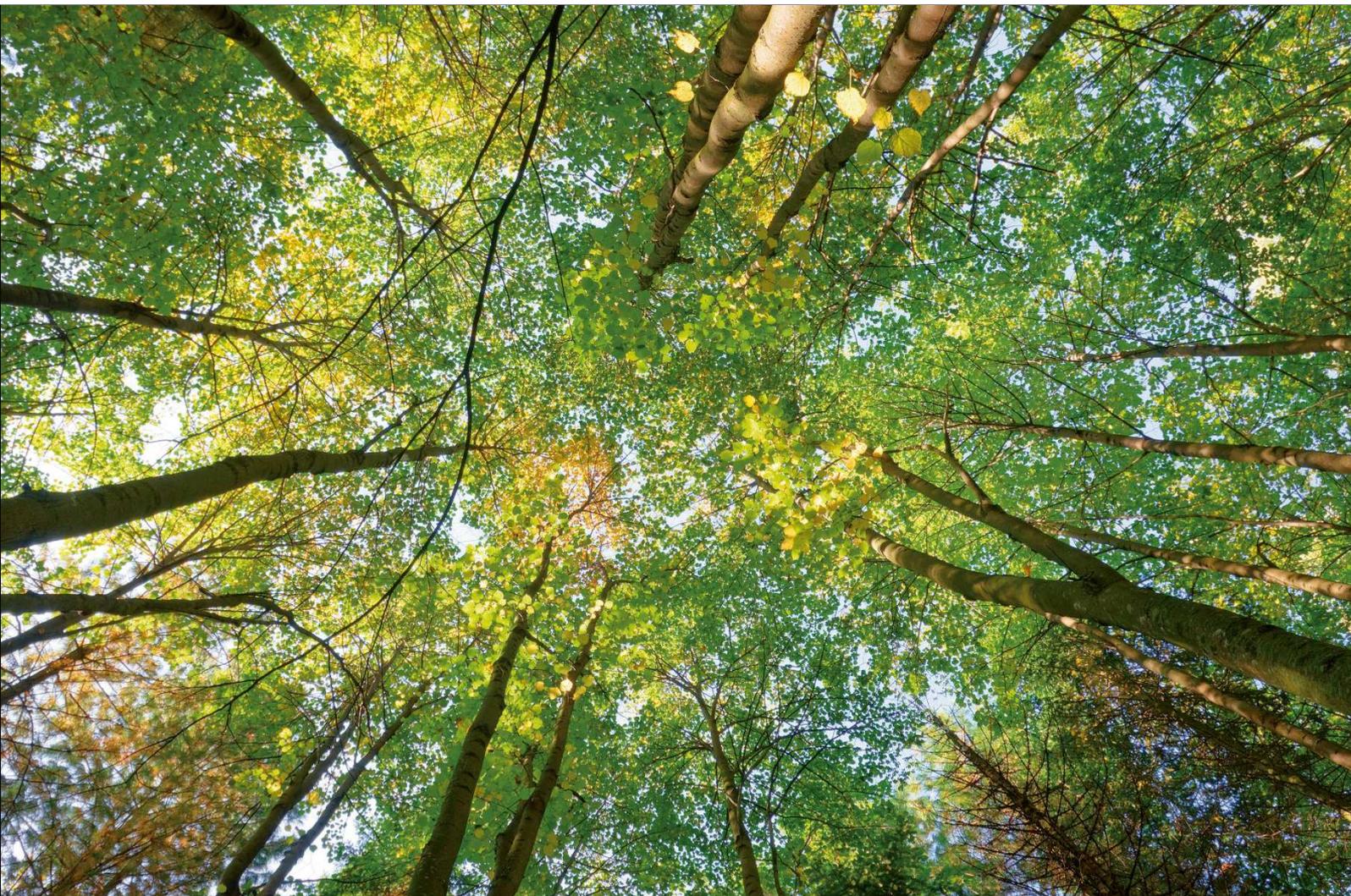




Environmental Statement 2018

Technik für Möbel


Hettich



In accordance with EU regulation no. 1221/2009
(EMAS III)
Hettich Holding GmbH & Co. oHG

with the companies in Kirchlengern / Bünde

Paul Hettich GmbH & Co. KG
Hettich Management Service GmbH
Hettich Maschinentechnik GmbH & Co. KG
Hettich Marketing- und Vertriebs- GmbH & Co. KG
Hettich Logistik Service GmbH & Co. KG

The protection of our environment, the protection of the health of our employees and the conservation of natural resources are an integral part of our economic success.

We therefore operate according to foresighted sustainability guidelines, thus making an important contribution towards protecting nature and life.

Our principles are:

- introduction of environmentally-friendly and energy-saving production procedures
- resource-saving design of our products
- taking active precautions to prevent interruption of operational procedures
- prevention of waste and ensuring environmentally-friendly disposal of unavoidable waste
- use of environmentally-friendly basic commodities and raw materials
- protecting the health of our co-workers and fellow human beings

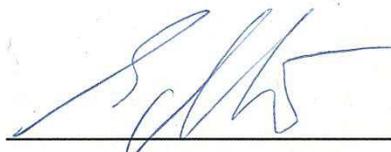
This environmental impact statement is a public declaration to our customers, suppliers and employees to show that environmental protection is treated seriously by HETTICH in Kirchlengern / Bünde. We are continually developing and implementing our environmental programme. We intend to reduce existing environmental pollution still further and actively promote the conservation of resources. We report at regular intervals on the success of the measures we introduce.

The updated environmental statement for 2018 will be put forward for intermediate validation in April 2019.

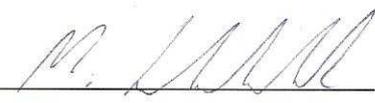
Kirchlengern/Bünde, April 2018



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1 The Company



Hettich - Technik für Möbel is recognized all over the world. Our concept is based on four main pillars: quality, innovation, closeness to customers and reliability. This is what Hettich stands for; this is what we stand for! These pillars are all of equal importance, ensuring our consistency.

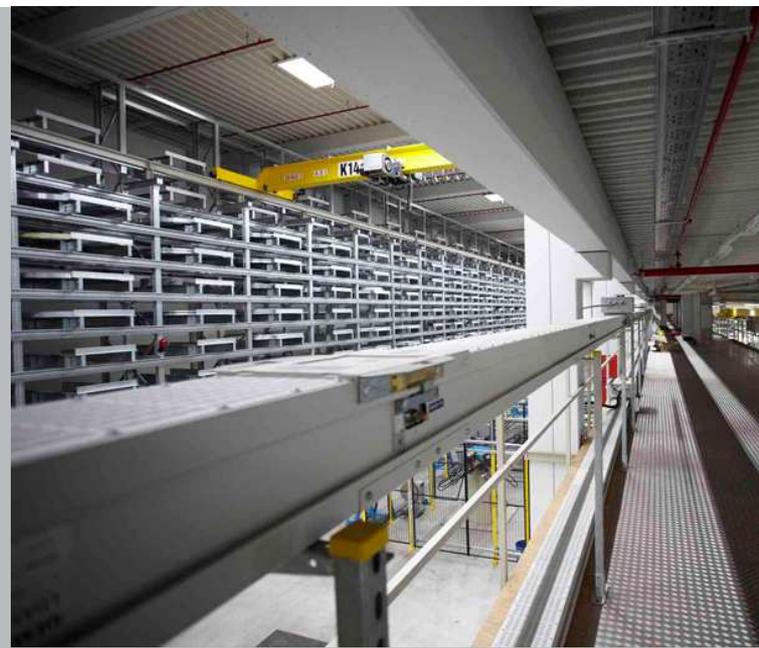
As one of the largest manufacturers of furniture fittings and partner to the furniture industry around the world, Hettich with its kitchen, bathroom, office, living and bedroom furniture fittings sets standards in function, quality and comfort. An internationally active group of companies with over 6,600 employees has evolved under the Hettich trademark. Customers are the furniture industry, specialist dealers with the craft sector and Do-It-Yourself (DIY) branch. Hettich operates production locations in North America, Europe and Asia, and has subsidiaries and local offices around the world. At the company headquarters in Kirchleugern/Bünde/Germany, the group companies mentioned below employed about 2,600 employees in 2017. Many divisions operate three shifts.

Hettich Holding GmbH & Co. oHG (HHO) controls the company development within the Hettich Group, determines the comprehensive environmental principles of the group, and authorizes budgets and large individual projects. The Environmental Department is a part of the HHO and reports directly to the Holding Management.

The largest company in Kirchleugern is **Paul Hettich GmbH & Co. (HPH)**, which develops and produces drawer runners and complete drawer systems in metal for the national and international furniture industry, craft sector and do-it-yourself market.

Hettich Management Service GmbH (HMS) provides internal services to all companies within the group. These services include the preparation of prototypes, customer samples, small batch production, life tests of batch products and prototypes as well as other services, e.g. data processing and the central purchasing activities.

Hettich Marketing- und Vertriebs-GmbH & Co. KG (H MV) is responsible for the sales of all products of the group and is therefore the connecting point between production and customers.



Hettich Maschinenteknik GmbH & Co. KG (HMT) is the company responsible for the construction of special purpose machines. It develops and manufactures assembly machines, robot cells, welding devices and other special purpose machines, not only for the Hettich Group but also for the automotive, electrical and building hardware industry.

Hettich Logistik Service GmbH & Co. KG (HLS) runs the incoming goods departments for finished products and commodities, their storage, picking and transportation packaging. Goods are delivered exclusively by external transport agents.

The property of the site Kirchlengern, Vahrenkampstraße 12 bis 16, is located in an industrial area. This is the postal address, but not the whole property. The premises are bordered to the east by a public swimming pool, to the west, south and north are residential and industrial facilities. Immediately adjacent to the premises in Kirchlengern is the new HLS logistics centre (In der Lohge 50, Bünde) which was built in 2005. This centre is integrated into the overall processes in Kirchlengern. In addition, it also carries out logistics functions for the entire Hettich Group. North of HLS, the production hall C2 was built by HPH.

The premises are not located in a designated nature reserve. A stream called Markbach which empties into the river Else, flows adjacently to the premises. The flood plain of the river Else extends to a railway embankment which borders the company premises on the southern side. The designated flood plain is mostly declared as nature preserve. Here the railway track forms the border of the nature preserve, too. The river Else itself as FFH area (according to the European Habitats Directive) is an important ecological habitat.

A small parcel of land between HLS and HPH is defined as a particular nature reserve, however it is not immediately adjacent to the company. Although the company is not located in a direct nature reserve, we do our utmost to reduce emissions as far as possible with a complex plan of measures (e.g. by upstands in the delivery area of hazardous substances, lockable restraining devices, mobile sewer sealing systems and emergency sets, training of employees, regular inspections and audits and practical simulation of trained emergency procedures). Hereby we could always safely prevent emissions of hazardous substances into the soil, the ground water, gullies or even into one of the above-mentioned nature reserves.

The validation and this updated environmental statement refer to the six Hettich Group companies mentioned above which are located in Kirchlengern / Bünde.

