

Sustainability Report 2018 / 2019



GROSCHOPP 

Drives & More

Report profile

The company Groschopp presents its first sustainability report. It is addressed to all business partners and employees.

The report gives information about current and planned activities and topics about sustainability in our parent company and our Asian subsidiary.

Quantitative information is about every company-owned production location. All operating figures were compiled during last year and include every business domain. The cut-off date was 31.08.2019. Subsequent findings are incorporated in the sustainability report for the coming year.

This report is available in both German and English.

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

Groschopp AG, parent company, Viersen
GSM Geshuo Motors, Ningbo/China

Foreward from the CEO

Dear Readers,

We strive for a future which offers a healthy and balanced lifestyle for all. We are very concerned about the current climate pollution, especially in light of the increasing world population. This indicates an increase in consumption. Yet, our world resources are finite.

Sustainability, therefore, means for the company Groschopp AG to make a change now for future generations. Hence, it is our business strategy to 'live sustainability' as best we can. We hope to do this by applying our influence in respect of economical, ecological and social aspects, and by integrating these points in our business culture. We have explained the importance of this to all staff members so that they are enabled to help us with innovative ideas, products and solutions in daily work processes to guarantee the implementation of these objectives. Despite all efforts, we know that there is much to do to achieve all our objectives. Continuous dialogue with our business partners and staff serves as the most important aspect. However, we are also aware that we will have to motivate many more protagonists who will support us in our efforts, for we alone will surely not be able to save the world.

I wish you much enjoyment in reading the following report.

Groschopp AG
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 the company Groschopp SARL, France
- 2006: Founding of Ningbo Geluoshi Sai Nuo, China as trading company
- 2007: Founding of Ningbo Geshuo Motors Co. Ltd., China as a manufacturing plant for serial production
- 2008: Founding of Groschopp Sales mbH, Viersen



Main factory Viersen

- Turnover 2019 = € 20 Million approx.
- Agencies in domestic territory = 5
- Agencies abroad = 12
- Staff: 110 approx.

Factory in China

- Turnover: € 12.5 Million approx.
- Staff: 70 approx.



Groschopp at a glance

The company GROSCHOPP AG has been a leading supplier in the area of electric drive technology for more than 70 years. Business activities comprise research and development, manufacturing and sales of innovative motors, reducer gears and controllers. True to the motto “**Drives & More**”, the company offers not only customer-tailored drive solutions but also manufactures these up to the final product to be applied and used.

The entire product- and service-portfolio guarantees, both for our customers and ourselves, lasting competitive advantages. The individual development depends in particular on long-term cooperation between customers and suppliers. Close customer relations are top priority for Groschopp. However, not only is functionality and longevity in conjunction with top quality required; advisory service, as well as production, including pre-assembly, service, and on-time delivery are the “**More**” to the “**Drives**”.

Our corporate guiding principle is: “We produce electric drives for customer-tailored applications to generate individual drive solutions in the most optimal way”.

The enterprise based in Viersen has been involved in several joint research projects and excels through developing ideas and continuous optimization of products. In collaboration with other partners, as part of the project “**Muffel+**”, Groschopp has developed a compact, scalable and electric drive platform for diesel-powered multi-functional vehicles which are hybrid intelligent, low-emission and energy-efficient.

Staff

We are proud of our staff as they strengthen us in our decision making and activities. We offer our staff opportunities for development and prospects in our company so that our mutual future prosperity is assured. We support and expect personal commitment, reliability and independent working. Our employees are highly motivated and engaged, and support us on our continuous course in optimizing our business processes.

Sustainability is part of every modern enterprise. Our staff shares these values and uses them as part of their daily workload. They conscientiously and respectfully deal with natural resources and implement ideas and solutions that result in the optimization of daily work processes.



In 2019, we employed about 150 staff members at our main production plant in Viersen.; the average age was 42 years. There are 70 staff members with an average age of 34 years employed in China. The company Groschopp follows a long-term projection for its personnel strategy. There are more than 90% permanent staff members.

