EDITION 2022

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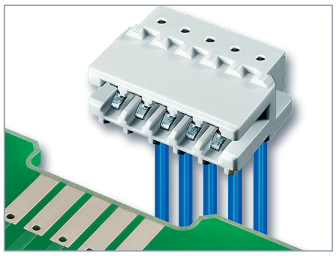
STOCKO REPORT

CARBON FOOTPRINT

CARBON FOOTPRINT



HOME APPLIANCE

HVAC

AUTOMOTIVE

INDUSTRY

FOREWORD AND SUMMARY

This report provides details of our company's corporate carbon footprint (CCF) for the year 2022 based on the "Greenhouse Gas Protocol" (GHGP) and ISO 14064-1.

We have compiled this report in order to give our employees, customers and other stakeholders an insight into our efforts in regard to sustainability, to enable us to make decisions that are focused on the future and to document our progress in reducing our carbon footprint.

Our corporate carbon footprint represents the quantity of greenhouse gas (GHG) emissions that are created by our company, either directly or indirectly. In addition to carbon dioxide (CO_2), there are a further six gases that are harmful to the climate and classified as greenhouse gases. By using so-called CO_2-equivalents (CO_2e), they can be brought down to a common denominator to provide an overall picture.

We made an accurate record of all direct emissions (Scope 1) and all indirect energy-related emissions (Scope 2), as well making a rough estimate of all the other significant indirect emissions that are associated with our value chain (Scope 3) as a first step. Keeping accurate records of the significant Scope 3 emissions in the future is a challenge that we aim to overcome.

In line with what is known as the "operational control approach", our assessment for 2022 has taken into consideration both our company headquarters in Wuppertal and our production site in Hellenthal.

In the 2022 reporting year, our most significant sources of emissions of a direct nature and from the procurement of energy (i.e. Scope 1 + 2) were as follows:

- Heating (Scope 1.1): **206 t CO_2e**
- Vehicle fleet (Scope 1.2; incl. company vehicles used for private purposes): **77 t CO_2e**
- Electrical energy (Scope 2): **market-based 0 t CO_2e**
  locally based: 2.600 t CO_2e

The Scope 3 emissions, i.e. the indirect emissions from our value chain, are likely to exceed these quantities by a substantial margin. We estimate the ratio of Scope 1+2 to Scope 3 to be approx. 10%:90%. The most important source of emissions in Scope 3 is probably our procurement of materials. Here, we estimate the emissions associated with the life cycle of our purchased

- plastics to be around **6.974 t CO_2e**
- metals to be around **9.712 t CO_2e**

We are conscious of our responsibility towards society to run our business in a sustainable way and are therefore making continuous efforts to reduce our corporate carbon footprint through effective measures. Our strategic decision, made some years ago, to purchase only 100 % green electricity sends out a clear signal that STOCKO not only sets sustainability goals but also implements them effectively.

If required, we may decide to arrange external, independent verification of our corporate carbon footprint assessment.

We would be happy to provide further information if needed and would like to thank you for the interest you have shown in our company.

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Table 1: STOCKO Contact, contact person

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CARBON FOOTPRINT

of STOCKO Contact

STOCKO CARBON FOOTPRINT

1. STOCKO Contact and our corporate carbon footprint

1.1. STOCKO Contact

STOCKO Contact GmbH & Co. KG (STOCKO Contact) is a medium-sized company working in the area of electrical engineering and a manufacturer of electromechanical connection components. The main customers for these components come from the home appliance and heating sectors, the automotive sector, the lighting industry and the engineering sector. Our connection components are installed (for example) in cookers, washing machines, tumble dryers, dishwashers, small household appliances, drinks machines, slot machines and cars. Our manufacturing focuses on connector systems with insulation displacement, crimp or solder connections, RAST connectors, solderless connectors, crimp contacts, products specially developed for specific customers and processing systems for all our products. Our production is in many cases automated.

The company was founded in 1901 and our headquarter is in Wuppertal. Our German production and assembly site is in Hellenthal.

1.2. Goals with regard to our corporate carbon footprint

Like almost all companies, STOCKO Contact is currently being confronted with the challenges presented by climate change and the associated political, societal, legal and customer-specific requirements. Set against this backdrop, we need to ensure systematic management of climate protection and climate-related risks.

As a prerequisite and basis for climate management, we need to identify, quantify and keep account of our greenhouse gas emissions, i.e. we need to draw up a corporate carbon footprint. This carbon footprint will also enable us to respond to the requirements for information of our customers, partners and other interested parties.

