

Environmental Statement 2011/2012



Hako-Werke GmbH
Site: Bad Oldesloe

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1.0 The Company

The company, HAKO-Werke GmbH, is today one of the world leading manufacturers of superior technology for indoor and outdoor cleaning, grounds maintenance and transport logistics. The range extends from a vacuum cleaner to a ride on street cleaning machine. Since October 2007 the Hako-Group is 100% part of the Possehl foundation. There are around 2000 employees world-wide, of which approximately 460 work at the main site in Bad Oldesloe and approximately 260 in the German sales and service centres.

The company's most important objective is the production of high-quality machines with advanced technology and dependable customer aftercare during the lifetime of our machines. The site at Bad Oldesloe introduced a quality management (QM) in 1999 and an Environmental Management in 2003. Both have been combined into an integrated Management System (IMS)

*The company is certified according to **DIN EN ISO 9001 : 2008** and **DIN EN ISO 14001 : 2005***



Mario Schreiber
Chairman



Uwe Brenne
Sales and Marketing

Our Slogan...

**“Superior technology for a cleaner,
more pleasant environment”**

is our commitment and obligation as we
serve our customers and the environment.

2.0 Description of Location



The headquarters of Hako-Werke are situated on the western outskirts of the small German town of Bad Oldesloe, near the city of Hamburg and in close proximity to the motorways A1 and A21. The company's grounds extend to around 100.000m², of which 35,000m² are built upon. The main buildings house the administration and production. Situated in the 23.400m² production building are the departments responsible for development, experimental prototypes, pre-production, assembly, storage, spare parts as well as the surface treatment plant and the canteen. In Bad Oldesloe you can also find the central administration, purchasing department, sales, personnel, logistic, finance and accounts, quality assurance and control.

The surrounding area extends to around 65,000 m² and in part includes neighbouring brown field development, as well as being marked by natural boundaries and substantial tree coverage. Plane trees have added variety to the parking area. The surface water from the parking area flows to a depression in the ground where it can naturally seep away. The presentation of the green spaces and planting is frequently assessed and maintained by a team of external landscape gardeners.

3.0 Production

Not only does the final assembly take place at the Bad Oldesloe site but it is also the sheet metal manufacturing core facility. Chassis, frames, containers and linings are produced from sheet metal or stainless steel. The manufacturing stages are laser cutting, bending, welding and sanding.

The laser cutting machines are fed centrally on site from a consumption controlled sheet metal storage facility according to the KANBAN principle. The majority of cuts are then bent on CNC supported bending machines according to the design drawings and passed to the welding department for further work. The production areas of the welding cells are adapted to the size of the welding sections and are ergonomically designed. The welding processes of MIG, MAG and WIG are used. On completion the welding sections are passed for surface treatment to the powder coating facility. The process of coating involves shot blasting, chemical cleaning including phosphating, as well as priming and the final coating with a polyester powder.

After surface coating the parts are passed to assembly. Assembly lines ensure the final fitting together of all parts to form our complete product range. All pre-assembly stations of the final assembly line have parts mainly added to using material logistics according to the **KANBAN** principle. With the help of external support the principle of (**lean production**) was introduced into our assembly in 2008. The main out-workings of this are the combining of competence and responsibility, avoidance of waste and mistakes, harmonisation of processes and the practice of continuous improvement (**Kaizen/KVP**). Dependent on the complexity of the product adapted assembly systems are used applying the flow principle. Products that come with lots of different variations are produced with the customer specifically in mind.

3.1 Product Programme

At the site in Bad Oldesloe Hako produces and assembles custom-made solutions for almost any use, e.g.

Sweepers for dust free cleaning inside and out. With different drives and area performances up to 18.000m² cleanliness per hour.

Wet and Dry Machines for intensive wet cleaning of hard floors; for use manually or comfortably sitting down.

Furthermore there are **City Cleaning Machines** for pedestrian precincts, pavements and other public places.



4.0 Environmental Guidelines

Through the use of suitable equipment and organisational expertise we at Hako-Werke guarantee a responsible and far-sighted use of natural resources.

We have firmly laid down our commitment to the protection of the environment within the following environmental guidelines. These apply to the site at Bad Oldesloe.

At Hako-Werke we are also determined to improve the living and environmental quality of our geographical location. Protection of the environment is one of the main aims of the Hako group; it is not just an isolated one-off task, but a firmly anchored part of the integrated management system and of the company guidelines.

In its drive towards the highest possible product quality Hako strives to fulfil all environmental standards as well as adhering to every legal regulation and requirement.

