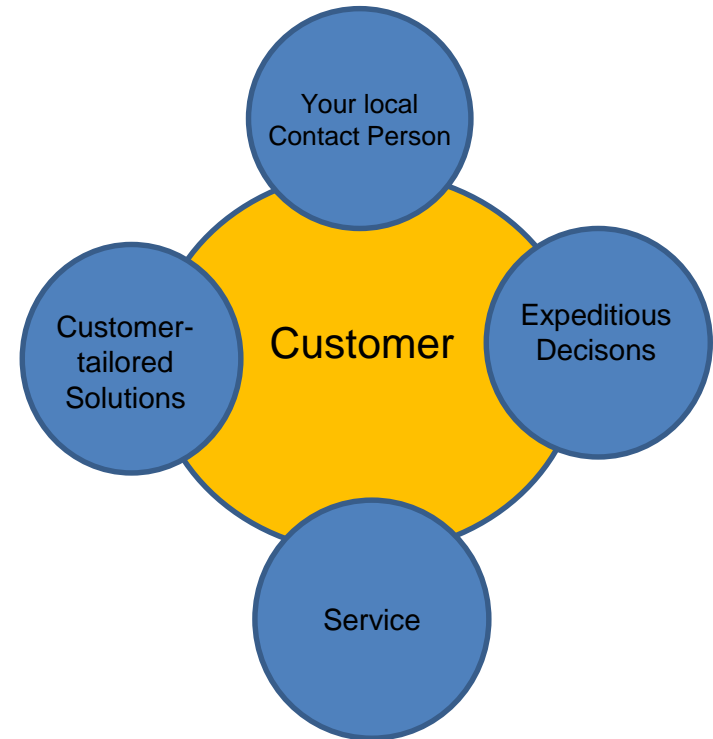
13.500



The company Groschopp AG is a leading supplier in the area of electric drive technology.

Business activities comprise research and development, manufacturing and sales of innovative motors, reducer gears and controllers. The company offers not only customer-tailored drive solutions but also ensures that, in providing innovative drive-system solutions, customer applications are made safer and more sustainable.

The future-oriented company Groschopp AG considers inhouse research and development the bedrock for market success. A specialized team, comprising qualified staff members from our R&D department, design, production and sales, provides the base for the success of new, innovative and customer-tailored products by considering each problem in-depth. They are also in collaboration with customers at all times.



Our customers are entitled to superior service, that is why our company sets the bar quite high regarding consultation and service. Reliable support is given as a matter of course.

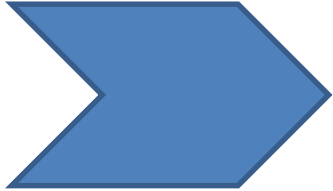
The use of durable components is of primary importance as it guarantees a minimum of repair and increased economic efficiency.

Should customers return motors under warranty, our motto „Repair, don't discard!“ still prevails. Naturally, we offer our support in such cases and, together with our customers, try to find solutions.

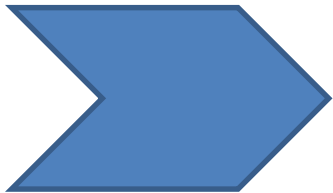
We are available at all times for our customers and their requests.

SERVICE

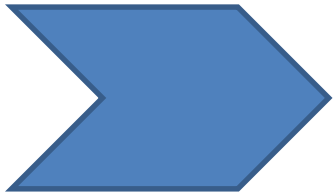




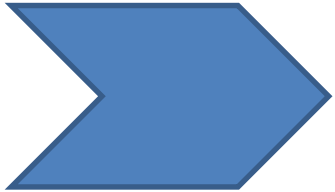
We “live” sustainability, thus creating additional value



We are responsible for the entire supply chain



We are responsible for all our staff members



Innovation



Future-oriented



Operating figures



Environmental objectives

Additional value through Sustainability

We aim to strengthen the sustainability of our company by producing durable drive systems and by using all resources with utmost care.

“Sustainability through Quality” has a significant value for Groschopp AG. We are aware that the basic global climatic conditions are changing, the consequences of which we all have to deal with. It places the onus on us to concentrate on resource-saving production and durable products. We are also aware that the basic conditions left behind for the next generations depend to large extent on our decisions made at this present time.