1.3. Methodology

In the assessment, the sources (and perhaps reductions) of greenhouse gases are listed, together with their quantified emissions. These are then combined to produce a carbon footprint. For the purposes of this assessment and report, the term greenhouse gases (GHG) includes all seven of the internationally recognised gases or groups of gases that are considered to have "global warming potential" across a time horizon of 100 years. They can be compared and calculated as a whole using so-called CO2 equivalents [CO2e].

This corporate carbon footprint is based on the recommendations and guidelines of the Greenhouse Gas Protocol (GHG Protocol, GHGP) and the compatible standard "ISO 14064 Greenhouse gases – Part 1" (ISO 14064-1), which is the most commonly used international standard for calculating emissions and reporting at organisation level.

STOCKO ORGANISATIONSGRENZEN

2. Organisational and reporting boundaries of the corporate carbon footprint

2.1. Organisational boundaries

In accordance with the internationally recognised guidelines (GHG Protocol, ISO 14064-1), before drawing up a carbon footprint, you need to clearly define the organisation under consideration, i.e. by setting organisational boundaries and allocating emissions to the various companies involved. There are various approaches that can be used to determine the extent to which emissions of other companies should be included.

Equity share: with the equity share approach, a company accounts for the greenhouse gas emissions of other companies according to its share in the equity of such companies. Financial control: the company accounts for all greenhouse gas emissions of companies whose financial and operating policy it controls and from which it is able to draw the corresponding economic benefit.

Operational control: a company accounts for all greenhouse gas emissions of companies over which it has operational control, i.e. full powers to introduce its own guidelines and to implement them in the company.

For our corporate carbon footprint assessment, we have chosen to use operational control as this is the most suitable control and consolidation approach for our goals in regard to our carbon footprint.

For the reporting year 2022, all companies within Germany over which STOCKO Contact has operational control were included in the assessment.

STOCKO Contact GmbH & Co. KG		Operational control	Inclusion in the carbon footprint for 2022
Deutschland			
Wuppertal	Head office and administrative headquarters	yes	☑
Hellenthal	Production site	yes	☑

Table 2: Organisational boundaries, control approach

2.2. Reporting boundaries

The sources of emissions cited in this report relate to direct and indirect emissions in accordance with ISO 14064-1, which have been divided up into three "scopes" and then broken down into various further categories, in compliance with the GHG Protocol. Direct emissions are in general terms emissions that have arisen through combustions processes from the company's own mobile or stationary plant or equipment as well as fugitive emissions and process emissions (Scope 1). Indirect emissions that have been caused by purchased electricity, steam, heat or cooling (Scope 2) are likewise listed. Further significant emissions arise along the value chain (Scope 3).

According to the GHG Protocol, Scope 1+2 emissions should always be included in the carbon footprint; Scope 3 emissions should also be included where relevant, but this is optional. ISO 14064-1 states that, as well as direct emissions (i.e. Scope 1), significant indirect emissions should also be determined and included in the calculations.

A materiality assessment should then be performed - on this point, please refer to the explanations on the individual categories of emissions below.

Our criteria for the assessment of materiality are as follows:

- the scale/volume of the emissions,
- the degree of influence that we have on the sources of emissions (and whether can perhaps reduce them),
- relevance from the point of view of our company,
- relevance from the point of view of our interested parties (stakeholders),
- access to information and possible data accuracy.

Categories of GHG emissions	Comments	significant	Inclusion in the carbon footprint for 2022
Scope 1	**direct emissions**		
Stationary combustion	direct emission	yes	☑
Mobile combustion	direct emission	yes	☑
Process emissions	direct emission	yes	☑
Fugitive gas emissions	direct emission	yes	☑
Emissions removed	optional if required	no	--
Scope 2	**indirect emissions energy procurement**		
Electricity purchased	locally based	yes	☑
Other energy purchased	no data provided	--	--
Scope 3	**indirect emissions value chain**		
	first preliminary estimate		--

Table 3: Reporting boundaries, GHG categories

This carbon footprint assessment for the year 2022 is STOCKO Contact's first assessment of this kind and therefore constitutes our opening and reference assessment (base year). It includes our Scope 1+2 emissions. Significant Scope 3 emissions will in future also be recorded – currently, however, as a first step, we have only been able to provide a very rough estimate. In the future, we will draw up a carbon footprint assessment for each calendar year and will then compare it with the base year or the relevant reference year or that we can highlight our developments and progress.