2 Environmental Management

2.1 Sustainability guidelines

The Hettich Group of Companies accepts its responsibility for the conservation of natural resources and for health and safety at work for all employees. This is particularly reflected in the following aspects:

- We include **environmental protection** and **occupational health and safety** in the company mission statement.
- We develop furniture fittings that meet the highest standards of **quality, safety, environmental sustainability** and **energy efficiency**. These characteristics are also included in the designing of the production processes and procurement of production facilities.
- We understand **energy efficiency** in all our activities as an integral part of environmental protection.
- We regard **environmental protection** and **occupational health and safety aspects** as separate criteria in all relevant processes, preferably in quantifiable form.
- We provide an **effective environmental protection** and **occupational health and safety organisation** and necessary information, human resources and budgets.
- We ensure the implementation of necessary measures through **environmental and occupational health and safety committees**.
- We review **hazardous situations** and the company's **emergency response plans** at regular intervals and update them where necessary.
- We commit ourselves to annually defined **environmental and occupational health and safety targets** and review the performance within the framework of a management review.
- We regard **legal requirements**, relevant **standards**, further **obligations** and the state of the art as minimum requirements.
- We see **continuous improvements** in the sustainable reduction of energy consumption, avoiding environmental pollution, health risks and hazards in workplace as a compulsory part of the corporate culture.
- A successful **environmental and occupational health and safety management** requires responsible employees at all levels. We support the active participation with appropriate initial and further training.
- We involve **suppliers, service providers** and **customers** in our endeavours regarding environment and occupational health and safety.
- We maintain, through information and cooperation, a relationship with the **general public** and local and national **authorities** that is characterized by frankness and trust.



2.2 Description of the environmental management system

The environmental management system applies and implements the environmental principles and goals defined by the Board of Directors. This guarantees that the goals defined in the EMAS III are maintained, the operating licence is received and official requirements are fulfilled when operating the production facilities. The application of the environmental management system also guarantees that negative impact on the environment is prevented, or at least reduced, in the best possible way for all activities.

All management systems were combined into Hettich's integrated management system (MSH) including the environmental management, occupational safety management, quality management etc. In so doing, consistent higher-level processes are applied all over Hettich Group.

All employees, particularly management personnel, are responsible for the implementation of the management system.

Legal compliance, e.g. with respect to their significant environmental impact, is ensured through internal regulations. All occupational health and safety and environment-related changes are checked continually by external service providers and provided to us with comments.

The employees in Kirchlengern / Bünde are integrated in several different ways into the environmental management system. This is done via the continual improvement processes, the corporate suggestion for improvement system, the "environmental blackboards", the environmental committee, target agreements, the environmental programme and a data file containing environmental documentation, which can be accessed by all employees having PC work stations.

Employees are designated within the environmental management system, who are responsible for monitoring the environment-related areas assigned to them. Their area of responsibility covers the entire location. They report directly to the Managing Directors. The organizational integration of all functions that are concerned with environmental protection (environmental management representative, environmental co-ordinator, water protection officers, etc.) is shown in the following organizational chart (figure 1).

Interested Parties

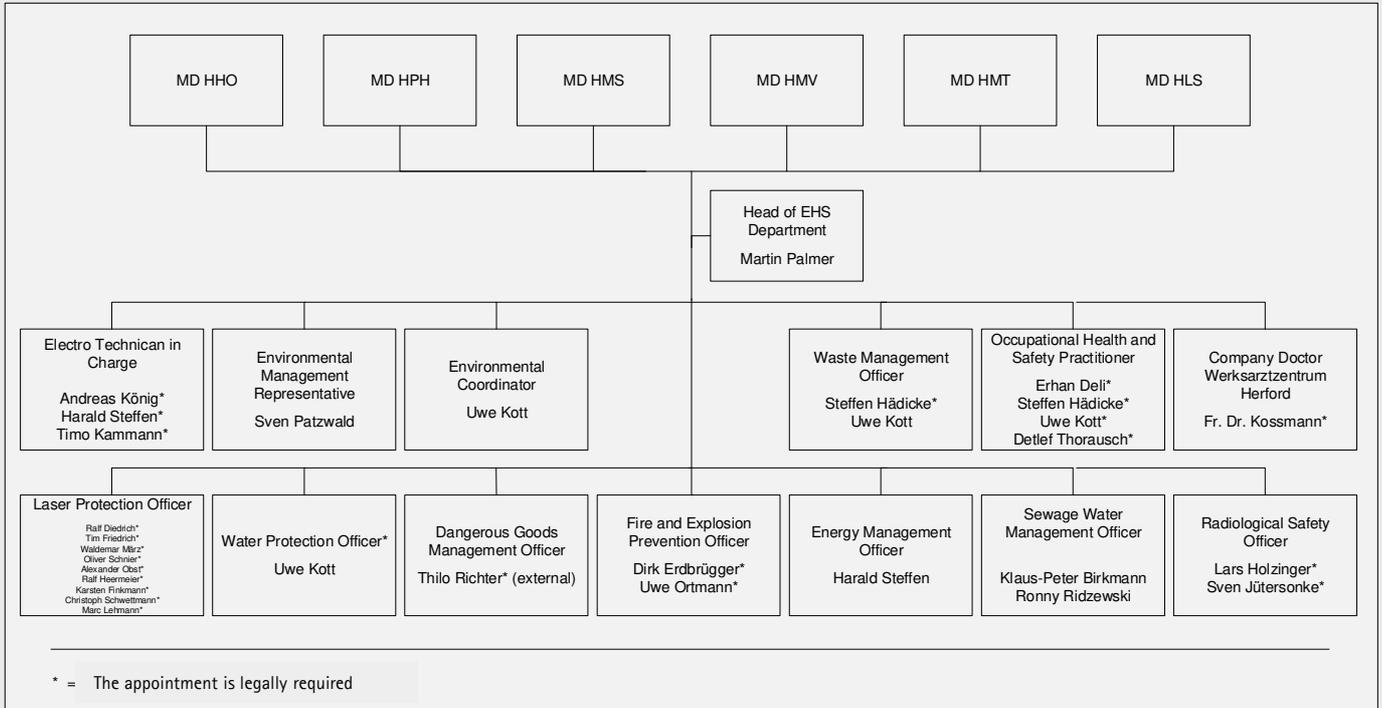
An evaluation has shown that the following interest groups are involved in shaping relevant requirements for the MSH:

- external customer B2C
- external customer B2B
- internal customer (marketing company)
- internal customer (manufacturing facility)
- company management
- legislators and authorities
- normative institutions
- employees
- external suppliers
- external provider
- internal supplier/service provider

The individual requirements and their operational implementation by the MSH can be viewed in our Management System Manual.

2 Environmental Management

Fig. 1: Organigram EHS officers Kirchlengern / Bünde





2.3 Eco-Audits

Eco-Audits or inspections are carried out regularly in order to evaluate the environmental efficiency of our company and to continually improve the environmental protection programme. We check whether environmental management activities are in accordance with the environmental programme, that operational procedures correspond to the environmental management system, and that the environmental management system is suitable enough for effective implementation of the environmental principles in the company.

In addition to evaluating the environmental management system, the Eco-Audit or inspection checks whether the environment-related activities conform to the existing environmental legislation and the EC Eco-Audit directive (EMAS III) and ISO 14001:2015.

An environmental audit is carried out once every three years for the entire site at Kirchlengern / Bünde. An interim audit is also carried out every year in order to check and determine the effectiveness and functional integrity of the environmental management system. The Environmental Management Representative, site Kirchlengern / Bünde, is responsible for performing and co-ordinating the Eco-Audit and the interim audit. He is supported by the site Environmental Co-ordinator and the Hettich Group Environmental Management Representative.

The eco audits or inspections are carried out by means of an audit plan and comprise interviews, documentation checks and inspections. Checks are carried out using function-specific protocol checklists in which findings, measures and implementation deadlines are documented.



3 Environmental Aspects of our Activity

3.1 Environmental relevance of the companies

Paul Hettich (HPH)

The production techniques used in Kirchlengern / Bünde require the use of cooling and lubricating fluids, oils, chemicals and other operating materials. These materials are defined as water-endangering and hazardous materials and appropriate safety precautions are required. These materials are potentially hazardous to the environment and are stored and used in specially equipped storage areas and production plants in accordance with the statutory requirements.

Raw commodities and material-related aspects are linked directly to environmental protection through the production processes and plant-related aspects. A reduction in the environmental pollution can only be achieved if serious consideration is given to all aspects during the development phase for products and plants. Due to the product characteristics a very good recyclability is given (indirect environmental aspect).

Different production processes are applied in the Kirchlengern site in the production of drawer runners and drawer systems at HPH.

Drawer runner production

The strip steel used as raw material for the production of the drawer runners is processed using presses and profiling and punching systems. This equipment has particular environmental relevance as hydraulic oil as well as cooling and lubricating fluids are used.

The pre-manufactured basic components are partly joined together by welding machines or laser welding systems. The components are then joined to the drawer runners in automatic assembly machines and by robots.

Drawer production

After being pre-manufactured on pressing/bending/welding systems, they are first cleaned and pre-treated for powder coating. This is done by means of acid degreasing, followed by cascade washing.

After the drying process, the cleaned drawers are sent to the low waste and low emission powder coating. A drawer model is produced from precoated strip material. In this case, degreasing and powder coating is not done in-house. The components are then fitted together, partly by robot, into pre-finished complete drawers.

Drawer profile production

These are produced using profiling and pressing as well as assembly systems with high-strength and energy-saving TOX insertion techniques. The powder coating is done in the same way as described for the drawers. The resulting cleaning and rinsing water used in the pre-treatment is treated in the company's own sewage treatment plant.

Table 1 shows the annual amount of products, which increased by approximately 12 percent compared to 2016.

Table 1: Products HPH – Drawer runners and drawers

Period	Products [t]
	2017
Drawer runners and drawers HPH	95,454



Hettich Maschinentechnik (HMT)

HMT develops and produces custom-built special purpose machines for internal and external customers. The use of classic metalworking applications is comparatively low. Furthermore assembly operations of special machine constructions dominate.

In 2017 the working hours remained the same as in 2016.

Table 2: Products HMT – Working Hours

Period	Working hours
	2017
Industrial HMT	75,344

3 Environmental Aspects of our Activity

Hettich Logistik Service (HLS)

At HLS logistics processes are developed in carefully coordinated time windows with the help of modern technology and software systems. In addition to the processing of incoming goods and warehousing of products, a focal point is dispatch of goods to customers and subsidiaries with formation of packages (see Table 3). The significant environmental relevance of HLS lies in the use of transport packaging. With regard to the indirect environmental impact, the special importance lies in the selection of the transport routes and the logistics service provider.

Due to the production increase, the amount of packages at HLS increased by approximately 4 percent.

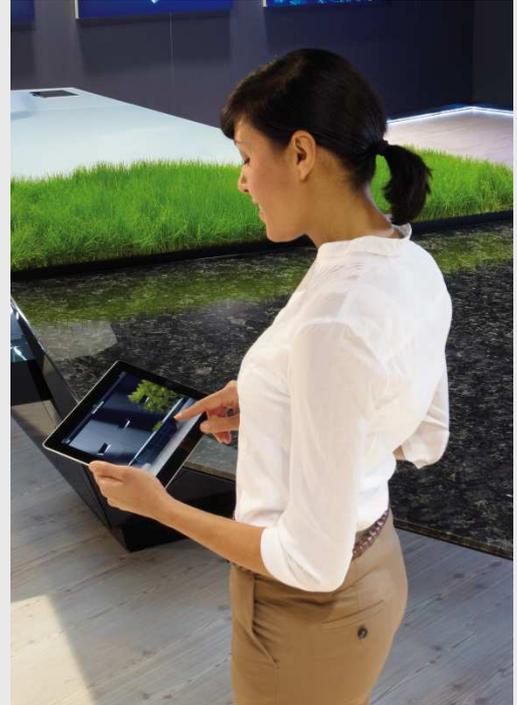


Table 3: Products HLS - Packages

Period	Packages
	2017
Packages HLS	710,078

Hettich Management Service (HMS)

In prototype and small batch series, HMS uses lathes and milling machines as well as plastic injection mounting plants to process metal, wood and plastic. Furthermore, presses and other machines are also used for sheet metalworking. The Department Corporate IT (computer systems, cooling systems, emergency district heating power station A8) is also located at HMS.