Superior quality and longevity are core values for us in developing new products. Each drive system must function optimally even under extreme conditions, and it must be able to withstand the most severe loads. Every product must be flexibly adaptable to fit various customer applications. We are in a position to evaluate and re-design prototypes and other new ideas under controlled conditions and, thus, find the most economical and most efficient drive solution.



These are preconditions in achieving customer satisfaction and guaranteeing sustainable success for our company.

We attach high value to the repairability of our drives so we can guarantee that all resources are optimally utilised.

Additional value through Sustainability

The company Groschopp AG systematically integrates all aspects of sustainability in their business strategy. Natural resources and susceptibility of the earth for hazardous substances are finite. That is why sustained development aims to use all finite resources in a future-oriented and responsible manner, and these points are a fixed part of our business strategy. A large part of the total energy used by the company Groschopp AG is provided by CO₂-optimized energy sources.

A combined heat and power plant (BHKW) to improve the company's energy efficiency in a sustained way was installed in 2015. A second combined heat and power plant (BHKW) was installed in 2020. Required energy demands are regularly analysed by us.

With our motto “Sustainability through Quality”, we have created obligatory guidelines for ethical and responsible behaviour for all employed in our company.

We have joined Global Compact in 2011 and have pledged to adhere to their 10 principles to the full extent. Progress reports reflect activities of the previous year.



Electric mobility offers an important means for an environmental-friendly future. Using electrically driven vehicles avoids significant amounts of CO₂ in particular in connection with regeneratively generated electricity. That is why we, in collaboration with research institutions and other medium-sized companies, have joined research projects in connection with E-Mobility to contribute our share for a CO₂-neutral future.

Project ESKAM:

Scalable axial drive modules for electro-mobility.

This project is government-funded by the German Federal Ministry of Research and Technology (BMFT).



Project Muffel:

A platform of intelligent electric drives for multi-functional vehicles.

This project is government-funded by the German Federal Ministry of Research and Technology (BMFT).



Our responsibility along the entire supply chain

Our objective is to strengthen through transparency our global supply chain.

Therefore, uniform procurement standards and guidelines have been issued for all our suppliers, and they are monitored and controlled continuously for their adherence. Quality and strict adherence to delivery dates must be guaranteed, as well as appropriate remuneration for all employed along the supply chain.



Our responsibility along the entire supply chain

Our company has adopted a Code of Conduct, guaranteeing the fundamental basis for the humane treatment of all employees along the entire supply chain.



Adherence by all to the given guidelines of, as well as everyone identifying himself with, the “Code of Conduct” is a precondition for a smooth and excellent supplier-customer-relation, as well as guaranteeing a trustworthy association within the company.

Our responsibility along the entire supply chain

Globalization has led many companies to produce and procure worldwide. Thus, the supply chain dictates in various forms not just the economy, but also environmental and working conditions in many nations across the globe. However, not every nation are treating the environmental and social standards as scrupulous as expected.

The company has issued a Code of Conduct for suppliers. In this Code of Conduct, our fundamental values and guiding principles are formulated to avoid any malpractice of sustainability.

In cooperation with our business partners we regularly check adherence to them:

- Prohibition of corruption and bribe
- Respect for the basic rights of the employees
- Health and safety of the employees
- Appropriate and fair remuneration
- Prohibition of child labour
- Environmental protection
- Prohibition to use any conflicting material

Our contract partners are yearly audited whether they adhere to the above. We procure raw materials and components only from companies that strictly adhere to the Code of Conduct as a matter of principle. All suppliers commit themselves to guarantee full adherence to all principles and demands of the

Our responsibility along the entire supply chain

Code of Conduct, and any defiance results in a warning or may even lead to cancellation of the business contract.

We create transparent supply chains wherever possible to enable us to react rapidly in the event of trouble. Transparency in the supply chain helps to speedily identify any weak points.

That is why a company-owned subsidiary was established in Asia which produces components for our drives and which are subsequently used by us to complete drive units. Thus, we trim down our supply chain while at the same time increasing efficiency and effectiveness of processes, and by our engagement, we contribute to a sustained procurement.