STOCKO QUANTIFICATION

3. Our corporate carbon footprint for 2022

3.1. Bases for quantification

In our carbon footprint assessment we have included all seven of the internationally recognised gases or categories of greenhouse gases: CO_2, CH_4, N_2O, the hydrocarbon groups HFCs and PFCs as well as SF_6 and NF_3.

A time horizon of 100 years is normally used to take account of their impact on the climate, i.e. their "Global Warming Potential 100" (GWP 100).

For the purposes of drawing up a carbon footprint, GWP values that reflect the latest scientific data are used wherever possible, providing these are available.

einbezogene Treibhausgase	GWP 100
CO_2 carbon dioxide	1
CH_4 methane	27.9
N_2O nitrous oxide (laughing gas)	273
HFCs hydrofluorocarbons	up to 14,600
PFCs perfluorocarbons	up to 18,500
SF_6 sulphur hexafluoride	25,200
NF_3 nitrogen trifluoride	17,400

Table 4: Greenhouse gases, GWP (in accordance with IPCC AR6)

These climate impacts can be used to derive so-called CO_2-equivalents [CO_2e] which allow us to bring various different greenhouse gases with varying impacts down to one common denominator [tonnes of CO_2e].

In order to calculate the GHG emissions, we need to know the quantity of emissions of a greenhouse gas that is associated with a given activity. "Emission factors" which relate to a particular activity allow us to work out the volume of emissions that is emitted through this activity by means of multiplication. To make the emissions of different gases comparable in terms of their effect on the climate and in order that we can total them up, they are weighted using their GWP. Formula to calculate GHG emissions[1]:

activity x emission factor [x GWP] = quantity of emissions

Wherever possible, activities should be recorded as primary data, which is usually possible for Scope 1+2 emissions. Emission factors should have been determined on an empirical or scientific basis. For the purposes of our carbon footprint assessment, we were able to gain access to emission factors from reputable sources (e.g. BAFA, KfW, GHG Protocol, ...). The emission factors and GWP values from these sources are likely to be based on the most up-to-date empirical and scientific data (in particular data from the UN's Intergovernmental Panel on Climate Change (IPCC)).

[1] In the case that an emissions factor is already available as a CO_2-equivalent [CO_2e], the GWP of the greenhouse gas in question is already included in the calculations.

3.2. Results

To follow, we have presented the individual carbon footprints and the overall carbon footprint of the German sites of STOCKO Contact. These are our first assessments and they are for the calendar year 2022.

3.2.1. Carbon footprint for STOCKO Contact Wuppertal

2022	[in tonnes CO_2e]	Overall	%	CO_2	CH_4	N_2O	HFC	PFC	SF_6	NF_3
Scope 1	Stationary combustion	23.37	64.34	23.37						
	Mobile combustion									
	Process emissions									
	Fugitive gas emissions									
Scope 2	Electricity purchased "locally based"	12.95	35.66	12.95						
	(Electricity purchased "market-based")	0.00		0.00						
	Total for "locally based"	36.32	100							
	Total for "market-based"	23.37								

Table 5: Carbon footprint (Scope 1+2) STOCKO Contact Wuppertal

3.2.2. Carbon footprint for STOCKO Contact Hellenthal

2022	[in tonnes CO_2e]	Overall	%	CO_2	CH_4	N_2O	HFC	PFC	SF_6	NF_3
Scope 1	Stationary combustion	205.32	7.12	205.32						
	Mobile combustion	76.77	2.66	76.77						
	Process emissions	3.12	0.11	3.12						
	Fugitive gas emissions	0.54	0.02		0.54					
Scope 2	Electricity purchased "locally based"	2,599.43	90.10	2,599.43						
	(Electricity purchased "market-based")	0.00		0.00						
	Total for "locally based"	2,885.18	100							
	Total for "market-based"	285.75								

Table 6: Carbon footprint (Scope 1+2) STOCKO Contact Hellenthal

3.2.3. Overall Carbon Footprint STOCKO Contact Germany

2022	[in tonnes CO_2e]	Overall	%	CO_2	CH_4	N_2O	HFC	PFC	SF_6	NF_3
Scope 1	Stationary combustion	228.69	7.83	228.69						
	Mobile combustion	76.77	2.63	76.77						
	Process emissions	3.12	0.10	3.12						
	Fugitive gas emissions	0.54	0.01		0.54					
Scope 2	Electricity purchased "locally based"	2,612.38	89.42	2,612.38						
	(Electricity purchased "market-based")	0.00		0.00						
	Total for "locally based" (incl. 5% uncertainty allowance)	2,921.50 **(3,067.58)**	100							
	Total for "market-based" (incl. 5% uncertainty allowance)	309.12 **(324.58)**								

Table 7: Carbon footprint (Scope 1+2) STOCKO Contact Germany

Note 1: The percentages shown refer to the total amount of emissions from Scope 1 + Scope 2 of the German mix of electricity "locally based".
Note 2: To ensure a "conservative calculation", the totals for the overall carbon footprint can be increased by an "uncertainty allowance" of 5%.