Hettich Marketing und Vertrieb (HMV)

HMV is a sales company. The main environmental pollution here comes from the sales representatives who cover long distances each year using company cars. (siehe Table 15).

Hettich Holding (HHO)

HHO carries out purely administrative tasks. No activities are carried out that are of particular environmental relevance. The main focus of HHO is on intergroup tasks. In this connection, the principles for the company group are developed.



3.2 Determination and monitoring of important environmental aspects

All environmental effects of our company are gathered according to the requirements of EMAS III and evaluated regularly concerning possible measures. From this, targets are derived (see table 5 and 6).

The following table shows a summary of the results. These results depend on the assessment of importance with the levels "high", "average", "low". Only those environmental aspects, which are considered as being important with at least average effects, are shown here. The assessment is carried out by an expert determination on the basis of the following aspects:

Frequency of appearance

How often is the input material used or the output material emitted?

Consumption rate / Output rate

How high is the consumption rate / output rate?

Environmental damage potential

Which impacts on the environment can be expected? At this, direct as well as indirect impacts are considered (e.g. emission for the power generation).

Controllability – normal operation

How good are the changes recognisable at normal operation? Normal operation condition: Plant works without fault, all security and control systems are fully functional.

Controllability – Special situations

How good are the changes recognisable in special situations (in the event of fault, system failure, fire, catastrophes)?

Control potential

How is the scope of influence for the improvement of environmental impacts assessed?

Compliance with legal requirements

How intensive are legal requirements adhered to (e.g. from legal requirements, requirements of regulatory approvals and other obligations)?

We consider the life cycle in the assessment of environmental aspects (see table below). Environmental aspects are already taken into account in the development of new products. Environmental aspects are also identified in subsequent processes such as purchasing, production, use and disposal. The resulting environmental impacts are controlled via management processes and environmental programme points.

3 Environmental Aspects of our Activity

Table 4: Important environmental aspects Kirchlengern/Bünde

	Activity/ product	Environmental aspect d: direct, type i: indirect, type	Influence expected? [y/n]	Frequency	Quantity	Controllability	Result of the calculation	Result of the evaluation	Explanation	
Raw material production	Steel	Blackbox							high	Essential basic material, energy-intensive extraction
	Powder								low	Mass comparison to steel
	Plastic components								low	From granulate to product (purchased part). Low share of the end product
	Auxiliary and operating materials								low	Low throughput based on product mass
Product manufacturing	Profiling Disposal of cooling lubricants	d: waste disposal	j	5	2	1	10	low	Frequent use, but good controllability	
	Profiling Steel consumption	d: resource consumption	j	5	5	3	75	high	High consumption and high indirect environmental impacts	
	Profiling Power consumption	d: energy consumption i: resource consumption	j	5	5	2	50	high	High consumption and high indirect environmental impacts	
	Assembly Power consumption	d: energy consumption i: resource consumption	j	5	3	2	30	medium	High consumption and high indirect environmental impacts	
	Drawer production Gas consumption	d: energy consumption i: Ressourcenverbrauch	j	3	2	2	12	low	Good control potential and average consumption; quantity valuation based on primary energy	
	Transport Fuel consumption	d: resource consumption i: resource consumption i: traffic emissions	j	5	2	3	30	medium	Indirectly, since transport via forwarding agents; average consumption and good controllability	
	Transport accident at delivery of hazardous material	d: water/soil contamination	j	1	3	1	3	low		
	Premises and buildings Power consumption	d: energy consumption i: resource consumption	j	5	2	1	10	low	Low consumption for basic building functions and good control potential	
	Premises and buildings Heat consumption	d: energy consumption i: resource consumption	j	2	2	2	8	low	Only seasonal consumption, which is insignificant due to good building structures	
	Utilisation phase	Mechanical products	none	--	--	--	--	--	--	No energy, area or material consumption; no emission
Electrical products		d: energy consumption	j	2	1	1	2	low	Only a small proportion of electrified fittings; low power consumption per unit	
Disposal	Products	d: recycling i: resource consumption	j	1	5	1	5	low	Very durable and long-used consumer goods. All products are put into the disposal process. The good controllability results from the choice of the product material (steel/plastic for drawers). Steel can be recycled >95% without loss of value.	

Evaluation system:

Frequency (=1-5) Evaluation of environmental aspects only comparative for the site

Quantity (=1-5)

Controllability (=1-3) e.g. low controllability means a high environmental relevance and thus "3"

Result = frequency x quantity x controllability

Low level 1 - 24 points

Medium level 25 - 49 points

High level 50 - 75 points

The evaluation of chances and risks results, among other things, in the result of the assessment of environmental aspects.



3.3 Environmental goals and programme

We have drawn up an environmental programme in order to implement our environmental principles and achieve our future environmental goals. The concrete measures are defined and project officers are assigned to ensure implementation. The achievement of the environmental goals will be guaranteed through the timely implementation of the individual points of the environmental programme.

The programme points agreed by the management will be entered in a three-year list (EMAS audit cycle) and their status will be updated. The new environmental programme points suggested by the environmental committee or in the monthly "Jour Fixe Umwelt und Sicherheit" (environment and safety) will be agreed by the management and will be checked at the next appointment with the environmental advisor. The environmental points that have not been completed at the end of the three-year period will be carried forward into the next environmental programme. Previous experience has shown that, through this procedure, there is a significantly higher implementation rate in the environmental programme.

The environmental goals and measures will be checked and updated in the interim audit and in the environmental audit. Furthermore the Management Representative, the Environmental Coordinator and the other officers, ensure that the environmental goals are planned, implemented and monitored by the environmental committee as well as the "Jour Fixe". The Management Representative and the Environmental Coordinator are responsible for monitoring and ensuring that measures are carried out on schedule. They report to the Managing Director and the environmental committee.

We have transferred the pending points of the former programme to our new environmental programme (2018– 2020) and added further points. At the time of the revalidation in April 2018, 54 new points have been added. 64 percent of the current (up to 2020) dynamic environmental programme have been completed. 85 percent of the measures completed by April 2018 have actually contributed to environmental relief. That is why we can talk of a reasonable degree of implementation in the dynamic environmental programme.

An energy efficiency team of qualified employees from different specialist departments has been put together to analyse all areas and work out possible areas of improvement. Furthermore supplementary energy efficiency audits have been introduced within the scope of a proven production management method (TPM). As a result of these audits, we could achieve energy savings of more than 8,600 kWh p.a. in 2017.

We continue to analyse potential (see environmental programme) and in so doing we expect a considerable reduction, especially in the amount of power consumed. This is also reflected in the environmental targets achieved last year and the current year for this area alone.

3 Environmental Aspects of our Activity

Perpetuum 2016 Energy Efficiency Prize

On 24 February 2016, the Hettich trainees Marcel Pavel and Henrik Klußmann (Paul Hettich GmbH & Co. KG) received the junior staff PERPETUUM 2016 Energy Efficiency Prize for optimizing a powder coating machine. The trainees, both in their third year of apprenticeship, independently developed a demand-oriented control system for a powder coating plant. As a result, the annual savings amount to 192,000 kWh of electric power and thus to almost 50,000 euros per year. This measurement already pays off after one month and is also suitable for other locations of the company.



Sustainability Award 2016 of the Environmental Foundation of the East Westphalian economy

As early as 1999, the Hettich group of companies has cooperated with a comprehensive school in Löhne, the „Bertolt-Brecht-Gesamtschule“. In the course of this we developed a concept of a „globalization workshop sustainability“ for the grade12 advanced course for social studies. The previous development of the sustainability issues of globalization at school is the basis for the workshops. Building on this, the globalization workshops take place at Hettich for practical absorption. On this occasion the students have the opportunity to match their theoretical knowledge with the experiences of an internationally operating company. The students are given the possibility to gain deep and genuine insight into the sustainability aspects of globalization, particularly regarding the focal points India and China, as well as into different national environmental standards and their implementation.

For this longtime cooperation „ globalization workshop sustainability“ Hettich was awarded – in equal shares with another company – the 10,000 euro Sustainability Prize 2016 of the Environmental Foundation of the East Westphalian economy.





Table 5: Completed activities up to April 2018

Environmental aspect	Environmental target / measure	Reference year	Responsible (company)	Date	Status
Energy consumption	The aim is to optimise the heating system in Hall C2 by adapting the control system between the CHP unit and the boiler.	2016	Facility Management (HMS)	08/2016	Done. The use of plant waste heat has reduced boiler demand by 80 percent compared with the previous year.
	In the new Hall B7, the heating energy requirement is to be approximately 48 percent below the latest Energy Saving Ordinance.	2016	Facility Management (HMS)	06/2016	Done. B7 was put into operation. The saving amounts to approx. 336,000 kg/a CO ₂ after implementation.
	Own power generation through photovoltaics	2017	Facility Management (HMS)	02/2018	Done. The photovoltaic system on the roof of hall B7 took over its collector task at the beginning of February 2018 and was able to generate 5,200 kWh in the same month. Expectations for 2018 are 240 MWh.
	In the new hall B7, only 30 percent of the conveyor technology is heated compared to C2. This corresponds to savings of 844 MWh per year.	2017	Engineering (HPH)	06/2017	Done. Production will proceed as planned. The consequent savings of 30 percent are achieved.
	By optimising the Q3 oven drawers, materials are used that consume less energy during heating processes.	2016	Production Manager (HPH)	12/2016	Done. End-consumers save a total of 74,000 kWh per year.
	Installation of a chiller which is switched off over the weekend. Savings of 60,000 kWh/a expected.	2018	Facility Management (HMS)	12/2018	Installation is complete. The saving amounts to 1,221 kWh/weekend, corresponding to 63,492 kWh/a. Additional savings result from shutdowns on public holidays.
Consumption of resources	Optimised material utilisation in prefabrication relieves the environment by approx. 100 tons of steel per year.	2018	Production Manager (HPH)	12/2016	Done. The necessary measures were implemented in the last area in November 2017. Savings of 140 tons were achieved.
	Euro pallets are to be loaded more effectively through packaging measures.	2017	Hall Management (HLS)	yearly	Done. At 8.6 percent, the growth of loaded packages per pallets is a good four times higher than the 2 percent increase in purchased pallets.
	Reduction of material consumption at the assembly lines. Reduction of waste through camera systems and technical measures to less than 1 percent.	2015	Production Manager (HPH)	12/2017	Done. The measure was successfully implemented, the savings achieved can be put at 10 t/a.