Sustainability Strategy

The principle “Sustainability through Quality” distinguishes the longevity of products made by the company Groschopp AG who, as a supplier for OEMs used in mechanical and plant engineering, manufactures a vast selection of motors and drive systems.

As far back as 1948, Groschopp has been designing, developing, and producing complete plug-and-play solutions. The principle “Sustainability through Quality” is mirrored in the long-lasting lifetime of all products and in the resilience of our efficient drives and drive systems. Our drives are available and subject to service even after many years.

Groschopp is continuously seeking new ways to ensure sustainability. For example, all energy-intensive users have been deactivated since 2014, and a large part of energy is supplied by CO₂-minimised energy.

Drive components are manufactured using 100% recyclable material. All motors are designed to yield a maximal power density. We attach a great importance in keeping the required application space as compact as possible. Also, economical use of resources is guaranteed for the reparability of our drives. Thus, our customers receive a compact and optimal drive solution.

Sustainability Strategy

No matter whether standardised or individually customer-tailored, we attend to our customers from the development and design stage, via building the prototype with its tests, right up to the assembly, serial production and initial operation.

Our focus on the future means:

To look ahead and focus on the year 2030

Our guiding theme reads:

Sustainability through Quality

Sustainability through Quality

Steering	Supported by	Test and Documentation	Engagement
Management	Environmental Management System	Sustainability Report	UN Global-Compact
	Quality Management		
	Operational Safety		
	Research & Development		

Our set Objectives

Groschopp considers sustainability as a combination of quality and innovation. Our staff members ensure this as part of the manufacturing of products. We believe these factors are most vital in ensuring the long-term success of our company.

We partake in research projects like e-mobility in cooperation with other medium-sized companies and research facilities. We are constantly challenged and motivated by projects sponsored by the German Ministry for Research and Development (BMBF) in setting technical and progressive objectives for future-oriented products.



We joined 'Global Compact' in 2011 and have pledged to fully adhere to the 10 principles of the Global Compact. These are:

Our set Objectives

Human Rights:

- 01 Companies shall support and maintain the protection of international human rights
- 02 Companies shall ensure that they do not become guilty of human rights violation

Work Standards:

- 03 Companies shall respect the freedom of association and collective bargaining of employees.
- 04 Companies shall ensure that all forms of forced labour are eliminated
- 05 Companies shall ensure that child labour is eliminated
- 06 Companies shall ensure that all forms of discrimination are eliminated at hiring and in employment

Environment:

- 07 Companies shall follow the precautionary principle in dealing with environmental problems
- 08 Companies shall take the initiative in fostering greater environmental awareness
- 09 Companies shall accelerate the use of environmentally-friendly technologies in their research, development and distribution

Prevention of Corruption:

- 10 Companies shall fight all kinds of corruption, including blackmail, extortion and bribery

Our set Objectives

The company Groschopp AG has been fully engaged with these principles to date and will continue to adhere to them. Innovative thinking and continuous self-reflection are an essential part of our upholding of these principles. Progress reports are generated annually and made available to everyone who wishes to review them.

The 'Code of Conduct' sets the standard and provides binding guidelines for ethical and responsible behaviour conforming to the law for business partners, the public and all members of staff within the company.

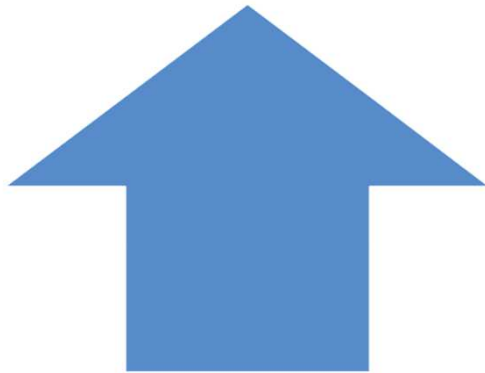
We are aware of our corporate duty and orientate our entrepreneurial activities accordingly. It is our objective to adhere to all these principles which also comprise the continuous improvement of the company's environmental performance evaluation.