Our responsibility for our employees



Our target: A motivated and engaged team.

We offer our staff a challenging environment and support personal commitment and independent working behaviour. Thus, we create a motivated and engaged team within an effective working milieu which, through their individual experiences, contributes significantly to the success of our company. Our teamwork is based on trust and a frank communication interchange.

There are 16 different nationalities present in our team. We strengthen the team by respecting diversity, cultural background and equal opportunity, and we value equally all employees.

Professional life is subject to continual change. Our employees are the bedrock of our success, that is why we further their initial qualification in a steady process. We are providing support and fostering all necessary qualifications to meet today's demands on our products.

Our responsibility for our employees

We invigorate our employee's self-value through a structured process for the duty of care as well as by employing an active safety-at-work- and health care management. This process also supports the needs of the individual. These are enduring success factors in our company.

Mobile working plays a central role during the pandemic for it safeguards maintaining work activities and at the same time curtailing contacts and minimizing health risks. Mobile working will gain in importance in our company. We have come to realize that our employees were able to improve their lifestyle by flexibly working, and we fully support this.



We avoid any hazards as a matter of principle and do everything in our power to guarantee the protection of all our employees. We implement all presently known measures for the prevention of workplace accidents, occupational illness and other impairments. Our employees fully support these provisions.

Our aim: We do not intend to change the world, but to enrich it.

We offer our customers through innovative drive solutions system application possibilities which are economical, safe and long-lasting.

In conjunction with technical universities and industrial partners, we create projects and realize technical and progressive components which are implemented in future-oriented products.



Projekt: Heat-Power-Converter (HPC)

Development of a system-integrated HPC for the improvement of the overall power efficiency of MOVE-power-heat-cogeneration (KWKA).

The project *Heat-Power* was founded in 2019 in cooperation with the company Move Services GmbH and the research facility OWI Science4Fuels gGmbH, Aachen

Technologies for improving the reliable provision of heat and electricity in the private as well as commercial sectors become more and more important and are now one of the main primary concerns of energy supply in Europe.

Combined heat and power plants (BHKW) are an environmental-friendly and economical alternative to separately generated electricity and heat. The Power-Heat-coupling (KWK) provides an important contribution to the efficient use of energy. At the same time, it minimises environmental stress and reduces energy costs. “Use energy once and profit twice” – this is the principle of Power-Heat-coupling. The combination of KWK and Solar energy in particular provides an outstandingly efficient synthesis for KWK are rather suboptimal in summer, as is Solar energy during winter. Combining the two, however, makes this a real model of success and its practice offers enormous potential for environmental protection and the preservation of resources. It is for Groschopp a matter of course to continually improve the efficiency of all energy supplies.

Due to increasing demands, in particular, imposed by political requirements, on energy efficiency a lowering of area-related heating demands can be expected, and owing to progressive improvements in building insulation it can be assumed that, to gain electrical energy and heat as efficiently as possible, soon hybrid- and small-sized-drive systems will win the day compared to monovalent systems.

The aspired degree of integration follows suit with this trend of downsizing. Improvements in energy efficiency in buildings shift the demand more towards electricity of the coupled generation of thermal and electrical energy.

Compared to the wind- or solar energy, combined heat and power plants (BHKW) generate heat and controllable electricity independent of time and weather, by which they can minimise the residual load of a steadily increasing volatile electricity supply and, thus, can show a network-beneficial operating mode even from conventional BHKW-configurations.

In this research project, a thermochemical recuperator is integrated within the motor system to increase the overall efficiency of BHKW's and its economic viability. The operating range of a BHKW is extended by retrofitting a BHKW with a thermochemical recuperator, for its power-to-heat ratio can be adjusted within a wider range via the variable recuperation of the exhaust-gas heat.

In all of this, the conversion of technically usable energy forms like thermal and chemical energy is the main focus. In addition to it, the major part of the exhaust heat is utilised as available heat.

The objective of this project is to develop a highly efficient BHKW by integrating a thermochemical recuperator.