3 Environmental Aspects of our Activity

Table 5: Completed activities up to April 2018 (continuation)

Environmental aspect	Environmental target / measure	Reference year	Responsible (company)	Date	Status
Consumption of resources	Optimized material utilisation in prefabrication.	2017	Production Manager (HPH)	06/2017	Done. An environmental relief of 18 tons of steel per year was achieved. Savings will also increase in the coming years as production volumes increase.
	Use of new process technology compared to chemical treatment saves 89,000 litres of hazardous material per year.	2017	Engineering (HPH)	07/2017	Done. Planning has been completed and the plant is currently under construction. Hazardous substance substitution is 100 percent achieved, as no hazardous substances are required by the new process
Traffic emissions	Use of own 3D printer saves the delivery of components by the service provider.	2016	Engineering (HPH)	07/2016	Done. The first 3D printer went into operation in July 2016. Along with the expected benefit of the technology the savings increase as well. Current savings of 50 t CO ₂ per year have been achieved.



The following table summarises the essential pending and the new environmental goals.

Table 6: Environmental goals

Environmental aspect	Environmental target / measure	Reference year	Responsible (company)	Date	Status
Consumption of resources	Optimised heating control of the paint removal systems during production pauses. Annual savings of about 15,000 litres of hazardous materials and heating energy expected.	2018	Competence centre surface (HPH)	12/2018	Tests are carried out at different temperatures. At the determined temperature, a heating saving can then also be quantified.
	By redesigning the packaging, 2,000 m ² of cardboard can be saved annually.	2018	Production manager (HPH)	07/2018	Initial tests on packaging have been carried out. An evaluation is still pending.
	Expected extension of the durability of storage batteries by 100 percent and relief of the environment through no longer necessary replenishment of battery water.	2018	Hall management (HPH)	12/2019	In planning.
Energy consumption	An intelligent welding fume extraction system regulates the output according to the quantity of running systems. Annual savings of 12,000 kWh expected.	2018	Engineering (HPH)	07/2018	The conversion is planned for mid-2018.
	An intelligent light circuit reduces energy consumption by around 60 percent. Savings of about 12,000 kWh expected.	2018	Control service (HPH)	12/2018	The conversion has been carried out and an environmental relief has been achieved. The actual savings can be determined after one year.
	The installation of an intelligent heating control system in injection moulding machines relieves the environment when the system is at a standstill. Savings of 1,500 kWh/a per machine expected.	2018	Facility Management (HMS)	12/2018	The measures are being examined.
	Conversion of lighting in hall A3 to LED. Expected savings of 53,000 kWh/a.	2018	Facility Management (HMS)	12/2018	Approval is pending.
	Avoidance of energy consumption on weekends at the punches in building C2. Expected savings of 35 MWh/a.	2016	Production manager (HPH)	12/2017	Already implemented at 2 of 3 plants. Calculation will be done after conversion of all systems.
	Replacement of the conventional light sources in building C2 by LEDs. Calculated savings of 166 MWh.	2016	Facility Management (HMS)	12/2018	The lighting in C2 is to be completely replaced by LEDs.
Traffic emissions	Reduction of fleet consumption of company vehicles. Savings of 30 percent per vehicle thanks to e-hybrid cars. A BMW i3 vehicle with range extender as pool vehicle and a VW Golf plug-in hybrid are to be used to gather user experience.	2011	Fleet management (HMS)	12/2014 extendet to: 12/2018	The vehicle were procured and will be used accordingly. An evaluation will take place at the end of the test, at the end of 2018. Update: A final evaluation is still pending, but the first test result are so good that another vehicle with range extender was purchased in 2017 and one in 2018.

4 Presentation of Operative Environmental Performance

The development of the operational environmental protection over the last years is described below and illustrates the environmental performance of our company site. In order to be able to illustrate the changes effectively when compared to the previous years, we have introduced relative environmental performance values. The raw materials used (strip steel, powder paint and wood panels) have been taken as reference sizes when determining these values. On the one hand, the environmental performance values allow the effectiveness of environmental relief measures to be illustrated without being influenced by production variations. On the other hand, meaningful environmental performance values assume at least a constant product and process spectrum on the site.

The table below summarizes the development of index values compared to the previous year:

1. Specific amount of waste	- 8.6 %
2. Rejection quota wood panels	- 62.4 %*
3. Specific process water consumption	- 8.8 %
4. Specific power consumption	- 3.1 %
5. Specific process gas consumption	- 0.7 %
6. Specific heat consumption	+ 18.1 %
7. Specific CO ₂ emission	- 3.6 %

* The high number results from the closure of a production unit with subsequent clearance of the inventory in the previous year. These shares again were recycled.

Problems with the significance of environmental indicators can occur as a result of delayed production activities. It must also be noted that material thicknesses have been reduced (specific product weight) over the last years. This can have an adverse affect on the environmental performance values, as more product items are produced from the raw materials. Also because of production-related changes on the site in the last years (e.g. energy-intensive laser welding plants, increased use of transfer lines or sharply increased, energy-intensive use of robots, increased office technology, increased single layer powder-coating,...), the performance values are in some cases pushed to the limits.

With the adjustment of the management system to EMAS III, a few core indicators (CO₂ emissions, energy consumption, waste generation) have also been adjusted. Many of the newly required indicators have been a fixed part of the management review of Hettich for many years. From the measurement of greenhouse gases and the other emissions into the air, it is clear to us that only the CO₂ emissions which have also been taken into consideration in the last few years have a corresponding relevance.





4.1 Raw commodities and operating materials

Various raw commodities and operating materials are required either directly or indirectly in the production of our products, the operation of production systems, for packaging the products, etc. The purchasing of the raw commodity amount and the operating material amount is in line with the increase in production in 2017. Only the amount of the used wood panels increased by approximately 429 percent, since a new drawer has been produced since 2017 after the end of the preliminary product in 2016.

Table 7: Raw commodities and operating materials - 2017

Period	Raw commodities and operating materials [t]
	2017
Strip steel / sheet metal	104,169
Wood panels	4,099
Powder paint	1,003
Cardboard packaging	5,036
Oils and grease	149
Cooling lubricants	6
Chemicals for paint removal	141
Chemicals for the pre-treatment and cleaning of sewage	128
Total raw and operating materials	114,731

4 Presentation of Operative Environmental Performance

The new European regulation on chemicals "REACH" (Registration, Evaluation and Authorisation of Chemicals) came into force on 1 June 2007. This has meant a comprehensive revision of the applicable chemical regulation. It is not only the chemical industry that is affected but also the so-called "downstream users", to which the Hettich companies in Kirchlengern / Bünde belong. They are obliged to use the chemicals and preparations only as indicated by the manufacturer. If different uses are required, the manufacturer must be requested to apply for this or the user himself must register such uses with the authorities. Furthermore bans on substances are controlled through REACH.

All necessary checks and measures have been carried out or introduced in our companies in Kirchlengern/Bünde, in order to fulfil the REACH requirements, also in relation to suppliers and customers.

We are also prepared conceptually for the conversion to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Transitional requirements exist for the introduction and implementation of the changed circumstances. The uniform system, established globally by the United Nations, for the classification of chemicals and their labelling on packages and in safety data sheets was progressively implemented for pure substances (by 12/2010) and was introduced for mixtures by 12/2015. Updates are made regularly.





4.2 Waste

Total amount of waste

A waste sorting system has been put into practice in Kirchlegern / Bünde covering at present 41 types of waste. The annual amounts are registered and documented both in a waste balance sheet and in the annual report from the officer waste disposal. The different types of waste are separated by type and collected for disposal in suitable containers located on the company premises. In the beginning of the year 2013, the waste disposal on site has been assigned to two new waste disposal companies. They were included in our environmental policy right from the beginning. Prior to placement of the order, the strict environmental requirements demanded in the tender were confirmed by on-site audits at the disposers.

Within the scope of waste disposal, we keep on working exclusively together with certified specialised waste management companies.

A large portion of the waste produced by us can be recycled and brought back into the economic cycle. The recycling rate is 98 percent.

In 2017 the waste amount increased by approx. 11 percent, in line with the increase in production.

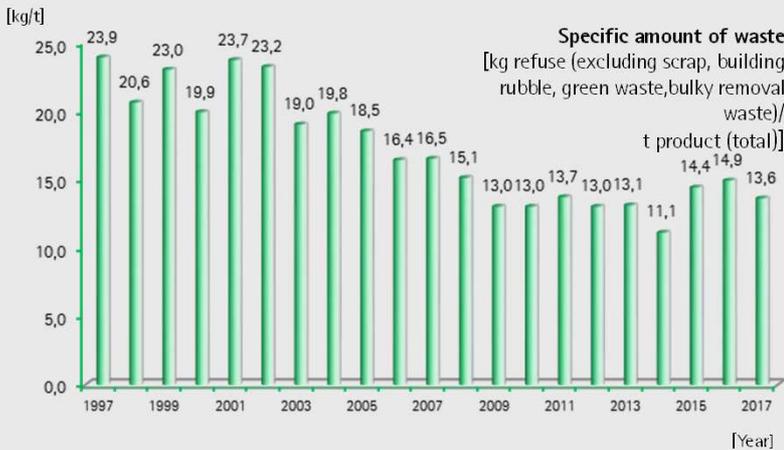
Table 8 shows the annual amount of waste for 2017.

Table 8: Essential types of waste - 2017

Period	Waste [t]
	2017
Powder paint	35
Mixed scrap	11,025
Cardboard packaging	653
Waste wood	354
Plastic	60
Other waste	293
Total amount of "non-hazardous waste"	12,420
Paint sludge	218
Phosphate water	64
Emulsion	68
Waste oils	11
Operating materials containing oil	16
Total amount of "hazardous waste"	377

4 Presentation of Operative Environmental Performance

Fig. 2: Comparison figures – Specific amount of waste



Please note: The presentation of the specific amount of waste has slightly been changed in 2013 by excluding the asbestos waste which accumulates at restoration works, because this kind of waste is not influenced by production.

Specific amount of waste

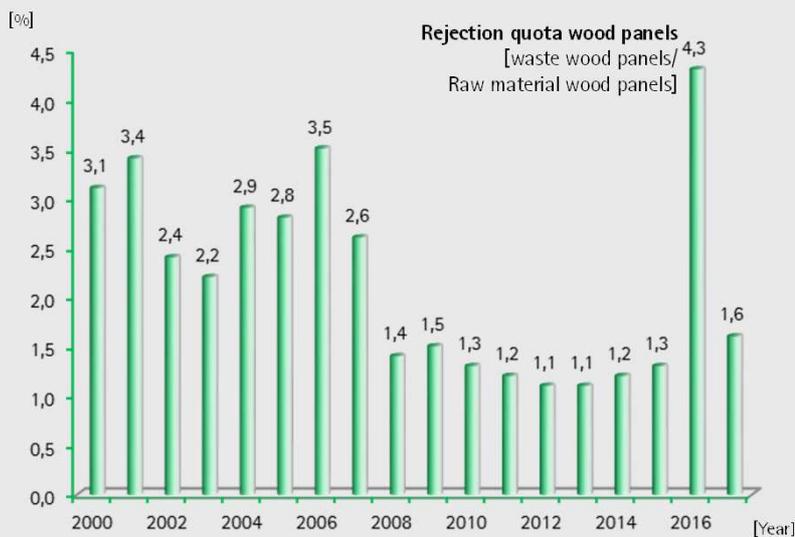
The presentation of the specific waste (fig. 2) has been adjusted by the disproportionately represented scrap. The specific amount of waste was almost 13.0 kg/t product since 2009 could be reduced below the long-term average with 11.7 kg/t in 2014. Since 2015



the specific amount of waste increased again. Compared to the previous year, there was an improvement of 8.6 percent.

The product content is made up of three main groups: steel, powder coating and wood panels.

