Wieland

Environmental Statement 2009

Vöhringen works

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Preface

Our Vöhringen location is Wieland-Werke AG's largest production site and since its operations are very energy intensive, we feel especially committed to environmental protection. This commitment to the protection of water, air and soil is especially urgent because the works lie so close to both the town of Vöhringen and the Iller canal.
We achieve our environmental goals by fostering an awareness of environmental issues among our employees and using state-of-the-art technology to protect the environment on a sustainable basis.

Wieland-Werke AG

Dr Ulrich Hartmann, Member of the Executive Board

Ulrich Altstetter, Vice President Plant Engineering and Logistics, Environmental Management Officer

Environmental policy

Wieland-Werke AG is conscious of its responsibility to nature and to society. Our environmental policy aims to contribute towards protecting our environment and sustaining its quality for the life of the community in general.
The following principles embody our objectives:

1. Responsibility for environmental protection

Environmental protection is a managerial task and as such is on a level with the other corporate objectives. Responsibility for our environmental activities is shared by all our employees and the executive. Environmental interests are considered in all the decisions taken in the Company.

2. Continual improvement

We undertake to continually improve environmental protection within the Company. We regard statutory provisions and official orders as minimum requirements. Wherever it makes sense from an ecological and economic point of view, our activities go even further.

3. Employee motivation

We promote our employees' environmental awareness, knowledge and initiatives through information and training measures. Our managerial staff set a leading example here, motivating the entire workforce to behave in an eco-friendly and responsible manner.

4. Product-related environmental protection

From the development stage on, we ensure that our products are manufactured, packed and transported in as ecologically sound a manner as possible. They also ought to be recyclable.

5. Environmental protection in the production process

Our aim is to make use of the best technology available when planning production processes and setting up and operating our facilities. We exploit every opportunity for avoiding pollutant and noise emissions, saving energy and raw materials, and avoiding, reducing or reusing waste.

6. Reducing environmental impact

We identify and review the environmental impact and performance of our products, manufacturing processes and activities on a regular basis. We take preventive action so as to minimise environmental hazards and protect land, air and water. Our organisational and technical precautionary measures ensure that any discharge of substances is prevented or kept to a minimum in the event of a disruption in operations.

7. Inclusion of service providers and suppliers

We call for environmental standards from our contractors and suppliers that are consistent with our environmental policy and we check their observance. We oblige service providers working on our Company premises to comply with our environmental standards.

8. Precautions and self-checking

We verify the implementation of our environmental policy through regular environmental audits. These serve to identify and document weak points and progress in our environmental management.

9. Informing the general public

We conduct an open dialogue on our environmental policy and possible environmental impact with our customers, suppliers, public authorities, trade and professional organisations, and the general public, making information available as appropriate. Preventive measures and response procedures in relation to environmental damage and accidents are coordinated with the public authorities.

Wieland-Werke AG

Origins

Krauss Mill at Vöhringen

In 1820, Philipp Jakob Wieland took over the fine art and bell foundry in Ulm from his uncle Thomas Frauenlob. After only a few years he ventured to establish the first brass plate rolling mill in the kingdom of Württemberg, as it was then, and by 1828 he had made a name for himself as an innovative manufacturer of brass plate and wire. In 1864 he acquired the Krauss Mill in Vöhringen, 17 km south of Ulm, where he set up a brass rolling and wire drawing works. The site on the river Iller allowed the exploitation of water power, which is still used to this day.

Environmental policy milestones

1966 *Start-up of an acid concentration unit for regenerating pickling concentrates and a facility for treating wastewater from production processes*

1973 *First dedusting plant set up in the casting plant*

1976 *Construction of a scrubber for cleaning the exhaust air from mixed acid pickling baths together with a treatment unit for the resultant scrubbing waters*

1977 *Installation of three ion exchanger systems for reducing the rinse water required in the pickling processes*

1978 *Establishment of a second wastewater treatment facility*

1981 *Construction of a second dedusting plant*

1990 *Construction of the third dedusting plant*

1997 *Construction of two standardised oil separators to replace a number of smaller ones*

1999 *Two new dedusting facilities replace the 1973 plant; waste material preparation and loading bay built*

2000 *Coal-fired and heavy oil-fired boilers for in-plant power generation decommissioned*