Measures to achieve an environmentally friendly design of our products have already been taken into account in the development and specification of new products. In addition we are also aiming at an ecological way of looking at the whole production cycle starting with design followed by production, usage, recycling and disposal of our products.

With the environmental guidelines put in place by the management, we have defined our ecological policy and acknowledge the need for a more integrated strategy for the protection of the environment. With this in mind we start by looking at what causes damage to the environment, evaluating early on the effects of the production process and the end product on the environment. Consequently we include the results in the decisions and strategies of the company.

4.0 Environmental Guidelines

Suitable procedures and measures for control and safe guarding have been established. In the whole process chain, from development to the finished product, there are people in place at all levels within the company that are responsible for the implementation and monitoring of all environmental measures.

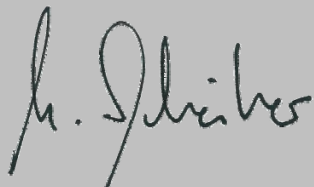
It is for this reason that the company offers further training and support to all its employees whose roles have an ecological impact, so that they are fully able, in the future, to actively further the protection of the environment at their place of work.

All measures that are in place on site are regularly checked and continually improved through the use of environmental study groups.

Our aims towards continual improvement are laid down in the environmental programme.

It goes without saying that a good working relationship with the authorities and the public are important to us. In addition to this we aim to achieve environmental data that is equal to the national bench-mark, so as to show conclusively and publicly, that our environmental policy and our existing Environmental Management System meet the national standard.

Hako-Werke GmbH
Bad Oldesloe



Mario Schreiber
CEO



Uwe Brenne
CSO

4.1 Introduction by the Manager of the Environmental Management System

Hako's commitment to engage responsibly with our environment has been documented in the environmental guidelines. Since 2003 when Hako started work on the environmental audit, lots of changes regarding environmental protection have taken place at the Bad Oldesloe site.

The awareness of employees of work place related active environmental protection can be seen in heightened sensitivity for that which matters. All our employees receive yearly training regarding health and safety at work, fire safety and environmental protection. Armed with this background knowledge they are able to act responsibly within their own work place. If for example a possible environmental consequence is anticipated the necessary steps, in accordance with established processes, can be taken to prevent it's occurrence. For all important processes a detailed method of procedure is written down.

Environmental aims and objectives are laid down in the environmental programme and individual subjects are worked through in environmental study groups and small teams. It is not only the big subjects requiring large investments that are dealt with, but a continual process of improvement is being eagerly pursued. In our drive for ongoing improvement we do not rest on past achievements but are seeking to advance this process continually.

The aim of environmental protection is an integral part of Hako's company philosophy. Independent of laws and regulations Hako wants to sharpen the understanding for that which matters and implement the contents of it's environmental guidelines.



Konrad Möller
Manager- Environmental Management
System at Hako-Werke GmbH

5.0 The Environmental Management System

5.1 Structure and Responsibilities

The Organigram describes the organisation of Hako-Werke GmbH as a hierarchical structure. The employer, in order to meet legal requirements, has the sole responsibility for health and safety at work and environmental protection. It is possible for him to delegate certain tasks and powers.

The manager of the Environmental Management System (EMS) is directly subordinate in environmental matters to the production director. He has been given the written authority and responsibility to act as deputy to the directors in providing leadership and maintenance of the management system. He is responsible for the implementation, oversight and close monitoring of all ecological and safety targets. He is authorised to give guidance on environmental matters to all the heads of department. It is the responsibility of the heads of department to ensure all legal requirements and internal procedures are adhered to within their own areas.

The manager of the EMS and the official for health and safety at work have the right to report directly to the company directors. They also give advice to the different departments and support them through their own initiatives regarding environmental and safety matters. Any deviations from the legal requirements and internal procedures are discussed jointly and passed on as a written report to the responsible heads of department and the company directors.



Mario Schreiber
Chairman

5.0 The Environmental Management System

5.2 Environmental Study Group

The manager for the Environmental Management System (EMS) pulls the environmental goals together in a proposal, fine-tunes them with members of the environmental study group, discusses and passes them to the relevant departments and then incorporates them into the environmental programme.

The environmental study group consists of five people. Working in the team are the representatives for the Environmental Management System, for health and safety at work and fire prevention, as well as three other people from the areas of purchasing, development and works committee. This allows for a fully representative group from all areas of the company.

All prescribed environmental goals will be worked through step by step by small eco-teams under the leadership of environmental coordinators.