EXPLANATIONS

3.3. Explanations

3.3.1. Scope 1 emissions

Stationary combustion

Emissions from "stationary combustion" come to a large extent from the operation of natural gas heating systems used to heat the buildings. They were calculated from the amounts consumed (in kWh) using an emission factor (source: BAFA). In addition to this, there is also a relatively small consumption of diesel which is required to maintain and test emergency power generators.

Mobile combustion

The vehicle fleet consists entirely of diesel-powered cars which are company cars but are also used for private purposes. In line with the "operational control approach", their use was included in our emissions, and was recorded via petrol pump receipts that had been submitted. The emission factor for diesel was taken from the "Transport Tool of the GHG Protocol"[3].

Process emissions

Process emissions of CO_2 GHG are produced in a ratio of 1:1 through the use of dry ice (frozen CO_2) as a blasting abrasive; in addition to this, small quantities are generated through the use (combustion) of liquid gas to heat up materials (emission factor BAFA).

Fugitive gas emissions

The so-called F gases, which can escape from refrigeration and air-conditioning units in the form of refrigerant, have in some cases an especially high Global Warming Potential, e.g. one tonne of R23 has a GWP100 of 14,600 tonnes of CO_2. According to our maintenance records, no refrigerant needed to be replaced during the year 2022. We used the latest GWP100 values of the IPCC AR6.[4]

A value for a certain rate of leakage in the operation of the natural gas heating systems was taken from the relevant technical regulations[5] and was entered with the GWP100 of methane (this is a simplification, as natural gas does indeed consist mainly of methane, but not only; this lack of accuracy can be tolerated in light of the relatively small quantities involved).

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[2] BAFA information sheet CO2-factors (01.05.2023);
www.bafa.de/SharedDocs/Downloads/DE/Energie/eew_infoblatt_co2_faktoren_2023.html
[3] GHG Emissions from Transport or Mobile sources;
https://ghgprotocol.org/calculation-tools#cross_sector_tools_id
[4] www.ipcc.ch/assessment-report/ar6/;
www.bitzer.de/shared_media/html/a-500-501/de-DE/index.html#679592331679628043
[5] As part of the measurements of serviceability that we are required to carry out, the gas pipes on our premises are categorised as "in good working order, without any reservations" if the measured "leak rate < 1l/h under normal operating pressure and using operating gas"; source TRGI 2018 (DVGW (German Association for Gas and Water) work sheet G 600) Technical Rules for Gas Installations

Other
Our organisation does not produce any emissions from biomass. However, there is a small area of woodland on our Hellenthal site that belongs to the company. The plants that grow there remove CO_2 from the atmosphere in relation to the annual growth in biomass. Companies have the option of including such "CO_2 removal" in their carbon footprint assessment. However, the current quantities involved are likely to be negligible and are also very difficult to calculate[6]. Furthermore, there is a risk that the advance of climate change in the coming decades will see forests actually turning into sources of CO_2. These "negative emissions" have therefore not (yet) been included in our carbon footprint assessment.

3.3.2. Scope 2 emissions

Purchase of electricity
We looked at the electricity consumption of our sites (there was no procurement of district heating, district cooling, steam or similar). Our data comes from the invoices sent to us by the network providers. In Germany, we purchase 100% green electricity from our supplier ("market-based"). This means that the emissions from the electricity we use can by definition be entered as zero in the assessment. Nevertheless, in accordance with the stipulations of the international standards, we also report on the physical character of our electricity which we get from the German power grid ("locally based"), calculated with the corresponding emission factor (source: Agora/UBA)[7].

3.3.3. Scope 3 emissions

Procurement of materials
The most important source of emissions in Scope 3 is likely to be our procurement of plastics and metals. We estimate the emissions associated with the life cycle of the plastics we purchase to be approx. 6,974 tonnes of CO_2e, and for metals approx. 9,712 tonnes of CO_2e. These are only very rough initial estimates which we have undertaken using the tool "Ecocockpit" and emission factors from the ProBas database[9].

3.4. Data quality and uncertainties

In the following table, the emissions categories are listed with their quantitative significance, the associated activities and the emission factors used together with data sources and estimates of their "uncertainties".