2002 *Chip unloading and transport to the casting plant optimised*

2003 *Introduction of an environmental management system*

2008 *New flood dyke completed along the southern works boundary*

Electro tinning line with wastewater treatment plant set up

Description of location

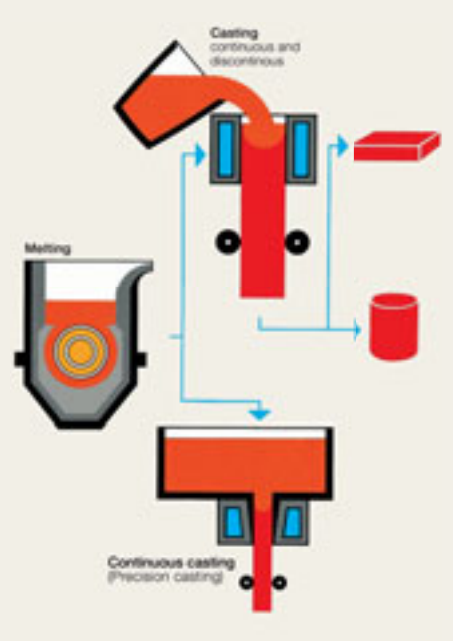
The Vöhringen works at Wielandstr. 26, 89269 Vöhringen, lie in the Iller valley some 17 km south of Ulm in the southern German state of Baden-Württemberg. The site includes the casting plant, the metal store and the central research and development establishment. Manufacturing facilities for tube and pipe, rolled products and extruded and drawn products are also situated here.

The works premises extend along the western edge of the town of Vöhringen and are divided by the Vöhringen-Illerrieden road, Illerstrasse, into a southern and a northern section. The northern section is designated as a business park, the southern section as an industrial zone. In all, the Vöhringen site covers approx. 560,000 m^2, with buildings accounting for some 265,000 m^2, surfaced yards and roads about 165,000 m^2 and unsurfaced areas some 130,000 m^2. Some 2,500 people are employed by Wieland-Werke AG in Vöhringen.

Copper as raw material – the most sustainable metal

Copper is 100 percent recyclable. Currently, recycled materials already account for about half of Germany's annual copper requirements. It is estimated that 80 percent of all copper ever extracted is still in use today. Copper recycling produces little or no waste. Not only that, it consumes only about 25 percent of the energy required for extracting the metal from copper ore. Copper and its alloys can be recovered from waste materials without any loss of quality. But energy is saved in other ways in addition to recycling. After silver, copper is the best electrical conductor, so copper in engines, power lines and electrical appliances ensures high energetic efficiency. Copper is also an excellent heat conductor, outstripping all other industrial metals. In particular, copper boosts the efficiency of alternative energy sources such as solar and wind power, geothermal energy and fuel cells. Another benefit is the extreme longevity of products made of copper: whether in roofing, tubing, electric cables and wires or water pipes – as a rule they last for decades. This is not a recent finding – even the water supply system at Cheops' Pyramid in Ancient Egypt was made of the "red metal". More than 5,000 years on, it is still intact and usable. As far as sustainability goes, our material is indispensable: With the help of copper, we can preserve resources, avoid waste and use energy more economically.