Sustainability + Code of Conduct =



Objectives

Added Value



Quality
Responsibility
Innovation
Longevity



Waste
Wastewater
Energy

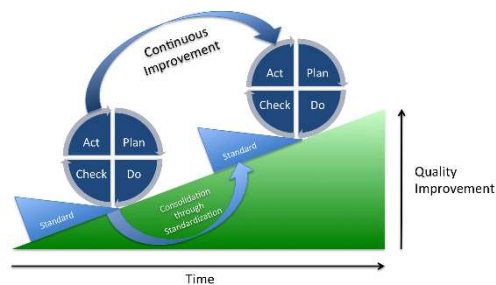
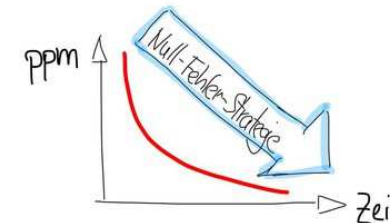
Saving

Quality – It starts in the head

Quality is the product of many elements within any process. Many parties are involved in these processes, from the planning stage right up to product completion. Effective communication between the teams at each stage of the work process is key in achieving the set quality objectives.

As part of our activities, we want to ensure complete satisfaction of expectations and requirements of our customers; this is the focus of each member of staff and can only be achieved through their cooperation and positive actions.

We are continuously improving our processes with a “Zero-Fault” goal. We ensure the highest quality production, and through our actions, we strive for flawless work at all times in all departments. Management and all members of staff have pledged themselves to this quality policy.



Groschopp has always been synonymous with quality. In responsible adherence to this tradition all documented processes are regularly checked through audits, which generate guiding principles and help safeguard our quality leadership for the future.

Responsibility

Sustainability is synonymous with prospects for the future.

It is an essential part of our entrepreneurial activity. We have a responsibility towards our children and grandchildren in safeguarding a healthy and prosperous livelihood for them. We promote these aspects of our corporate culture to our customers and our business partners. We can only hold our ground by treating all ecological and economical resources responsibly and with due care. Energy like electricity, gas, water and labour-power are the main resources and the biggest cost for our company. More stringent judicial requirements are in place so as to avoid depletion of resources; society is more aware than ever about the need to protect our environment. That is why we want to continually increase our energy efficiency by recognising and reducing our gas emissions which is one step we are taking to ensure a more sustainable future for our company and our environment.

Furthermore, it is our opinion that, through a sustained economy, new markets will be more accessible, thereby guaranteeing long-term success for our company.

We are very much engaging with our stakeholders to enquire about recommendations and expectations through exchanging controversial topics so as to mentally challenging us and question our position in the market both now and in the future, and we are in a better position to implement our sustainability strategy.

Responsibility

We have instilled in all our employees the importance of sustainability. Sustainability is of the utmost importance in all departments throughout the company. In using natural resources economically, we lead by example and promote a more sustainability-aware conscience of our employees.

We have successfully integrated the environmental system according to DIN EN ISO 14001 in our company which is reviewed at regular intervals by the PÜG.

Our environmental management team has been instructed to guarantee at all times that production facilities are according to the current and best available technology. We pursue preventive measures regarding environmental risks, and have implemented an inter-company cooperative emergency- and breakdown-management plan. Extensive protective provisions are in place to prevent any possible harm occurring, both to individuals and the environment. We regularly monitor all emissions in the areas of air, water, noise, ground and implement where necessary and according to the best available technology resources which promote reduction of emissions and climate protection. We actively promote recycling, thereby reducing significantly waste disposal. Even where waste disposal cannot be avoided, we take all steps possible to separate such waste and dispose of same in accordance with waste-type regulations at designated recycling plants.

Furthermore, as part of our annual progress report, we ensure that sustainability and environmental protection is to be reported as a standing matter.