[6] Rule of thumb: a hectare of forest "stores" approx. 6 tonnes of CO2 per year across all age brackets; source: www.wald.de/waldwissen/wie-viel-kohlendioxid-co2-speichert-der-wald-bzw-ein-baum/ (consulted on 15.04.23)
[7] provisional estimate for 2022 from Agora www.agora-energiewende.de/veroeffentlichungen/die-energiewende-in-deutschland-stand-der-dinge-2022/ ; see UBA "Development of the specific greenhouse gas emissions of the German electricity mix" (2021/22)
[8] www.ecocockpit.de/
[9] www.probas.umweltbundesamt.de

EXPLANATIONS

Note: AS = accounting system; Logit = data collection system;
MR = maintenance records; TR = technical rules

Emissions-kategorien	Quantität	Aktivitäten			Emissionsfaktoren		Gesamt-unsicherheit[10]
		Erfassung	Quellen	Unsicher-heit	Quellen	Unsicher-heit	
	A	B	C	D	E	F	$\sqrt{D^2+F^2}$
Stationary combustion -heating	medium	Natural gas consumption	AS	low	BAFA	low	low
-Emergency power	low	Diesel consumption	AS	low	GHG	low	low
Mobile consumption - vehicle fleet	low	Quantity of fuel	AS	low	GHG	low	low
Process emissions - blasting abrasive	low	Quantity used	AS	low	AR6	low	low
x-liquid gas	low	Quantity used	AS	low	BAFA	low	low
Fugitive gas emissions - F gases	low	Quantity replaced	MR	low	AR6	low	low
- Natural gas	low	Leakage rate	TR	medium	AR6 methane	medium	medium
Electricity purchased - locally based	high	Quantity purchased	AS	low	Agora / UBA	low	low
- market-based	low				Provider	low	
Material purchased - plastics	very high	Quantities purchased	AS	low	EcoC./ ProBas	high	high
- metals	very high	Quantities purchased	AS	low	EcoC./ ProBas	high	high

Table 8: Data quality, uncertainties

The materials purchased (plastics and metals) are estimated to account for a very high percentage of the total emissions in our carbon footprint assessment; the emission factors to be used are also subject to a very high degree of uncertainty. They have not yet been included in the carbon footprint assessments for 2022. This will in the future be done when we have sufficient data.
The emissions category "Purchase of electricity" does indeed have a certain quantitative significance ("locally based"). However, the level of uncertainty in determining the associated greenhouse gases is very minimal, as the quantities consumed are recorded by calibrated measuring devices and the "emission factor locally based" (electricity mix for Germany) also comes from a valid source.
With regard to activities and emission factors, all other emissions categories have a low level of "uncertainty" and are also of lesser significance in quantitative terms. Nevertheless, we have applied a blanket uncertainty factor of 5% to the consolidated overall emissions that have been calculated in order to take a conservative approach which takes account of the general lack of accuracy in the recording and calculation of the CO_2e emissions.

[10] The overall uncertainty can be calculated mathematically from the quantified uncertainties of the activities (D) and emission factors (F) with the formula $\sqrt{D^2+F^2}$.

4. Initiatives to reduce greenhouse gas emissions and climate management

We have in the past already taken a range of different measures to reduce our corporate carbon footprint (CCF), e.g. we use 100 % green electricity (0 tonnes of CO_2e in our carbon footprint calculations). We also have an environmental management system in accordance with ISO 14001 and an energy management system in accordance with ISO 50001 in order to bring about continuous improvements in our environmental performance and our energy efficiency.

As we want to further improve our carbon footprint and reduce our remaining GHG emissions in the future, we are considering the following activities for the future:

- Improvement of the data we use as our basis, enabling us to expand the carbon footprint to include Scope 3 emissions
- Upgrading our green electricity by purchasing directly from plants that generate renewable energy, through the corresponding supply contracts (known as Power Purchase Agreements, PPA) or by generating our own electricity (in particular photovoltaic installations/photovoltaic installations in open spaces)
- Increasingly reducing and avoiding the use of energy derived from fossil fuels through the electrification of our heating system and our fleet of vehicles
- Continuous improvements in our energy efficiency as part of the environmental and energy management systems (ISO 14001 / ISO 50001) at our sites
- Developing a measuring station concept in order to optimise the analysis of our energy consumption
- Paying consistent attention to energy efficiency and to our carbon footprint as a key factor on our product development, procurement and collaboration with our suppliers and customers
- Examination of potential compensation options for remaining emissions

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