Fig. 3: Comparison figures – Rejection quota wood panels



Waste amount wood panels

The rejection quota of wood panels was reduced considerably in 2006 by changing supplier. Further adjustments were made in 2007. A further significant reduction was also achieved in 2008 by optimising processes and systems and since then remains at a low level. In 2016 the product phased out, so that no further waste was generated. As a result of the subsequent adjustment of inventories, the key figure increased sharply in 2016. With the new product start-up in 2017, the key figure is slightly above the average of previous years.



4.3 Water and sewage

Process water is used mainly for cleaning and degreasing in the drawer production (halls A8/B4/B5/C2) in Kirchlegern/Bünde. Furthermore smaller amounts are used for the cooling lubricant supply for the profiling systems. In 2015, evaporative cooling plants were put into operation for cooling in C2. As a result the water consumption increased during summer months.

Water consumption

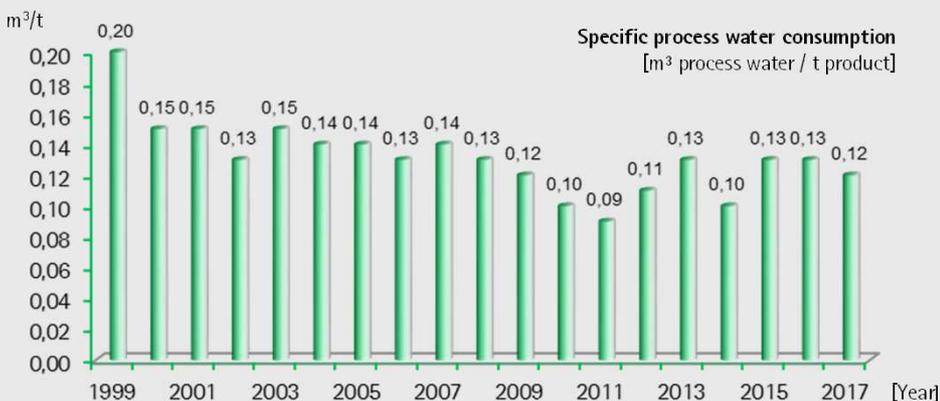
Table 9: Water consumption – 2017

Period	Water consumption [m ³]
	2017
Sanitary water	13,980
Process water (A8/B4/B5/C2)	11,454
Total consumption	25,670

In all areas, water consumption did not increase more than the increase in production compared to the previous year.

The specific process water consumption (see figure 4, in m³ process water/t product) decreased by 8.8 percent compared with the previous year. The key figure has improved slightly as a result of regular jour fixes, in which consumption is analysed and measures are derived.

Fig. 4: Comparison figures – Specific process water consumption



4 Presentation of Operative Environmental Performance

Waste water

Waste water accumulates in the form of production, sanitary and precipitation rainwater sewage. The production and sanitary sewage is discharged into the sewage system that is connected to the local sewage treatment plant in Löhne.

In Factory A, there are three large capacity underground rainwater retention systems that relieve the receiving water in case of heavy rainfall. The twin flow channels near A3, A8 have volumes of 690 m³ and 302 m³ respectively. The backwater channel at the building extension of A5 has a volume of 28 m³.

The part of the precipitation water coming from the roof area in factory B is passed through a surface seminatural retention reservoir with a volume of 400 m³ and then discharged directly into a small watercourse (receiving water). For the precipitation water of B7 there is an additional above-ground retention pond with a volume of 1,200 m³.

The water from the roof area of the high-rack storage C1 is retained by a surface backwater reservoir with a volume of 610 m³ and a subsurface backwater channel with a volume of 27 m³.

The surface water of the paved yard areas and the picking hall collect in a surface seminatural retention reservoir with primary clarifier and 1,400 m³ impoundment volume, before draining off into a receiving water course.

The rainwater from factory C2 accumulates in a surface retention reservoir (1,245 m³) before draining off into a receiving water course.

The waste water from the production results exclusively from the drawer production (HPH). The water is then treated in the company's own waste water treatment plant before being routed into the public drainage system. Samples are taken to ensure that limit values are observed (see Table 11).

The sewage treatment plants are monitored through our own and official measurements, maintenance work, regular inspections and visual checks. The limit values specified will certainly be maintained in accordance with the external laboratory analyses.

The concentration of substances discharged from the sewage treatment plants into the public sewage (direct discharger) results in the following annual load (calculation based on three measuring reports predetermined from public authorities for each sewage treatment plant from 2017, see Table 11) for the subsequent communal sewage treatment plant. The limit value of the parameters subject to mandatory testing had at no time been exceeded.

Table 10: Waste water – 2017

Period	Waste water
	2017
Sanitary water	13,980
Waste water from treatment as well as full desalination plant	6,843

The difference between process water consumption and waste water evaporates based on the water and component temperature as well as the large surface of the product in the area of the pre-treatment plant and in drying the drawers before the powder coating.

The sewage treatment plants comprise a neutralization, a flocculation and a filtration.

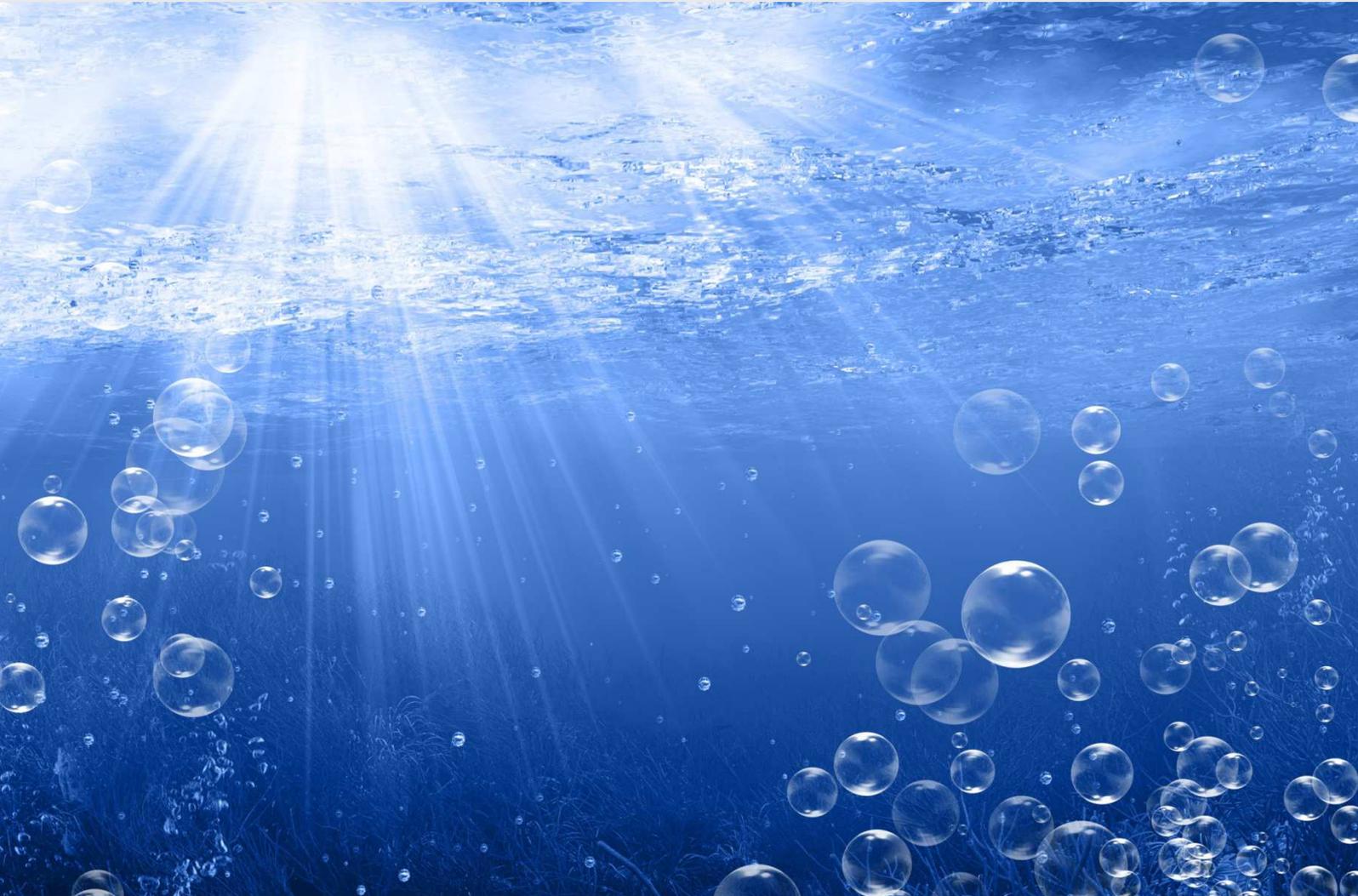


Table 11: Waste water load of the sewage treatment plants B4 and C2 in 2017

Waste water load of the sewage treatment plants				
Parameter	Unit	Value determined $\bar{\sigma}$	Limit value	Annual load [g/a]
AOX ¹⁾	mg/l	0.03	1	141
LHKw ²⁾	mg/l	0.01	0,1	47
Zinc	mg/l	0.04	2	188
Hydrocarbons	mg/l	1.03	10	8,130

¹⁾ Absorbing organically-linked halogenates

²⁾ Low volatile halogenated hydrocarbons



4 Presentation of Operative Environmental Performance



4.4 Energy

For heating of buildings and degreasing baths, district heating is procured on site from a district heating plant that generates electricity as well as heat (combined heat and power). The plant came into operation in 1994 and until the beginning of 2010 also supplied heat to the neighbouring municipal swimming pool "Aqua Fun" and an adjoining housing estate.

Today, natural gas is the most important source of energy that is used to generate heat in the production facilities (baking furnaces in the powder coating as well as heating the paint removal baths) and for the combined heating and power stations A5, A8 and C5 as well as for the peak load boiler A5 und C2. The Logistics Centre which came into operation in 2006 is also heated by natural gas. A special feature here is the efficient gas-infrared heating system in the picking area.

The electricity mostly is supplied from the public grid. Since 2007, power is supplied via medium-voltage lines between the transformer substation and the factory.

Energy savings with new buildings

In 2009, the Hettich Forum opened. The building is outstanding due to a far-reaching consideration of energy and ecological aspects. This includes all areas such as use of energy, building material and area consumption. As an energy-neutral building, the Hettich Forum serves as a model for a sustainable, futuristic building design. The insulation which is 40 mm thick consists to a large extent of environmentally-friendly cellulose material.



Hettich Forum B1

The heating supply is secured through the company's own district heating system with its efficient heat generation from production waste heat as well as a combined heat and power system. The energy requirement of 30 kWh/m² is 80 percent under the specific requirement per year specified by the energy conservation regulation. In this way, 226,618 kWh can be saved annually, which is equal to the annual consumption of 21 separate houses. The lighting in the entire Hettich Forum uses energy-saving bulbs with dimmable, electronic ballasts.

A light management system using LED technology in the exhibition and boulevard area reduces the effective switch-on time and decreases the annual power consumption by 25 percent. In addition to the energy-saving measures, the integrated 239 m² photovoltaic system produces more than 25,000 kWh of power per year. With this output, up to 1,500 energy saving bulbs of 20W can be operated at the same time.

The greater part of the heating and warm water is supplied by the additional 6 m² thermal water system. On 5 March 2009, Hettich received the European Commission's GreenBuilding Partner certificate in recognition of exemplary planning and furnishing of the building as well as the implementation of the "Green Building" principles in accordance with the directives of the European project for the improvement of energy efficiency in commercial buildings.