The development of an additional power unit for increasing the overall synergy efficiency of the BHKW is expedited to generate a product ready for serial production. Such innovation will result in a considerable decrease in CO₂ emission due to its increase in efficiency of KWK-technology.

The HPC project is supposed to facilitate the economic integration of the additional component and its potential series producibility which apparently promises for a KWK-unit of 50 kW electric output a reduction in the envisaged repayment period.

The HPC project aims to reduce the fixed-step costs for all individual aggregates of a highly-integrated and bivalent energy system of a building. In addition, we like to contribute towards achieving the climate target in Germany. Climate change mitigation and energy transition concern all of us, not just the energy sector. Financing, in the past reserved solely for greater central units, by following the technology of the EnEV-trend to be developed, should now become economically available also for smaller units.



EUROPÄISCHE UNION
Investition in unsere Zukunft
Europäischer Fonds
für regionale Entwicklung

Ministerium für Wirtschaft, Innovation,
Digitalisierung und Energie
des Landes Nordrhein-Westfalen



2014

EFRE.NRW
Investitionen in Wachstum
und Beschäftigung

Das Forschungsprojekt wird gefördert mit Zuwendungen des Landes Nordrhein-Westfalen unter Einsatz von Mitteln aus dem europäischen Fonds für regionale Entwicklung (EFRE) „Investition in Wachstum und Beschäftigung“.

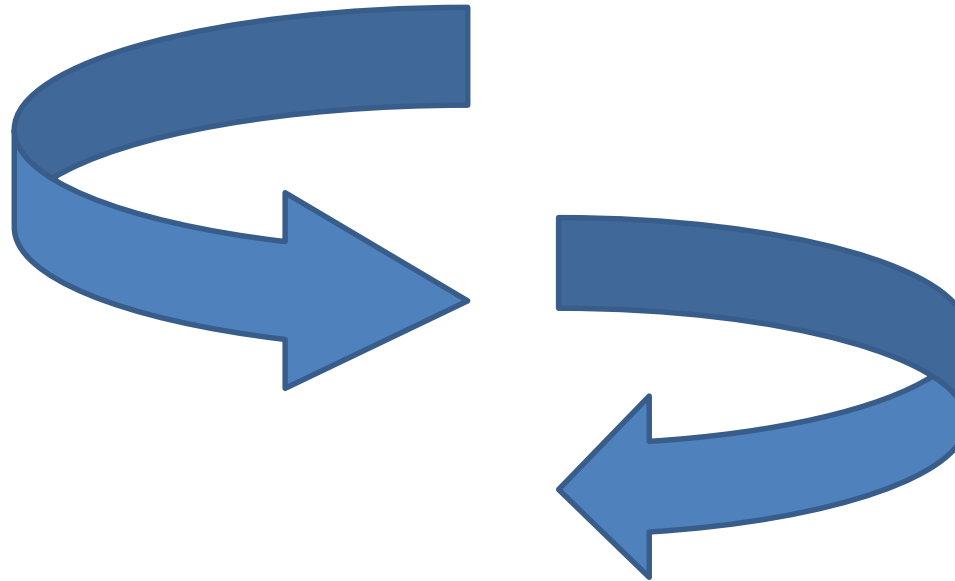
We are looking ahead

We are focussing on the future with our participation in various research projects. Our motto is: “Discovering trends and developments.” We always seek to have a dialogue with our respective partners who are, like us, think forward-looking and, at the same time, think sustainably. We want to contribute our share and use any opportunity to realise any long-lasting innovation potential with new projects and products which can pave the way forward to guarantee an extended and liveable future.



Information and results from appraisals of environmental operating figures from 2020 through 2021:

Environmental operating figures are regularly compiled and evaluated at our facilities.
All results are archived, and they are scrutinized and checked in governmental audits.



Operating Figures

Waste balance shows an encouraging trend, both in Europe and Asia. The entire disposal of waste was slightly reduced compared to the previous year:

Non-recyclable	1990:	100,00 t
Recyclable	1990:	87,00 t
Non-recyclable	2020:	50,86 t
Recyclable	2020:	38,00 t
Non-recyclable	2021:	42,30 t
Recyclable	2021:	45,81 t



This means a reduction of the non-recyclable waste from 16.83% in 2021 compared to the year 2020 and a reduction of more than 55% compared to 1990.