5.0 The Environmental Management System

5.3 Communication

Our employees receive training early on about environmentally relevant subjects and changes in the area of environmental protection. General environmental topics are communicated in detail via the “electronic information forum” on the intranet and if necessary in the internal newsletter “Pluspunkt”. Suggestions from employees as well as external interest groups are passed to the company management by the manager of the EMS. The public is given a detailed and comprehensive update of our Environmental Statement once a year. We regard constructive contact with the authorities as a matter of course. If necessary we will also answer external requests regarding environmental protection via e-mail.

5.4 Suppliers

Once a year we use questionnaires to get data from our suppliers regarding QM/EM (Quality Management/ Environmental Management) This data is then analysed and evaluated by those responsible for QM/EM and brought together in a supplier assessment. The aim is to make our suppliers more sensitive to environmental protection.

5.5 Statutory Regulations

All laws, regulations and requirements that concern our company in regards to environmental legislation are brought together in a legal register. Its observance is examined annually and assessed. Changes in legislation regarding environmental protection are monitored and updated annually. Changes and their possible effect on company policies are passed to the company directors by the manager of the EMS. The company directors are responsible to make necessary corrections to the existing Environmental Management System. Any relevant information that could possibly arise for operative areas, is passed on to the various departments by the manager of the EMS.

5.0 The Environmental Management System

5.6 System Assessment

The Management System is checked internally following a yearly cycle. The responsibility to make this happen is with the representatives for QM/EM. Using internal audits the effectiveness of the Environmental Management System and level of knowledge of the employees is monitored. The following audit report forms the basis for an assessment by the company directors, who at least once a year have to evaluate the Management System. The assessment monitors the existence, suitability and effectiveness of the Management System in accordance with DIN ISO 14001:2005. Further checks ensure that the legal requirements are adhered to and that the environmental goals and policies are realised.

5.7 Documentation and Control

The Management System is documented in the joint QM/EM handbook where guidelines, as well as different procedures and instructions, are written down. It is the responsibility of the manager of the Quality Management System to keep the management documents up to date and distributed. Records that are environmentally relevant are administered and assessed by the manager of the EMS. Should these assessments necessitate major changes in the EM documents, then the manager of the EMS will inform the representative of the QM system with a proposal for change.

In close cooperation with department leaders and master craftsmen internal controls that are relevant to the environment are implemented by the manager of the EMS. The department leaders are responsible for adhering to all legal requirements. The monitoring of these requirements can be passed on to specialist companies. The test records are kept in archives by the appropriate master craftsmen.

6.0 Health and Safety at Work

6.1 Dealing with Dangerous Substances:

Obtaining and dealing with dangerous preparations/ substances is only possible if these have been approved by the health and safety expert, the fire officer and the official for environmental protection. The new preparation is included in the register for dangerous substances and is tested before use in production to safeguard people and the environment. As part of this the approved preparations/ materials are divided into different safety categories followed by a risk analysis. This includes an assessment and evaluation of the work place limits (AGW) for each individual work place situation and the possible necessity to install technical safety measures to ensure the protection of people or the environment. New regulations have to be implemented by 2015, see 6.1.1

6.1.1 Classification and Labelling according to GHS

The United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is a worldwide unified system for the classification of chemicals as well as their labelling on packaging and in safety data sheets. The European Parliament and Council have decided to implement the GHS in Europe for substances from 1.12.2010 and for preparations from 1.06.2015

Having a globally binding classification method with unified danger pictogram and phrases will minimize the dangers worldwide to human health and the environment during the production, transport and use of chemicals or dangerous substances.

Within the EU the existing labelling methods for dangerous substances will be replaced. Instead of danger symbols with danger descriptions the GHS uses danger pictograms, if necessary in conjunction with a signal word (i.e. Danger or warning)

6.0 Health and Safety at Work

Risk Statements (R) will be replaced by Hazard Statements (H) as well as additional EUH Statements (special dangers). Safety Statements (S) will take the place of Precautionary Statements (P).

The data sheets are coded with three-figure numbers. The letter stands for the type of statement and in the case of H and P statements the first figures of the number form a grouping according to the type of danger or safety measures.

6.2 Medical Facilities and First Aid:

For prophylaxis a company doctor and a sufficient number of qualified first aiders are available to all departments in administration and production. They are able to assist and act quickly in critical situations or emergencies. The company doctor performs medical check-ups at regular intervals. He is a member of the committee for the protection of health and safety standards at work and takes part in company inspections.