In June 2009, the Hettich Group was awarded the Green Building Award for the Hettich Forum in the "New Building" category.



emissions avoided hereby offset 450,000 car kilometres (equivalent to 11 times round the earth).

It has been possible to achieve a good energy balance with "0 litre house" standard for the Hettich Forum through drastic measures to reduce the energy requirement including the provision for the production of solar energy. In fact in 2009, the consumption in the building fell short of the values allowed in the Energy Conservation Regulation by 76 percent. This represents a real saving equivalent to 24,000 litres of heating oil. The CO₂



AWARD WINNER 2009

Hettich Holding GmbH & Co. oHG

Die Hettich Holding GmbH & Co. oHG erhält die nationale GreenBuilding-Auszeichnung für verbesserte Energieeffizienz bei Neubauobjekten für das Gebäude „Hettich Forum“. Das GreenBuilding-Programm ist initiiert von der Europäischen Kommission.

dena
Deutscher Energie-Tag

Intelligent Energy Europe



4 Presentation of Operative Environmental Performance

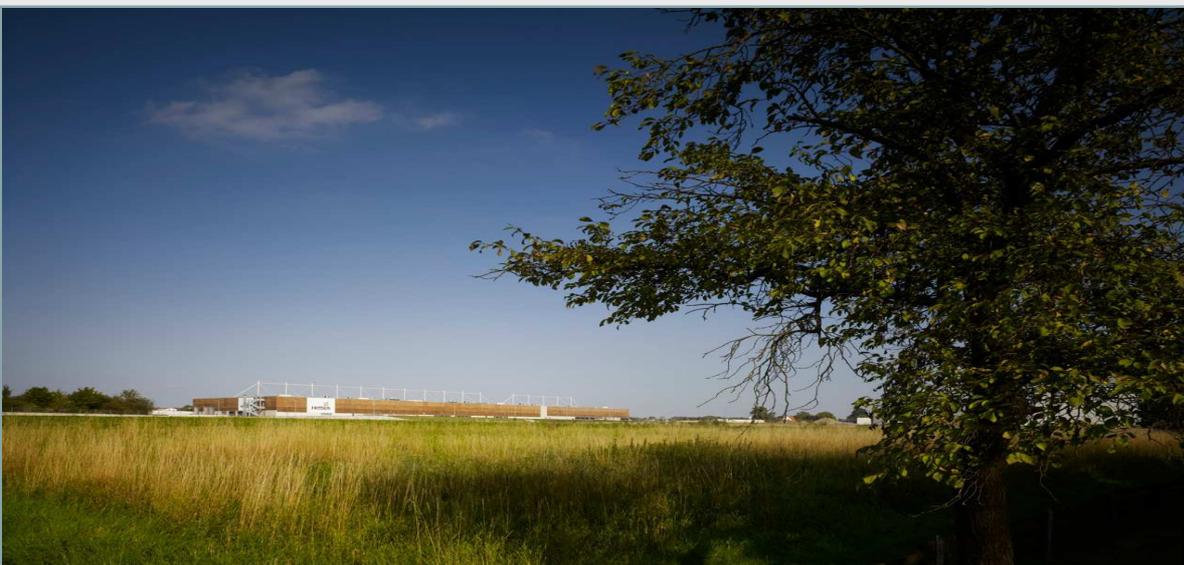
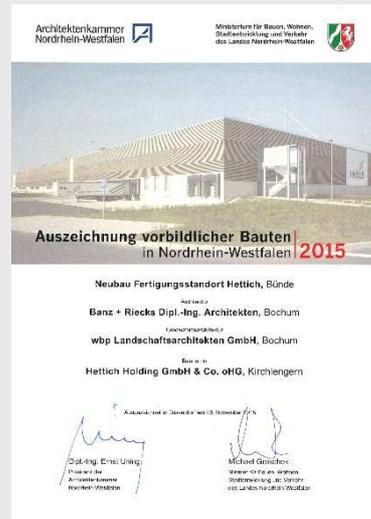
Production hall C2

The requirements set by the company and the experience gained in the context of the Hettich Forum have also been used in the 14,000 m² production hall C2 which was completed in September 2012. The sustainability features include a façade which is predominantly designed of wood (renewable and 1,630 t CO₂ binding building material) and a heating requirement that is about 72 percent under the requirements specified in the building regulation (enEV). Furthermore, the electricity consumption for lighting was reduced by approx. 70 percent compared to normal lighting.

This holistic sustainability concept for the predominantly timber-built Hettich production hall was awarded the „Best Practice Energy Efficiency“ label of the German Energy Agency in the category „building-related projects“.

Furthermore, the hall constructed for production of the drawer system ArciTech was awarded the NRW Timber Construction Prize 2014. Due to the new building more than 1,600 tonnes of CO₂ have been permanently taken out of the atmosphere.

In 2015, the Chamber of Architects of North Rhine-Westphalia and the Ministry of Building, Living, Urban Development and Transport of North Rhine-Westphalia also presented an award for exemplary buildings.





Production hall B7

The construction of the new production hall B7, which was completed in 2017, with a gross floor area of about 24,500 m² planned for 2016 is intended to exceed the legal requirements as well.

The legislator again tightened the requirements for energy-efficient construction. The annual maximum primary energy demand as per EnEV 2016 is by 25 percent lower than in the previous version EnEV 2014. Although the legal requirements already increased with the new ordinance, Hettich aims for a new construction with a primary energy demand of 46 percent below the requirements of the EnEV 2016. The planned photovoltaic system with an installed capacity of 250 kW on the roof of B7 is also part of the sustainability concept.

The sustainability properties of the building have led to Hettich being awarded the Industrial Construction Prize for Sustainable Building in 2018. This award recognizes architects and buildings for their innovations in this field. The B7 project is a sustainable contribution to responsible industrial construction in terms of production logistics, energy technology and building typology.

BELEG
Beleg-Nr.: 63438-1001796-0217027

CO₂ BANK

1.293 Tonnen CO₂

Altmetri: August 2021

Bauherr: in
Hettich Holding GmbH
Objekt:
B7 Hettich Holding GmbH & Co.
oHG

Das Objekt wurde in Holz realisiert, dadurch wurde ein aktiver Beitrag zum Klimaschutz geleistet.

Durch den Vorgang der Photosynthese wird Kohlendioxid (CO₂) reduziert. Der Kohlenstoff (C) wird in Holz gespeichert. Der Sauerstoff (O) geht in die Atmosphäre. Der Atmosphäre wird dadurch das Treibhausgas CO₂ dauerhaft entzogen. Dadurch ist Holz ein Werkzeug aktiver Klimaschutz.

Die CO₂-Bank ist ein Initiativ der WFC- und Holzwerke AG. Für die Berechnung des durch die Speicherung im Holz gespeicherten Kohlenstoffes werden die folgenden Informationen herangezogen: www.co2bank.ch

Landesbeiräte Holz
Markgraben 10, 50839 Hettich (D)

ing. Matthias Steiner BA

ALLIANZ HOLZ
LANDESBEIRÄTE



4 Presentation of Operative Environmental Performance

Energy generation

From March to December 2009, 24,774 kWh power was generated using the company's own photovoltaic equipment. In the following two years of full operation, feed-in quantities up to 28,958 kWh/a have been generated. This means that the target of 25 MWh per year has been significantly exceeded.

In the past year the target value has been exceeded again by generating 26,224 kWh due to the power of the sun.

The heat in the heating centre A5 is generated by two CHP plants and two heating boilers. If needed, the heating boilers can be fueled by oil. For this purpose two oil tanks each with a capacity of 50,000 litres are available.

As for ecological reasons the heating boilers are preferably fueled by gas, the oil reserves have not been consumed

over a long period. In order to clean and maintain the oil tanks, the oil reserves were consumed in the beginning of 2016. For maintenance purposes, the plant was only briefly operated for testing in 2017. Thus the oil consumption (with the exception described above in April) comes to zero litres again since then (see table 13).

For the purpose of our energy concept we continue to further expand the share of combined heat and power. In May 2015 we put the new CHP A5-2 with a performance of 550 kW_{el} in operation, in addition to the old CHP A5-1 (see table 12).

Both the compressor station and the CHP in C2 provided considerably more power and heat than in the previous year. The main reason were improvements in the control systems. The CHP A8 had technical problems and therefore could not show any operating hours in 2017. It was not put back into operation until 2018.

Table 12: Own energy generation - 2017

Period	Energy generation [MWh]
	2017
Power photovoltaics (B1)	26
Power CHP-1 (A5)	872
Power CHP-2 (A5)	1,785
Power CHP (A8)	0 ¹⁾
Power CHP (C2)	157
Total power	2,840
Heat solarthermics (B1)	1
Heat 2 CHP and 2 heating boilers (A5)	8,533
Heat CHP (A8)	0 ¹⁾
Heat CHP (C2)	312
Heating boiler (C2)	509
Heat central compressed air system (C2-1)	162
Heat central compressed air system (C2-2)	8
Heat compressor unit (B3)	2,608
Total heating	9,154

¹⁾The CHP A8 could not be operated in 2017 due to technical problems.



Energy consumption

The absolute power consumption increased by 9.6 percent. However, the increase in power consumption is below the increased product tonnage.

In November / December 2012, the expansions of buildings A5, A6, A8, C1 and A9 were taken into operation. As a consequence, about 7,800 m² more areas have to be provided with energy (lighting, ventilation, cooling) since 2013. As most of the new buildings resp. expansions (canteen, training centre, administration and storage place) are no production areas, the additional consumption is not compensated by an increase of the product tonnage with regard to the key figure. On the positive side, the additional heating requirements are so low due to the highly heat-insulated wood frame construction of the building expansions, that they are not visible in the overall statistics.

Proportion of renewable energies in energy consumption

The power procured from the energy supplier consists of 38.8 percent from renewable energy sources (water and wind energy as well as other renewable energy sources such as solar and biogas). The amount of heat generated by combined heat and power including used waste heat adds up to 6,853 MWh.

The amount of self-generated power is 2,840 MWh (see table 12).

It is assumed that the biogas converted to natural gas still constitutes less than 1 percent of the total volume.

This means that the share of renewable energies in the total consumption (gas, power, oil) amounts to 36 percent. Furthermore we use the unquantifiable waste heat of the numerous ventilation systems with heat recovery.

Since 1 January 2017 the site in Kirchlengern/Bünde exclusively obtains certified clean power.

Apart from the second photovoltaic system, which will be put into operation on the new building B7 in 2018, this is a possibility for Hettich Group to push forward the subject of renewable energies.

Table 13: Energy consumption – Comparison 2017 and previous years

	Energy consumption	
	Change compared to previous year[%]	Change compared to 2015 [%]
Power ¹⁾ [MWh]	+9.6	+16.8
Natural gas ²⁾ [MWh]	+7.9	+28.8
Heating oil [MWh]	-90.0 ³⁾	--- ³⁾
Total	+8.6	+22.0

¹⁾ Obtained from public grid without own power generation CHP A8, CHP A5, CHP C2 and the photovoltaic system B1

²⁾ Gas consumption in the drawer production HPH and the CHP A8, A5 and C2 as well as the heating of the Logistics Centre and the central heating plant A5 and peak load boiler C2.

³⁾ No oil consumption in the previous years. In 2016 residual amounts were consumed, in order to be able to clean and maintain the oil tank.