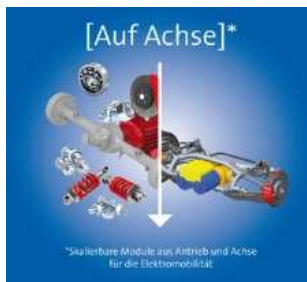
We encourage all staff members to act as role models for each other; actively promoting and increasing awareness of sustainability is important for us.

Innovation

Innovation and new ideas are mirrored in new products which were developed in cooperation with medium-sized companies and research facilities. We are constantly challenged and motivated by projects sponsored by the German Ministry for Research and Development (BMBF) in setting technical and progressive objectives in developing future-oriented products.

Project ESKAM

Conventional drives for electrically-propelled vehicles are often too bulky, too expensive and unsuitable for serial production. Groschopp participated in the project ESKAM (electrically scalable axial drive module) in developing an innovative drive solution. The drive module for front- and/or rear-axle comprises two oil-cooled electric motors combined with gear and electronics. Its advantage: these new motors made by Groschopp do not need expensive permanent magnets and achieve a far better degree of efficiency compared to traditional E-motors during normal driving. Several applications are available for this drive module. One such application is the use of a drive module in smaller batches for commercial vehicles, e.g. for town-delivery or communal vehicles, which could operate without any emission as inner-city commercial vehicles.



Innovation

Another objective is the changeover of current fuel-driven vehicles to electric drives.

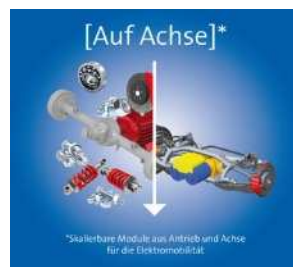
ESKAM in its function of E-drive can be supplied either as a conversion kit with installation material for a changeover, or with a suitable frame for the intended vehicle, or with a lithium battery and optional accessories like an electric heating unit. With this, the customer, in cooperation with a repair shop, can avail of a roadworthy vehicle with ESKAM which can be retrofitted with more tailored accessories.

Extensive research at European level has been carried out regarding customer type and corresponding market sector.

Example: London Black Cabs

Since 2018, registration of new taxis is permitted in London only if they can be driven sufficiently far enough with 'zero'-emission.

The older models of ESKAM (e.g. TX4) are potential candidates for retrofitting as an E-drive. The 'classic' Black Cabs are generally diesel-driven. This restricts their functionality in cities like London with its increasing smog production. If these cabs were retrofitted, they could continue to drive in London and other cities as 'Zero-emission-taxis', thereby enhancing air quality in large cities.



Innovation

Project Muffel+

The mobile future is electrically driven, as more and more automobile manufacturers integrate an E-drive in their models; and yet, the application of E-drives for work machines seems to be a distant prospect. Reasons for this include the reduced impact on work production due to battery capacity and the extremely tight installation space, making it difficult to provide additional storage.

As a result, a medium-sized development syndicate under the name **Muffel+** was introduced. This syndicate started its research in this area over two years ago with the aim of coming up with practical solutions. Four companies and a research facility developed the idea of a scalable electrically powered drive unit which can be integrated in multi-functional vehicles as well as in other work machines due to its simple scalability. Some work machines have to work under extreme weather conditions and have to supply high outputs; that is why the concept works at present according to the 'range-extender-principle': If the battery capacity is no longer sufficient, a diesel generator set is switched on which not only feeds the battery but also supplies additional operating power. This drastically reduces pollutant emission due to its running electrically most of the times. The combustion motor operating in a 'range-extender-principle' can be used at its optimal operating point; this in turn considerably reduces harmful emissions.

The project is diverse and future oriented; it can be utilised for future development, e.g. if the market situation arises, the combustion motor could be replaced by a fuel cell or other energy sources developed in future.