6.3 Fire Safety:

In all relevant areas of production smoke alarms are fitted. These are monitored centrally in the smoke alarm centre (BMZ) which maintains direct contact to the local fire brigade. All areas are fitted with a suitable fire extinguisher according to the danger potential. There is also a well equipped team trained in fire-fighting expertise who are able to follow an alarm plan to implement the necessary organisational procedures and if required begin extinguishing a fire. In this way the spread of a possible fire and its environmental implications can be relatively quickly dealt with.

6.0 Health and Safety at Work

6.4 Company Inspections

Company inspections take place at regular intervals. Taking part are the company doctor, safety experts from each department and the health and safety manager (FASI). Detected faults are recorded and communicated to the appropriate heads of department for elimination.

6.5 Committee for the Protection of Health and Safety Standards at Work (ASA)

The committee meets four times a year. It consists of a member of the company management, the company doctor, two members of the works committee, two safety experts and the health and safety manager. This committee deals with all aspects of health and safety at work and jointly develops measures to optimise the safety standard in all departments.

6.6 Special Projects regarding the Protection of Health and Safety Standards

The health and safety manager (FASI) initiates a special project once a year. In 2010 the subject of “individual hearing protection” was looked at and implemented. As a result 100 employees received non-custom earplugs enabling them to have good speech understanding despite a noise reduction of -25 dB (A). This means the employee can still communicate with colleagues and managers while with hearing protection on. In 2011 hand and skin protection in all areas of production will be scrutinized.

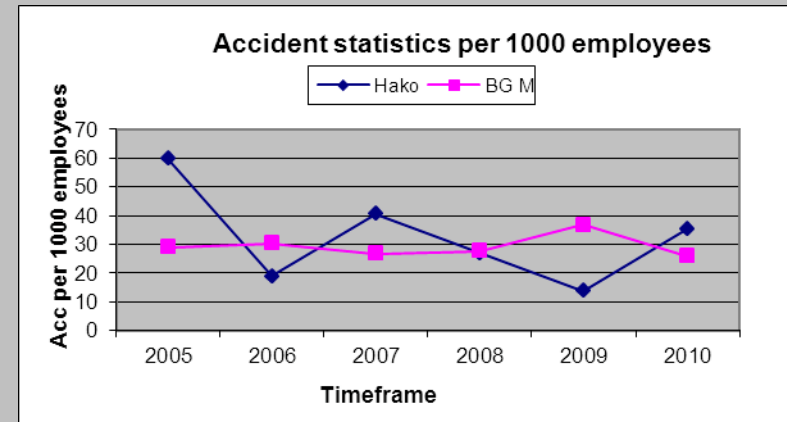
6.7 Prevention at HAKO

- Regular inspections recording detected faults
- Detected faults to be communicated to the appropriate heads of department and master craftsman
- Elimination of faults by departments
- Monitor elimination of faults and its effectiveness (FASI)
- An annual health and safety and environmental protection training programme for all employees
- Set up an information forum on the intranet dealing with environmental protection and health and safety issues

6.0 Health and Safety at Work

6.8 Accident Statistics

Year	Accident figures at Hako			Comparable figures from the BG (per 1000 employees)
	Reportable accidents	During travel	Accidents per 1000 employees	
2005	26	4	59.9	28.9
2006	8	0	19.0	30.3
2007	18	4	40.6	26.8
2008	10	2	26.9	27.6
2009	6	2	13.8	36.9
2010	15	3	35.5	25.8



7.0 General Environmental Impact

In principle any industrial activity has an impact on the environment. With the introduction of the EMS, Hako – Werke are committed to conserving resources and by following certain rules and procedures avoid harmful impact on the environment. The environmental impact at the Bad Oldesloe site is represented on spreadsheets weighted according to ABC criteria for each area of production/stage of production. They serve to monitor the environmental aims and any possible deviation. The environmental impact is assessed annually for its relevance by the manager of the environmental management system.

7.1 Waste

Certified waste disposal companies ensures that the waste of Hako Werke at the Bad Oldesloe site is either further utilised or disposed of according to current waste disposal laws. For many years the industrial waste has been reduced to a justifiable amount using specific separation techniques. The main waste components are scrap metal, shredder waste, cardboard, wood, household waste and general outdoor waste. Waste disposal records are administered by the waste co-ordinator.