4 Presentation of Operative Environmental Performance

Gas consumption

The absolute gas consumption has increased by 7.9 percent when compared to the previous year (see table 13). This is due to heating energy requirements caused by the weather, the clearly longer running times of the CHP plants and an increased product throughput in the powder furnaces.

The specific gas consumption for the two paint removal bath heating systems as well as the baking furnaces B4/B5, A8 and, since 2011, also C2 decreased by approx. 1 percent during the same period.

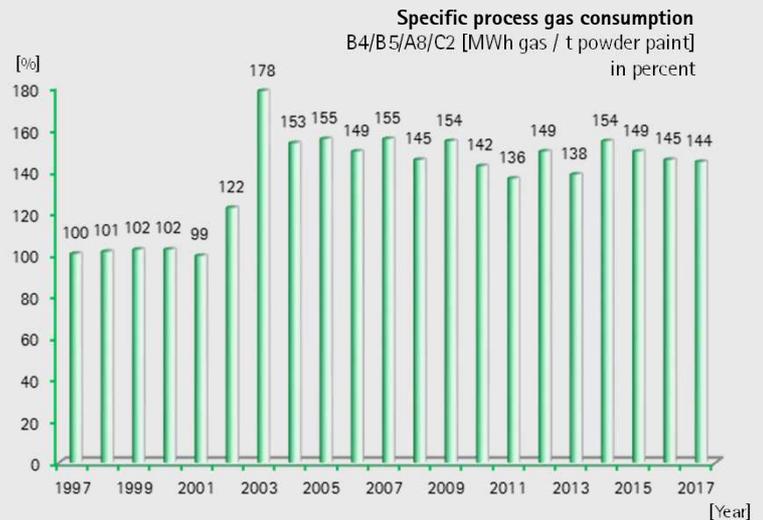
The powder coating quantity has been selected as a reference, as only a part of the products manufactured on site (drawers and slides) pass through the gas-consuming powder coating process.

Due to the optimisation of the thickness of the powder coat in the past years, the amount of powder could be reduced along with an increase in the number of pieces.

This why the specific process gas consumption increased.

The process gas consumption has stabilised over a ten year comparison. The leap from 2002 compared to 2003 is mainly because the third baking furnace, which came into operation in 2003, is heated indirectly for reasons of quality. This inevitably leads to an increase in the consumption of energy. After activation of the fourth baking furnace in 2011, there was another slight leap in 2012. However, this was mainly caused by the start of the series and the initial difficulties connected with it. This year's value falls clearly below the ten year average. The reduction of the specific gas consumption was among others made possible by the automated control system depending on the occupancy of the chains.

Fig. 5: Comparison figures – Specific process gas consumption



Please note: The process gas consumption of the last few years has been adjusted, as boiler C2 was subsequently subtracted.



Power consumption

Conflicting aspects which unfortunately cannot be reasonably quantified and offset have made it more difficult to continue to decrease power consumption (see table 5) over the last years, in such areas as:

- continually increasing use of technology (e.g. laser welding)
- sharply increasing automation (e.g. use of robots, transfer lines, ...)
- increasing number of cooling systems (buildings and machines)
- increasing number of administrative and logistical areas which initially affect the key figure in an adverse way, as they do not produce any product tonnages.
- increasing number of ventilation systems (ventilation of halls and extraction systems on machinery and plants)
- increasing office technology (computers, telecommunications, etc.)
- increasing product efficiency (i.e. optimization of product materials where, for example, the same amount of powder coating is required, but they represent less "product tonnes")
- new profiling systems

In 2017 our extensive efficiency measures have not compensated for this trend. However, without these different measures (e.g. the increase in efficiency for machinery and plant in 2016 because of TPM in the amount of 11.4 MWh/a), there would have been an even more considerable increase in power consumption. The power consumption per product tonne was particularly pushed up by the series start-up of our new products Actro and ArciTech and the new buildings and expansions in A5, A6, A8, A9, C1 and B7.

Furthermore we have invested a lot in improving indoor climatic conditions for the employees in the past. Due to the new ventilation and extraction systems on site the power consumption caused by ventilation adds up to approx. 10 percent of the total consumption.

Moreover, the site power supply for the new building B7 came in addition as extraordinary charge in 2016. It constitutes approx. 0.5 percent of the total power consumption.

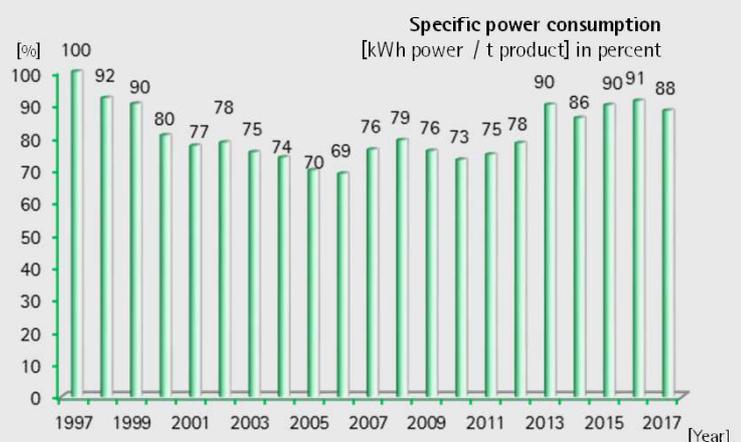
To improve the comprehensibility of the energy consumption development on site, a meter concept was planned and partly implemented in the last years. The first implementation step makes it possible to capture energy data per production area and among that even for the most important energy consumer per energy source (power, gas, water, heat, compressed air). For this purpose a wide range of sub meters was installed.

Since 2015 we are for the first time able to automatically read all electricity meters.

In the second stage of expansion plant-related meters are installed, which make it possible to measure the total energy consumption per production area. Currently different software solutions are being tested here for data collection and visual processing.

Additionally a monthly Jour Fixe with the authorised representatives has been stipulated in the last year to discuss the energy consumption data and in the case of essential changes to analyse these with the production areas.

Fig. 6: Comparison figures – Specific power consumption



Please note: The key figure has been adjusted in 2015. The whole energy consumption is considered now (purchased- and self generated power).

4 Presentation of Operative Environmental Performance

Heat consumption

The absolute heat consumption over the last years has increased by approx. 26 percent when compared to 1997, in spite of an increase in production of 385 percent. The excellent result can be traced back to the holistic energy concept which has begun in 1998 with the former energy contracting associated with the necessary extensive changes, plant replacements and different measures for the use of surplus heat, as well as the centralized compressor station with heat extraction. This energy concept is pursued to this day by using and expanding cogeneration of heat and power and using waste heat on ventilation systems and compressor units when possible.

The specific heat requirement increased by approx. 5 percent in the last year, largely due to the weather with more heating degree days (-175 heating degree days compared to 2016, equivalent to -8.3 percent). From 1997 to 2017, the specific heat consumption could be reduced by approx. 67 percent.

4.5 Exhaust and noise

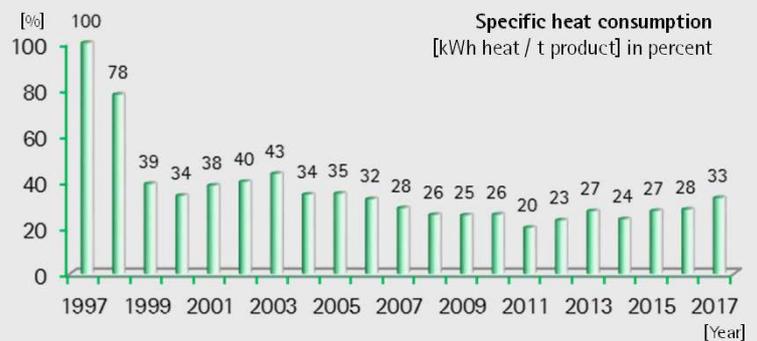
Exhaust emissions

On site Kirchlengern/Bünde one plant is subject to the licensing requirement laid down in the Federal Ambient Pollution Control Act. As the CHP plant in A5 which was built in 2015 has a district heating output of more than 1 up to less than 20 MW, a licence according to the Federal Ambient Pollution Control Act read in conjunction with the fourth Federal Ambient Pollution Control Regulation is required.

The air emissions, which must be determined every three years, are presented in table 15 and clearly undershot.

The gas heating of the paint removal plants and the baking furnaces B4/B5, A8 and C2 as well as the emergency district heating power station A8, the space heating boiler and the particularly energy efficient gas infrared heating of the new Logistics Centre can be cited as relevant emission sources. These fall far below the limit requirements of the first Federal Emission Control Regulation. Apart from CO₂ emissions in power and heat generation, no other significant greenhouse gases have been emitted. The absolute CO₂ emissions have increased by 8.2 percent compared to the previous year.

Fig. 7: Comparison figures – Specific heat consumption



Please note: The key figure has been slightly changed in 2013 by also including further small heat generators (e. g. CHP A8 and C2) in the result.



Since 2013, the development of our key figures refers to the data basis published by the IEA (International Energy Agency). By this means, we as a group of companies with international operations ensure good comparability in the frame of a harmonized reporting system. Deviations compared to previous graphics regarding figure 9 are due to formerly applied deviating national data sources. The IEA data is based on the German power plant mix. As for our calculation, our own energy generation is credited to the carbon footprint.

Own energy generation with cogeneration of heat and power or utilization of waste heat is clearly more efficient than energy purchased from the German power plant mix. This refers to the heating system in A5 which was taken over in 2010 and the additional CHP in A5 and C2. This also refers to a certain extent to the photovoltaic and solar thermal energy system of B1 with the respective credit notes.

This year, the specific CO₂ emissions are 64 percent and thus better than in the previous year (see figure 9). This improvement is mainly due to the energy-efficient increase in production, in which specific energy requirements were reduced through better utilisation of machines and systems. The photovoltaic system of building B7, which was connected to the grid in 2018, will also contribute to an improvement in CO₂ emission next year. With this Hettich further expands the concept of own energy generation.

Table 14: Specific CO₂ emissions through energy consumption (electricity, natural gas, local heating)

	CO ₂ Emissions	
	Change compared to previous year [%]	Change compared to 2014 [%]
CO ₂ ¹⁾ [%]	-3.6	-6.6

¹⁾ The CO₂ calculation was performed according to the indications of the IEA (International Energy Agency) The energies generated via the combined heat and power or waste heat utilisation have been set off against and credited to the total emissions.

Table 15: Air emissions of the plant (CHP in A5) according to Federal Control of Pollution Act in 2016

Parameter	Unit	Determined value ¹⁾	Limit value
Nitrogen dioxide [NO ₂]	mg/m ³	420	500
Carbon monoxide [CO]	mg/m ³	70	300
Sulfur dioxide [SO ₂]	mg/m ³	5	9
Formaldehyde [CH ₂ O]	mg/m ³	26	60

¹⁾ The determined value presents the maximum measured value, plus an expanded measuring uncertainty, at a 100 percent capacity of the plant.

4 Presentation of Operative Environmental Performance

Direct emissions

It is our goal, when planning new plants and buying machinery, to give serious consideration to waste air and indirect energy-consumption related CO₂ emissions. If it is not possible to avoid emissions of waste air through the production process, appropriate measures will be taken to reduce them in order to keep environmental pollution as low as possible.

Due to their gas consumption, the permanently installed plants (CHP, powder furnaces and heating boilers) cause direct emissions on site. As a result of the higher capacity utilisation of the production areas, the direct absolute CO₂ emissions have increased in the previous years (see table 16).