Innovation

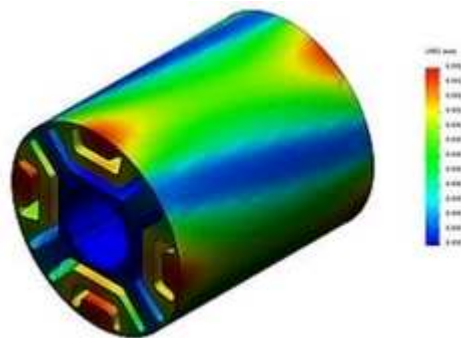
The system has been successfully tested on a test stand at the university in Aalen. After the first few kilometres, it has proven to be an effective and functional concept. In the coming week, it is expected the system will be installed in a commercial vehicle produced in serial production by the company Max Holder, Metzingen, and extensive tests will then be carried out.

The entire vehicle concept is based on scalability and can, therefore, be adapted with ease for other vehicle types and -classes. Interested parties can join the industrial syndicate in accompanying the project at any time should they wish to. The axial function can be viewed at the University of Aalen. **Muffel+** is embedded in the innovation network E-mobility of the EurA AG which aims to motivate and prime the medium-sized supply industry in Germany for future requirements. The German Ministry for Research and Development fosters **Muffel+** within the framework of the assistance measure “KMU-NetC” to the tune of € 2.1 Million. Interested parties can contact EurA AG to receive further information about the project and the above-mentioned industrial syndicate.



Working Life

The company Groschopp AG guarantees constant servicing all drives and drive systems even after many operational years. 20 to 30 years of working life are feasible, highlighting the long-term efficiency of Groschopp motors. Groschopp strives to ensure top quality and technology, reliability and on-time delivery.



The result for customers is a compactly designed and, as regards speed and efficiency, optimally dimensioned drive solution for their application. The use of durable components is extremely important as it minimises necessity for repairs of the drives, thereby increasing their economic value.

By following the principle **Sustainability through Quality** our customers receive dedicated support in their decision making, advice for a secure planning and an easier budgeting in selecting their products for many years.

Identification of Environmental Aspects 2019

References for Evaluating Essentiality

All identified environmental aspects are tested and evaluated to ascertain whether they are essential or not. Environmental aspects identified as essential are integrated into the Environmental Management System while other non-essential environmental aspects are regularly reviewed to ascertain the impact on their status due to changed circumstances. The organisation determines their criteria by constantly evaluating changing requirements, societal attitudes and environmental landscapes to ensure environmental protection.



Every organisation should check first and foremost the following points in evaluating the essentiality of an environmental aspect:

- Environmental hazard potential
- Susceptibility of local, regional or global environment
- Extent, number of entities, frequency and reparability of any aspect or its effect
- Existence of, and requirements for, relevant environmental regulations
- Significance for interested circles and staff of the organisation

Operating figures - Waste

General waste is separated and disposed of according to relevant in-house and judicial requirements in Germany as well as in China. Unusable waste and unusable raw material (matured timber and plastics) are put in the container marked “Mixed Waste”, where matured timber is mostly already separated and disposed of. Following the amendment of the law GewAbfV dated 01.08.2017, plastic foil is collected separately.

The total volume of disposed waste material (not recycled) in 2018 was 43.66 t approx. and has fallen by 26% compared with 59.04 t in 2017.