7.2 Sewage

The biggest amount of sewage in the form of used watery chemicals occurs in the pre-treatment zone of the surface treatment plant. This consists of four baths and is arranged as a cascade. That means the water overflow of bath 4 returns to bath 3 and onwards to bath 1. A collecting basin catches the overflow of bath 1. The collected used water is then led to a vaporizer. The vaporizer separates the used water through vaporisation into usable VE-Water and a concentrate {hazardous waste}. The VE-Water is led via a VE-ring (circle spray) back into bath 4. This closes the water circuit. In order to maintain quality, the contents of bath 1 and 2 are led as sewage after neutralisation into the sewers in 6-8 weekly cycle and the baths are restarted again.

7.0 General Environmental Impact

7.2.1 Water

The water consumption for 2010 was 11500 m³. Compared to 2009 consumption increased by around 1000 m³. 100% of the water was taken from the public supply as drinking water quality. The usage can be separated into two main areas:

- *Water for the processes during production*
- *Water for drinking and general usage*

The main consumption at Hako-Werke occurs in the pre-treatment zone for the surface treatment plant. Since the installation of a new coating facility in the year 2000 and the specific reprocessing of used process water to VE-water the water consumption has seen a steady decrease compared to the year 2000. Over the period 2000-2010 water consumption decreased notably by around 23%.

7.3 Compressed Air Network

The station for the compressed air supply was completely renewed in the years 2000 and 2003. There is no data on the consumption of compressed air as it is not measured. Regular inspections are carried out by the maintenance team in order to discover leakages within the compressed air network. Separate from this the commonly used brass couplers are gradually being replaced by pivot couplers made from steel, because the losses incurred are less. The efficiency of the pivot couplers at the exit areas is higher in comparison to the brass couplers, which makes it possible to decouple the consumer without pressure. With this technology the safety of our workforce, in the area of production, is improved while the efficiency is higher and the loss of compressed air compared to the previous technology is minimised.

7.0 General Environmental Impact

7.4 Energy

7.4.1 Electricity and Gas

The main energy sources for the site at Bad Oldesloe are gas and electricity. In 2010 4.299 MWh of gas, 2645 MWh of biogas and 3.619 MWh of electricity were used. Our main consumption of gas and electricity occurs in:

- *The surface treatment plant, particularly in the sintering furnace, detention water drier and in the pre- treatment zone*
- *The jet facility and the pyrolysis*
- *Compressors for the compressed air supply*
- *The machine holding bay during pre-construction, testing and welding*

The use of a data index shows that from the year 2000 onwards there has also been a positive development in the consumption of gas and electricity relative to product output..The main savings in energy since 2000 are due to the construction of a new surface treatment plant and the modernisation of the compressed air supply.

7.4.2 Energy for Heating

The primary energy source for the three boilers of the central heating system is gas. Since the end of 2008 we are able to receive the surplus thermal energy from a nearby biogas plant via indirect circulation. This covers around 35% of the total energy need for heating. Emissions and efficiency of the boilers are regularly checked by our chimney sweeps as required by law. All internal radiators have been upgraded with thermostats of the latest technology.

7.0 General Environmental Impact

7.5 Lighting

In the administration block and the production areas fluorescent tube technology is mainly used for lighting. In new buildings and during routine maintenance we only use the latest technology with electronic starters (SVSG).

7.6 Emissions

The major types of emission are Carbon Dioxide (CO₂) Carbon Monoxide (CO), Nitrogen Oxide (NOX), dust, soot particles and steam. These originate on site through direct and indirect emissions. Direct emissions can be mainly traced back to pyrolysis, central heating system, powder coating facility, final tests of equipment and the company's own transport fleet.

7.7 Pyrolysis

The pyrolysis plant requires official approval by law. It is used for the thermal removal of powder residues on tools and other devices.

The process involves adhering to certain statutory conditions. Every three years the plant has to undergo an external audit, which involves comparing the emissions data to those required by law. Should there be any variance some technical optimisations are made and the relevant authority is informed. The first plant was installed in 1995 and was shut down in 2007 because of technical defects. A new plant conforming to the current technical standard was commissioned in September 2008. Since the installation of the new plant Hako's emissions are lower than current guidelines thereby avoiding the need for an emissions declaration. The audit for this was carried out by the local authority in March 2009.

8.0 Connection to a Biogas Plant

The estate 'Blumendorf' along with another large-scale farming enterprise had a biogas plant installed at the end of 2007. The plant utilises solely biomass from renewable sources. To begin with the plant will use corn and gradually other plants will be added to reduce the burden that mono-cultures place on cultivated areas. Shortly before the start of 2008 the digester together with the combined heat and power plants (CHP plants) was commissioned, initially on the Blumendorf estate itself, followed by adjoining industrial estate. Since January 2008 the 2.1 mega-watt plant has been running to full capacity supplying the national grid.