Metals and Casting Division



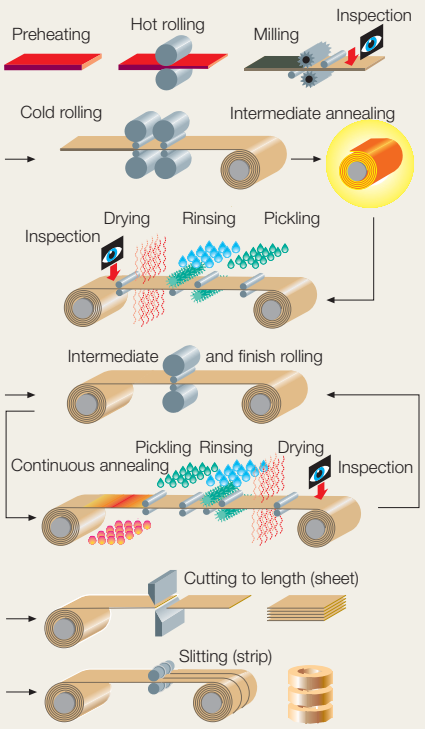
Copper is the main component in our products. Our casting plant produces a large number of conventional and innovative alloys, with the main alloying components being zinc, tin and nickel as well as chromium, titanium and silicon. We use new copper, for example in the form of copper cathodes, as well as high-quality secondary raw materials which are obtained from our own and customers' manufacturing processes. At the metal store we record, check and packet all incoming metal deliveries. From intermediate storage and weighing out, the charge metals required for the alloy recipes go to the casting shop, where they are melted down in induction furnaces. Our employees monitor the chemical composition of the alloys by taking ladle samples from each melt for spectrometric analysis. Following clearance, the melt is transferred to the casting furnaces. We still use the Wieland-Junghans casting process developed in our Company in 1933: an automatic flow control system feeds the melt from the furnace into water-cooled moulds. The cast strands are then withdrawn either continuously or semi continuously and allowed to cool. Precision casting produces near-net shape rods, tubes or sections in copper alloys in a continuous process. Spray forming is a process that allows the production of billets from materials which are difficult to cast. As the melt leaves the tundish, it is nitrogen-atomized into small droplets, on average 60 to 80 µm in diameter. Following a preset trajectory, the droplets deposit on a collector plate, where they solidify under the effect of their kinetic energy. Spray forming produces a finer grain and more homogeneous structure than conventional casting. The Metals Division is the starting point of our production process. Continuously cast rounds are processed into rods and bars, tubes, wire and sections. Rectangular products are the prematerial for strip, sheet and plate.

Rolled Products Division

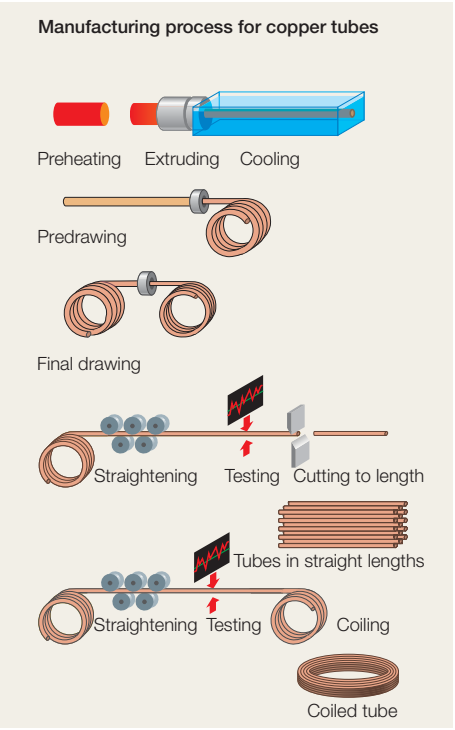
Semi continuously cast slabs in unit weights of up to 15 tonnes form the starting material for our Rolled Products Division. These ingots are first heated in a gas-fired walking beam furnace to the optimum shaping temperature, between 600 and 1,000 °C, depending on the material. Reversing hot-rolling reduces the slab thickness to between 10 and 18 mm. After that, both the casting skin and any oxides generated during hot rolling are removed by milling. The slab is now ready for the first cold rolling step, followed by the first intermediate anneal. Repeated rolling, annealing and pickling (to remove the oxide layers) alternate until the strip achieves its final thickness and strength as ordered by the customer. Finally, slitting shears cut the strip lengthwise to the specified width. If required, we weld several strips together in order to provide our customers with a convenient delivery form. The strip is supplied either as coils or as several stacked and interconnected rings called a multicoil. A hot-dip tinned surface is frequently specified for electrical applications. Many copper alloys can also be supplied in the form of sheet, which is cut on cut-to-length lines from strip or, alternatively, rolled piece by piece to customised sizes. Application areas for strip and sheet are the electronic and electrical industry, the automotive, cutlery and jewellery industries, and the building trade.

In our electroplating plant we can also apply “intelligent” surface coatings to the finished strip in line with customer specifications. The manufacturing programme of the Rolled Products Division also includes special alloys for the production of current carrying components for electronic applications. Based on these materials the use of natural resources in production can be significantly reduced.