The recycled waste increased in 2021 compared to 2020 by 20,5%. Compared to 1990, there was a reduction of just under 50%.



Operating Figures

Consumption data for gas and electricity were identified as follows :

2020:

Gas usage: 3.136.885 kWh

Electricity consumption: 648.342 kWh

CO₂-balance: 639 t

1990:

Gas usage: 2.974.601 kWh

Electricity consumption: 2.055.205 kWh

CO₂-balance: 2.165 t

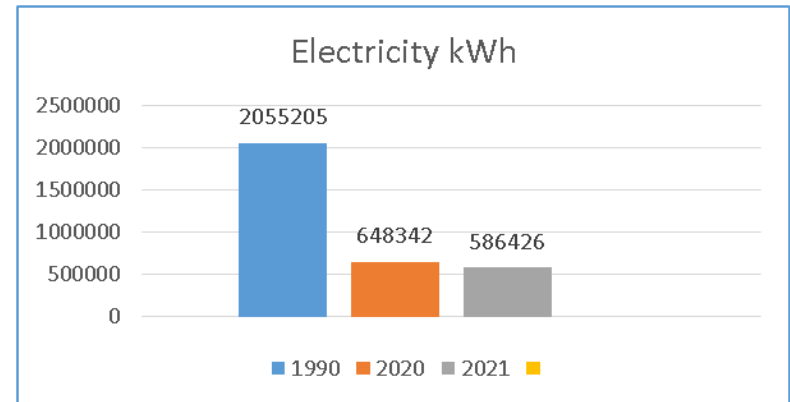
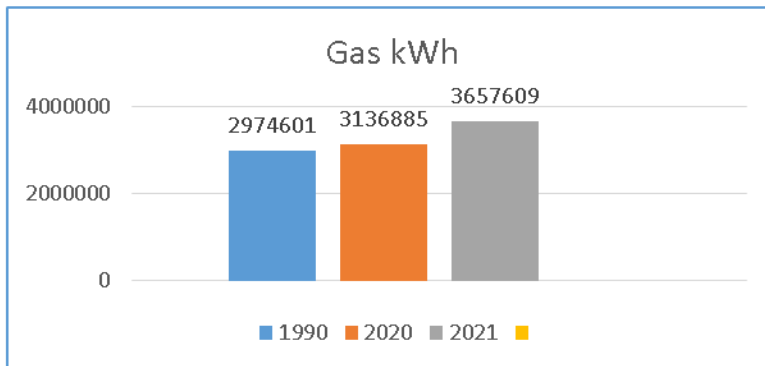
2021:

Gas usage: 3.657.609 kWh

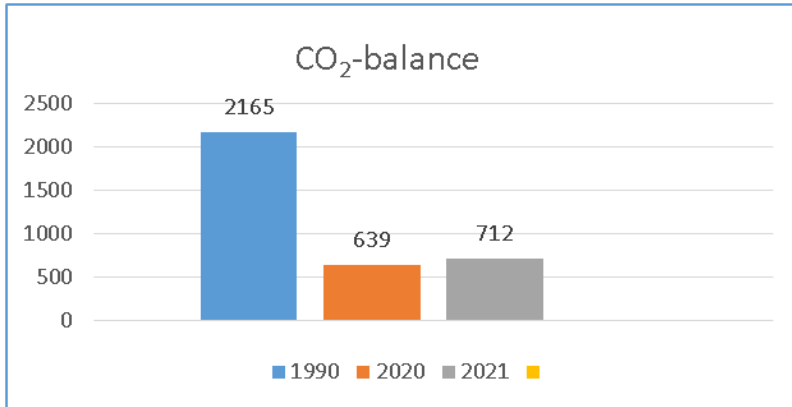
Electricity consumption: 586.426 kWh

Surplus electricity : 52.437 kW

CO₂-balance: 712 t



Based on the German government's 2021 climate change amendment, Groschopp's CO₂ target for 2030 is 755 t



Through the operation of now two combined heat and power plants (BHKW) the parent company in Viersen itself generates approximately 100% of its electric power consumption (550.000 kW). Surplus electricity generated was fed back into the network (52.437 kW), available for use by third parties.