The biomass (corn) is planted annually in the surrounding area of Bad Oldesloe on a total of 760 hectares of agricultural land. This produces around 38.000 tons of corn silage, which in turn feeds the biogas plant for around a year. The two bunker silos at the plant have a storage capacity of around 40.000 tons of silage.

In the spring of 2008 a combined heat and power plant (CHP) with a thermal output of 550 KW was installed within the limits of our waste disposal area. Afterwards the connecting cables were laid and the produced thermal energy was fed indirectly into our heating system. As a result of this we have lowered the gas consumption of our boilers during winter use and in summer the thermal energy can be used 100% in the preparation of hot water.

Annually around 2.650 MWh of thermal energy is passed to Hako from the biogas plant . The use of thermal energy produced from biomass not only makes economic sense for Hako, but we are also contributing environmentally by cutting around 850 t of CO₂ emissions per year.

8.1 The CHP Plant for Hako-Werke

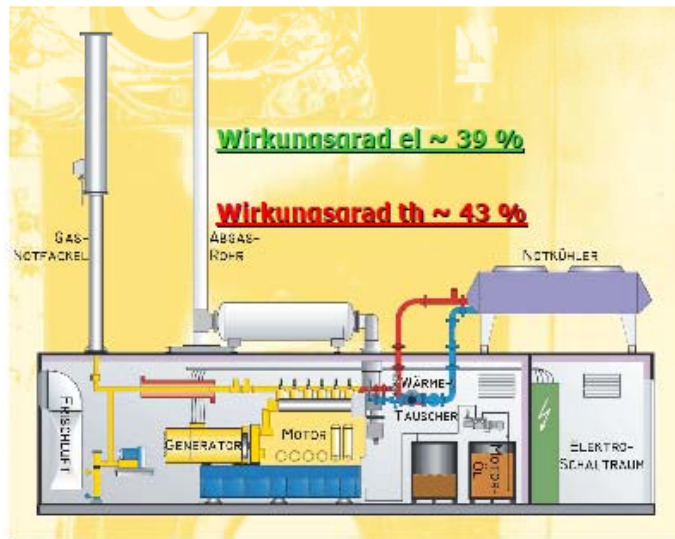


Leistung BHKW-Modul 4:

Hako

526 kW elektrisch

550 kW thermisch



9.0 Action Plan for Environmental Protection

Reduction in Energy Consumption through....

- Constant control and best possible adjustment of in house technology
- Process optimisation

Reduction of Emissions through ...

- Use of mainly natural gas in our heating installations
- Regular control of emissions according to legal requirements
- Optimal boiler settings in all installations using gas
- Welding smoke suction with filter installation
- Gradual changeover to Euro 5 in machines with internal-combustion engines
- Optional installation or upgrading of soot filters in diesel engines
- Special, patented filter systems (R²S) for our vacuum sweepers
- Use of thermal energy from a biogas plant

Reduction of Noise Emissions through

- Sound insulation where obvious or in new production areas
- Observance of the noise protection order for machines using optional insulation packs

Careful use of the Water Network through.....

- Closed cooling circuits
- Increased standing time of the bath water in our powder coating facility
- Closed water circuit in our pre-treatment zone
- Natural drainage of surface water
- Use of water free urinals (URIMATS)

9.0 Action Plan for Environmental Protection

Less waste through

- increased change to consumption control, this enables the use of reusable containers.
- the use of box programmes for optimum sheet metal utilisation during laser cutting.

Environmentally friendly products through....

- less water consumption using the Aqua- Control - System
- waste water treatment for our floor cleaning machines
- optional battery powered drives
- use of alternative energy supplies (Biodiesel)
- low emission dry filter systems (separation rate 99.5%) for our sweepers
- sound insulation for some of our larger machines (optional)

Production that is most in tune with the environment through

- 100% use of powder coatings in the surface treatment plant at Bad Oldesloe
- controlled disposal of process water into the canalisation via neutralisation plant and ph-value control

Communication as a means to environmental protection through

- availability of our environmental statement on the internet
- comments and expert contributions in our internal magazine "Pluspunkt"
- participation in external study groups



10.0 Environmental Programme 2011/2012

10.1 General Environmental Goals

Series	Aims and Objectives
1.0	Modernisation of heating and ventilation technology. Energy saving by using modern technology.
2.0	Avoiding energy loss through the outer walls of the production buildings. Develop suitable renovation concepts in partnership with specialist companies.
3.0	Renovating the flat roof of the production building. Energy saving through improved insulation.
4.0	Installation of solar P.V. system on the roof of the production building. Investigate suitability and economic viability.
5.0	Switch to modern and energy saving lighting technology in production, administration and outside areas.
6.0	Reshaping production processes to be more environmentally friendly and considerate in the use of resources. Examine all production processes.