In addition other emissions come from the vehicles used on the site. These include cars that are mainly used by the field representatives as well as vehicles used for special purposes. The fleet of vehicles was increased last year by one.

Table 16: Direct CO₂ emissions through gas consumption on site (CHP, powder furnaces and heating boilers)

	CO ₂ emissions	
	Change compared to previous year [%]	Change compared to 2014 [%]
CO ₂ [%]	+7.9	+28.8

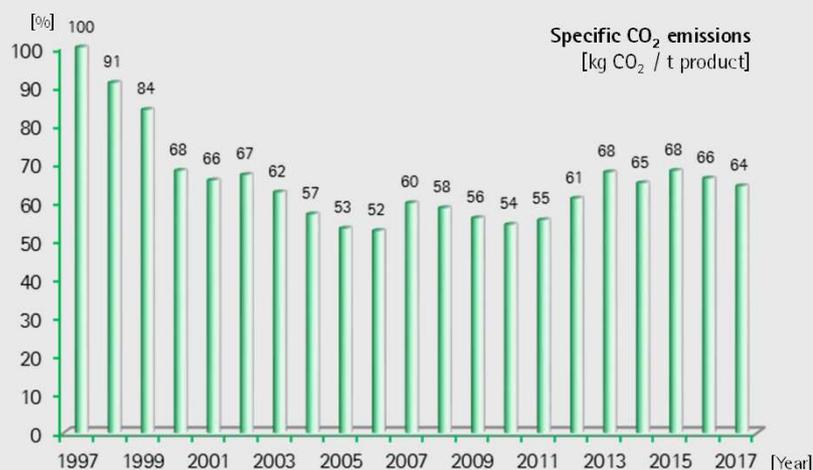
Table 17: Vehicle fleet 2017 mileage / consumption

Vehicles	Mileage / Consumption
99 cars (diesel)	5,631,627 km/a
4 stackers (LPG)	10,685 l/a

Table 18: Average consumption vehicle fleet 2017

Period	Average consumption [l/100km]
	2017
Pkw (Diesel)	6.94

Fig. 8: Comparison figures – Specific CO₂ emissions



The average consumption of the vehicles slightly decreased to 6.94 l/100 km. The annual mileage amounted to approx. 5.6 million kilometres. This corresponds to about 140 times round the earth or 14 times the distance to the moon which we drive at the request of customers and underlines our efforts to focus even more on maintaining proximity to our customers. The stackers mentioned have gas combustion engines and support the battery electric-operated fork lift trucks used for in-plant transportation. After the factory structure planning in plant A, only two gas-operated stackers are still operated in the outdoor area by the logistics team. The two other stackers (LPG) are used by the maintenance department.

The railway is increasingly used on business trips. Since 2014 the passenger kilometres by train have increased by approx. 60 percent. In addition, 16,000 km were thus travelled by train in the previous year.

Tab. 19: Business trips railway 2017

Period	Annual kilometres train	
	2017	Development compared to previous year [%]
Passenger kilometre	280,484	+5.7



E-mobility test

Electrical – Innovative – Hettich

As of now, e-mobility is tested on site Kirchlengern/Bünde with three new vehicles: Within a period of three years we want to examine which drive concept is the most adequate when purpose, charge time, consumption and emissions are taken into consideration.

By means of an e-car and an e-car with range extender (petrol engine recharging the battery when it is almost empty) as pool vehicles as well as a plug-in hybrid car as personal company vehicle, we collect own reliable practical experiences with various technologies and user profiles. „In the long run the question is examined if e-mobility can be, with regard to practicability, profitability as well as climatic and environmental relief, a reasonable part of our sustainability strategy“, explains Dr Andreas Hettich. Hettich thereby participates in the project „Premium“ which is supported by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. This project for the first time includes an extensive consideration of the entire user range: From the private users to users of small vehicle fleets right up to large customers, the environmental impacts of electrically operated vehicles are being explored in addition to the customer requirements. The analyses will help to gain further knowledge.

Both pool vehicles BMW i3 were designed to be fundamentally sustainable. The low-emission production of the vehicles takes place by using renewable energies such as wind and hydro power. The construction involving regrowing and recycled materials for the interior and exterior is highly resource-conserving: 95 percent of the used material can be recycled. The personal company vehicle is a VW Golf plug-in hybrid car with both an electric drive with a range of 50 km and a conventional combustion engine. With an average consumption of 1.5 litres of fuel and 11.4 kilowatt hours of electricity, the vehicle emits only 35 gramme CO₂ per kilometre.

The results of the test phase looked so good that a third vehicle was added to the pool vehicle fleet in 2017. This is now available at the Vlotho location for local transport in East Westphalia.

Electric mobility also finds its way further into the field of personal company vehicles. In 2018, a fourth vehicle (also a BMWi3 with Range Extender) was purchased as a company car for Dr. Hettich.

4 Presentation of Operative Environmental Performance

Indirect emissions

Indirect emissions include for example dispatch to Hettich overseas subsidiaries. The containers used for this are transported by rail, road or water to the seaport, from where the actual sea transport begins.

Even in the areas of indirect emissions it is constantly tried to improve the environmental performance. Currently, an optimisation check is being carried out in the logistics area. This will determine whether a logistics chain of > 2,000 km also can be achieved by rail, thus replacing the CO₂-intensive road transport.

In Turkey alone we could hereby undertake 91 cargoes via multi-modal transports (transport with at least two kinds of vehicles, e. g. truck, train or ship) in 2016 and thus avoid a total of 156,975 kg CO₂. In addition, three more countries were supplied via multi-modal transports where further CO₂ emissions were avoided due to the avoidance of kilometres by truck.

Noise emissions

The company in Kirchleugern / Bünde is located in an industrial area. There are small residential areas and commercial operations in the vicinity. Measurements are carried out to maintain the limit values of the TA noise. The adherence to the legal limit values has been assessed to ensure that the impact on the residents is as low as possible. The limit values can be reliably maintained by us throughout the year.

There is a high noise pollution when the production areas are operating. These areas are appropriately identified by us. In-house noise abatement measures, such as encapsulation, have already been introduced in existing plants. Noise reduction measures will be taken into consideration when planning new plants in accordance with the EC "Noise" Directive (2003/10/EG). Furthermore personal protective equipment has been made available. Since 2008 the employees can, on request, also have personally adapted earplugs (orthoplast) made. A noise level register has been created and controls are made regularly in all areas and corresponding measures are introduced.



In 2016, with 91 transports from Bünde, Germany to Istanbul, Turkey

Hettich
avoided a total of
156,975 kgs CO2 emissions
equal to 5,708 trees
by using multimodal transport.

Thank you! **samskip**

5 Other Factors of the Environmental Performance

4.6 Soil and ground water

No soil contamination is to be expected on the premises at Kirchlegern/Bünde because of its previous agricultural use. However precautionary soil analyses were undertaken because degreasing baths using chlorinated hydrocarbon (CKW) were used when the operation was originally started. These indicated soil contamination in the vicinity of A3. In agreement with the responsible authorities several measurements were carried out. As the results were under the limit values, a clean-up was not necessary.

To confirm these results, in the following years control samples were taken and evaluated by external testing laboratories. These investigations also confirmed that the limit values were not exceeded.

In order to prevent contamination of ground and ground water, preventive measures have been taken, e.g. acquisition of additional collecting zones. Employees working on the machines on site have also been trained to deal with water-polluting substances.

To counteract the soil sealing, the roof of the Hettich Forum was constructed as green roof. Roof greening offers multiple benefits. The green roof protects the roof insulation against extreme temperatures, hail and other climatic conditions and thus extends its service life. By means of roof greening the sewer system is relieved especially during heavy rainfall, as the green roof saves and evaporates - depending on construction and vegetation - 40 up to 99 percent of the annual rainfall. Thus roof greening efficiently contributes to the cooling of buildings, air humidification and filtering of fine particles.

The area of 1,643 m² in total utilised this way was subtracted from the sealed area (see table 19).

Table 20: Surface areas 2017 [m²]

Period	Floor space [m ²]
	2017
Sealed area	211,280
Unsealed area	126,007
Total floor space	337,287

In 2016 two premises with small building development were purchased in addition.

5.0 Other factors of the environmental performance

Approvals

All available approvals are listed in an approval cadastre. This filterable overview includes but is not limited to approval and expiration data and collateral clauses.

Compliance with the legislation is regularly controlled by commissioned specialist functions as well as internal and external audits.

Furthermore, the status of legal compliance is reported in a standardised procedure to the management in the committee meetings for environment and safety matters. Should, in addition to this, any statutory violation be recognized the management would be informed at once in order to take measures to restore legal conformity.

Legal norms cadastre

A legal norms cadastre lists all legal requirements currently valid within the scope of environmental protection and occupational safety on the site Kirchlegern / Bünde. An external service provider regularly gives information about all modifications in the respective laws, regulations and directives which subsequently are evaluated by us in regard to possible needs for action. The evaluated modifications in the legal requirements are then forwarded to the persons responsible for processing. The implementation is ensued by means of a tracing list

Environmental accidents

There were six events in which oil leaked from vehicles (cars in parking lots, trucks in loading areas). In none of these emergencies the authorities had to be informed about the intrusion of water-polluting substances into the public sewage system or the environment. The removal was carried out quickly and thoroughly with the company's own means and persons.

6 Company Contact Person

Further information:

For further information please visit our homepage www.hettich.com.

To get directly to the site of the environmental management you can follow this QR-Code:

For environmental
management Hettich



Addresses for enquiries

EHS Sustainability Management Hettich group of companies

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7 Name of the Authorised Environmental Advisor

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Dr. Ralf Rieken (Licence no.: DE-V-0034)
Dr. Burkhard Kühnemann (Licence no.: DE-V-0103)



8 Validity of the Environmental Impact Statement

The undersigned, Dr. Ralf Rieken, EMAS environmental auditor with the registration number DE-V-0034, accredited for the area 25 and 28 (NACE code) and Dr. Burkhard Kühnemann with the registration number DE-V-0103, accredited for the area 46,7, 52 and 70 (NACE code) confirm that they have examined whether the location or the whole organisation as shown in the updated environmental statement for the Hettich organisation, registration number DE-108-00037, has fulfilled all the requirements of Regulation (EC) No. 1221/2009 of the European parliament and Council dated 25 November 2009 on the voluntary participation by organisations in a community system for environmental management and environmental management and audit scheme (EMAS) and Regulation (EU) 2017/1505 of 28 August 2017.

By signing this statement, it is confirmed that

- the verification and validation has been carried out in full compliance with the requirements of Regulation (EC) No. 1221/2009 and Regulation (EU) 2017/1505 of 28 August 2017,
- the result of the verification and validation confirmed that no evidence of non-compliance with the applicable environmental regulations exists,
- the data and information of the updated environmental statement of the location provides a reliable, credible and fair view of all activities of the location within the areas specified in the environmental statement.

This statement cannot be equated with an EMAS registration. The EMAS registration can only be carried out by a competent authority under Regulation (EC) no. 1221/2009 and Regulation (EU) 2017/1505 of 28 August 2017. This statement may not be used as a stand-alone basis for informing the public.

This environmental statement for 2017 is hereby declared valid.

Kirchlengern/Bünde, April 23 2018

Dr. Ralf Rieken
(Licence no.: DE-V-0034)

Dr. Burkhard Kühnemann
(Licence no.: DE-V-0103)



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