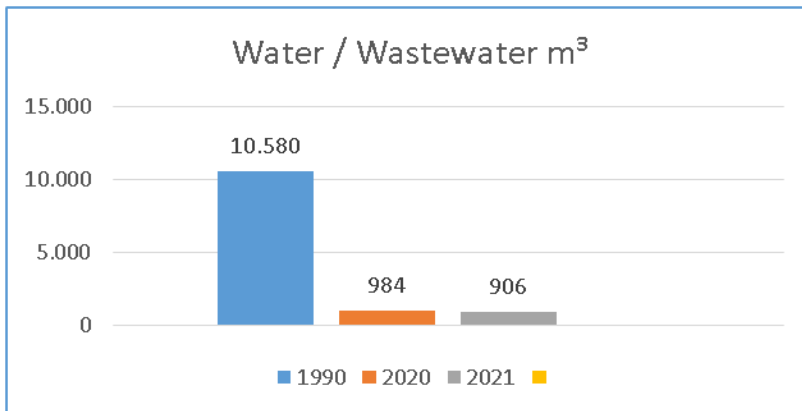
In this way, we are already 2% points below the value specified by the German government's climate amendment of 24.06.2021. A good starting position for a CO₂-reduced world.

Consumption data for water and waste water were identified as follows:

2020: 984 m³

1990: 10.580 m³

2021: 906 m³



We ensure that all environmentally relevant aspects within the framework of our business operation are identified, evaluated and, if necessary, documented through appropriate, preventive and monitoring actions.

Company bicycles were introduced to avoid taking the car for short distances



Company cars are constantly replaced with those of the newest manufacturing date and they are equipped with the most modern exhaust fumes technology. New Diesel vehicles are invested in having exhaust emission standard 6d.



More and more returnable packaging is used between the companies in Asia and Europe so that less waste of packaging material is generated.



Existing lighting technology was replaced by LED technology for all companies worldwide

We plan to continually reduce the presently existing ecological impact by using varied procedures for the protection of climate and the environment.

The Board of Management takes their responsibility in the area of environmental quite seriously and and considers it an urgent challenge to further improve these and support all necessary activities.

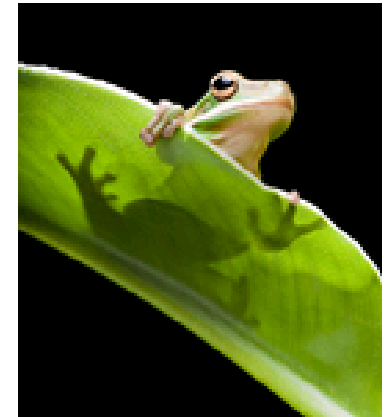
We take precautions in respect of environment risks and we have implemented an overarching emergency- and incident management. Comprehensive protective provisions are realised for the protection of persons in the event of an accident. We monitor systematically all emissions in the areas of air, noise, water and land, and we take measures according to the best available technology to reduce emissions as well as for the protection of the environment. We use our working material and energy target-oriented and efficiently, and we endeavour to apply environmental-friendly products and processes as much as possible.

Our ecological footprint is an indicator for any still extant deficiencies. That is why sustainable thinking and acting is Indispensable.



We ensure

- that all environmentally relevant aspects are within the framework of business operations identified, evaluated and further reduced using appropriate processes and measures
- that furthermore every piece of environmentally relevant equipment is made known and recorded and that it is verifiably operated and monitored according to specification.
- that courses for staff members are held in respect of these aspects and that all staff members remain vigilant in matters of envionmental protection.
- that an even further reduction of annual residual waste is achieved through sensitizing our staff in respect of waste separation.
- new investment in boilers with a considerably better efficiency factor
- new investment in compressors with a considerably better efficiency factor
- a further reduction on consumption data for electricity, water/wastewater and gas



Company details

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Turnover tax-Identification Number according to § 27a USt-law: DE 812 982 657

Further information under www.groschopp.de