10.0 Environmental Programme 2011/2012

10.1.1 Environmental Goals for New Products

No series	Aims and Objectives
1.0	Limit harmful chemical and noise emissions.
2.0	Increase share of recycable parts in the development of new products.
3.0	Avoid the use of materials containing SVHC in the development of new products. Orientation according to current list of candidates of ECHA.
4.0	Reduce demonstrably the PAK share in the development of new products.

11.0 Environmental Certificate



12.0 Environmental Performance since 1970

Relevant Environmental Measures

1970 Change from spray to powder paint through the installation of powder coating facility

1973 Installation of oil and petrol precipitator

1974 Change to lead free powder types

1980 Change to a combined energy fuelling system (gas/oil) for the central heating

1984 Skimmer in spray booth upgraded

1990 Change to cadmium free powder types

..... and the corresponding results

1970 80 % of metal parts are powder coated:
Reduction in the emissions of solvents:
Controlled disposal of sewage:
Improved corrosion protection

1973 Controlled drainage of surface water

1974 Emissions of hazardous substances reduced

1980 Reduction in hazardous emissions through change to environmentally friendly energy source:
Usage of fuel oil only during peak time in winter

1984 Waste disposal cycles are increased:
With the use of skimmer technology paint residues are dried:
Waste disposal costs are minimised

1990 Use of non poisonous powder types:
Environmentally friendly disposal of powder residues made possible:
Emissions of hazardous substances reduced:
Working environment improved



Clean ahead

12.0 Environmental Performance since 1970

Relevant Environmental Measures.....

1991 Development of a waste disposal concept

1995 Installation of a pyrolysis reactor:
Change to TIGC-free powder types

2001 Installation of a new powder coating facility

2002 Roof of the research atrium is closed

2003 Installation of EMS according to DIN EN ISO
14001 and EMAS II

2008 Installation of a CHP plant
Installation of new pyrolysis

2010 Dismantling of spray booth

..... and the corresponding results

1991 Disposal costs minimised:
Fractioning of recyclables:
Ground protection using sub soil foliation:
Drainage of surface water made safer

1995 No more need for chemical paint removal:
No more contact with dangerous chemicals:
Hazardous emissions containing solvents
discontinued:
Powder paints used containing no poisonous . .
additives

2001 Lower consumption of fresh water:
Used process water converted to VE water;;
Reduction in hazardous emissions:
Efficiency improved with direct gas heating

2002 Reduction in sound emissions

2003 With the introduction of EMS environmental
aims are established and implemented

2008 Use of thermal energy from biogas .
Reduction in emission levels

2010 No more emissions of volatile VOC particles;

13.0 Glossary

Agenda 21

Agenda 21 is the name of a world-wide action programme for the 21st Century. The document was adopted by more than 170 states during a UN conference in Rio de Janeiro in 1992.

Benchmarking

Comparison between the performances of different companies using comparable data.

BLm SchG

Abbreviation for Bundes-Immissionsschutzgesetz (German law for the protection against the effects of air pollution, noise, noxious substances, radiation etc)

CHP Plant

A CHP plant is of modular construction and is used for the generation of electricity and heat. It is preferably located at the industrial site where the energy is consumed, but useful thermal energy can also be passed into the district heating network. The principle of power-heat-coupling is used.

Committee for the Protection of Health and Safety Standards at Work (ASA)

The committee for the protection of health and safety standards at Work (ASA) is a communication forum where different departments of a company discuss health and safety issues, take advice on relevant measures and prepare final proposals for decision making.

CO2

Carbon Dioxide is a colourless, non flammable, slightly acid smelling, poisonous gas, that with water forms part of the end product of all incineration processes.

Dangerous substances

Dangerous substances are described and defined in the Chemicals Act. They are substances, potions or products containing dangerous

DIN ISO 14001

International norm series for Environmental Management Systems. Important difference to EMAS: DIN ISO 14001 is valid worldwide and unlike EMAS requires no Environmental Statement.

Emissions

When something is passed into the environment it is called an emission. Smoke, gases, dust, sewage and odours are all emissions, as well as noise, vibrations, light, heat and radiation. Whatever causes the emissions is called an emitter.

Environmental Management

Environmental Management is an organisation within the company, committing all employees to improve the environmental protection of the company. So as not to exhaust the involvement of the employees with short term actions, but keep them involved long term, the Environmental Management System has to be integrated into the company as an automatically running process.