Returnable packaging is used wherever possible and expedient



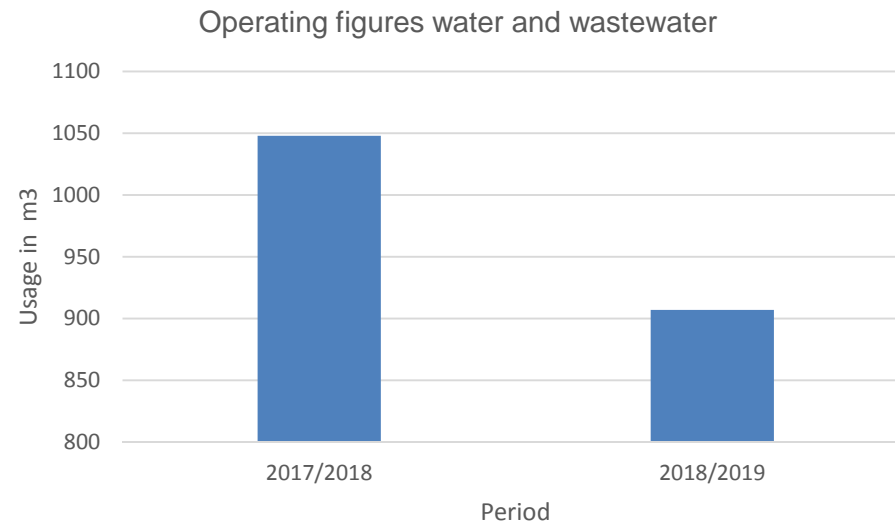
Operating figures water and wastewater

Figures on consumption of water and wastewater have been compiled and documented in both production locations.

Values have been reduced by 13.5% compared with the previous year.

2017/2018 = 1,048 m³

2018/2019 = 907 m³



Operating Figures – Gas /Electricity

Consumption values for gas and electricity are compiled and documented on a continuous basis.

A combined heat and power plant (BHKW) has been installed in 2016. It supplies, apart from the heating energy needed in production and administration, up to 132 kW per hour. The electricity is used in-house to 100 % during the day and is then fed at night gainfully into the public grid.

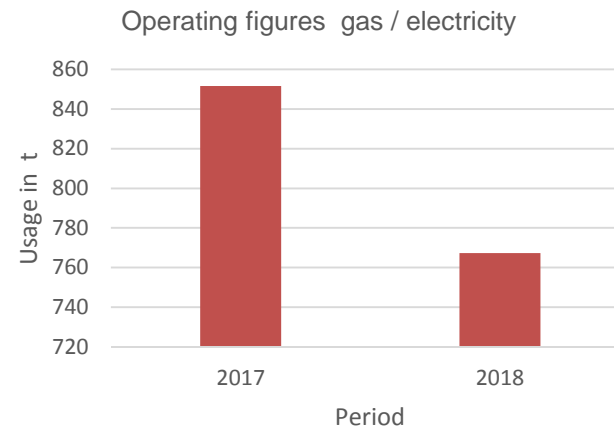
Compared to 2017, the consumption values for gas in 2018 have dropped slightly by 3.5% after rising by 2.6% the previous year. An increase in gas consumption is expected for 2019 due to the addition of a second test-BHKW in February 2019. The first BHKW in 2018 provided a total of 48,100 kW electricity which equals 64.3% of the energy required in Groschopp during 2018 (2017 = 56%).

CO₂ – balance for electricity & gas:

2017 = 851,69 tonnes

2018 = 767,37 tonnes

This corresponds to a saving of 10%.



Energy policy

We use energy economically and actively seek new ways to reduce the specific CO₂ - emission. We continuously review our energy consumption and improve specific energy inputs. Energy efficiency is a key factor in all planning investments.

Our suppliers and service providers are also incorporated in our energy politics.

Further, efficient use of resources is extremely important for us; hence, the paper usage could be reduced by more than 70% compared to the figure in 2000. Our recycling rate increased significantly as a result of implementing a waste material separation plan. Also, the lifetime of cutting fluid increased fourfold due to our implementation of improved filtration and an intensified PH-control in our mechanical production.

We have also switched all lamps to LEDs.

Centrally controlled thermostats have been attached to all heating appliances which monitor the temperature automatically. This ensures efficient and energy-saving heat throughout the entire factory.

All implemented provisions contributed to a reduction in energy usage of less than 50% compared to the figure in 2014.



Energy policy

The replacement of old windows with new heat-insulating windows has begun in the production building. This project is expected to be completed in 2020, and we expect a further reduction in our heating energy.

All our employees can use company-electric bicycles which were introduced two years ago as a means to avoid short distance car journeys.

There are also electric bicycles available which the employees in our Chinese company can use.

Hence, all these factors are part of our plan in achieving strategic and operative energy objectives.

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