Environmental Study Group

Planning and control instrument for the implementation of environmental aims and central informant for the work-force. The team consists of the managers and environmental coordinators, who represent an area of the company relevant to the environment.

EVG

Self-ballasted lighting

Hazardous Waste

Hazardous waste is waste with dangerous properties as listed in guideline 91/689/EWG for hazardous waste and in the Waste Catalogue e.g. flammable, corrosive, irritant or poisonous.

13.0 Glossary

Hazard Prevention

Hazard prevention refers to the prevention of risk.

Integrated Environmental Protection

Includes production-integrated environmental protection, i.e. environmental measures, that avoid environmentally harmful influences through choice of materials, procedures and technology; as well as product-integrated environmental protection, i.e. manufacturing products where the lowest possible environmental pollution along it's whole life cycle is already taken into account during planning, development and formation

KAIZEN

The term KAIZEN is Japanese and a compound of KAI meaning 'change' and ZEN meaning 'for the better'. It is a practice that focuses on the continues improvement of processes in manufacturing or of products involving all employees of a company.

KANBAN

The Japanese word KANBAN literally means 'signboard' and is a technique devised by Toyota and used in their production system. It reduces stockholding and promotes a regular flow in manufacturing.

KVP

The continuous process of improvement KVP originates in car manufacturing in the series production. Its aim was to increase efficiency and quality through a process of continuous improvement.

Legal register

Local agenda 21

Action programmes for the environment and its development at a local level. Established by local governments in dialogue with it's citizens, local organisations and private companies. With this the local authorities are expected to support the implementation of the Rio Agenda 21.

Oil and petrol precipitators

Also called coalescence precipitators. These systems are used to separate substances harmful to water {Special oils, fats or petrol} from the surface water.

Organigram

An organigram (organisational chart) is a diagram that shows the structure of an organisation. Through this organisational harmony as well as distribution of responsibilities and line management relationships are transparent.

Particle emissions

The release of solid or liquid substances as waste gases into the atmosphere, for example dust, smoke, fog, fumes, aerosol, and special diesel particle emissions – written as P for particle emissions primarily diesel . Diesel particles are regarded as cancerous and consist of concentrations of carbon (the actual soot) which can be taken up by unburned hydro-carbon and sulphur compounds.

13.0 Glossary

Phosphating

Phosphating is a popular process in surface coating technology. It serves as a conversion coating in which dilute phosphate solutions react with the surface of the part being coated and form an insoluble layer of phosphates. Phosphating is mostly used with steel, but can also be used on zinc, cadmium and aluminium.

Polyester Powder Coating

Weather resistant coating system based on polyester polymers mixed with hardener and special pigment resistant to heat and light.

Product life cycle

Manufacture of products where the lowest possible environmental pollution along its whole life cycle is already taken into account during planning, development and formation.

Pyrolysis

Thermal cleaning of powder coated hooks and suspension gear at around 450C using pyrolysis gases in the absence of oxygen. Post-combustion of gases at around 880C

Recycling

Recycling means the extraction of raw materials from waste, they are then returned to the economic cycle and used in new products {Utilisation of materials}.

Skimmer

Cleaning of the water surface in the under-floor collecting basin in the spray booth through the precipitation of oil solids.

Residues can be kept longer and minimise disposal costs

Special waste

Cannot be disposed of together with household waste because of its consistency or content of harmful substances, usually hazardous waste requiring special monitoring.

Waste gases

Collective term for emissions in the form of gases, resulting from firing systems and production plants, as well as vehicles, but also from underground and landfill sites.

Wolfram-Inert Gas Welding (WIG)

Wolfram-Inert Gas Welding originates from the USA and became known there in 1936 under the name of 'Argonarc' welding. It only became popular in Europe in the 1950s. It has a number of advantages over other welding procedures. In conjunction with WIG pulsing and WIG electrodes any suitable material for welding can be joined together. WIG welding produces virtually no spilling and health risks caused by welding smoke are relatively low.

Your opinion is very important to us!

Please write or fax us with your ideas
and suggestions.

Produced by:
Hako-Werke GmbH
Hamburger Strasse 209-239
23843 Bad Oldesloe

Your Direct Contact:
Konrad Moeller
Manager of the Environmental Management System (EMS)
Hako-Werke GmbH
Tel. (04531) 806 254
Fax. (04531) 806 420
E-mail: kmoeller@hako.com
Website: www.hako-werke.de

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