Manufacturing process for strip and sheet

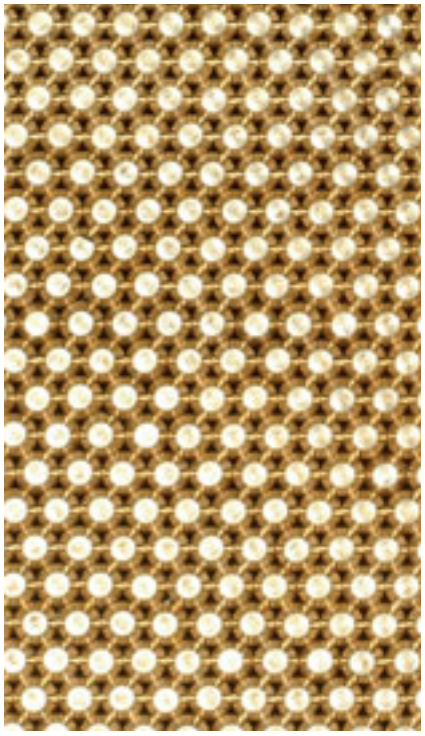


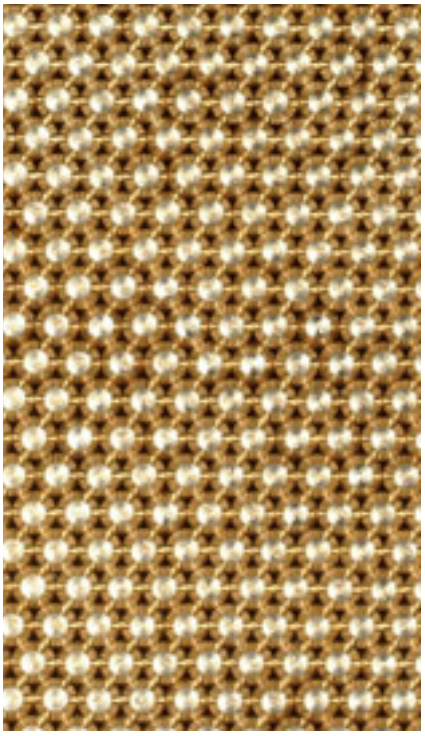
Tube Division



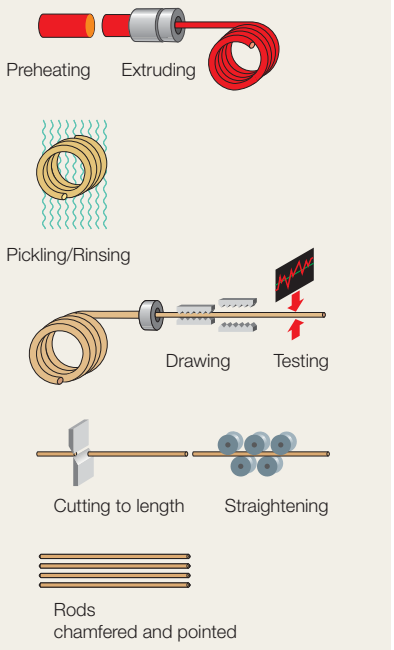
Production in the Tube Division starts from continuously cast billets. These are heated to a hot forming temperature of about 950 °C and then extruded to form copper tubing for further processing by cold working on bull blocks or chain-type drawing machines. This takes place in multiple consecutive steps during which the tubing is drawn through round dies, with a mandrel serving as internal tool to reduce the wall thickness. Copper's excellent forming properties mean intermediate annealing is not necessary. Depending on the specified strength, however, heat treatment may be required when the final dimensions have been reached or almost reached. Finally, the tubing is straightened, degreased as appropriate and delivered straight or as coils or level-wound coils to customer specifications. Copper tubing for certain applications may require further special treatment. Tubing for industrial use, for instance, must meet particularly high standards of internal cleanliness. Such tubing is cleaned and its ends are closed with plastic caps if requested. Pipe for drinking water supply systems is protected against corrosion using a special process. Pipe used for panel heating elements is protected with a thin plastic coating. We also produce insulated pipe, thickly coated to prevent heat loss. The most important domestic engineering uses of copper tubing and pipe include conventional and panel heating systems as well as drinking water and oil and gas installations. In the industrial sector, copper tubing is utilised in heating/refrigeration and air conditioning (HVAC) systems and in the construction of vehicles, machinery, plant and process equipment. This includes in particular tubes for the manufacture of solar heat absorbers for solar thermal equipment. Due to the basic material copper these tubes are characterised by outstanding heat resistance and excellent thermal conductivity.

Extruded and Drawn Products Division



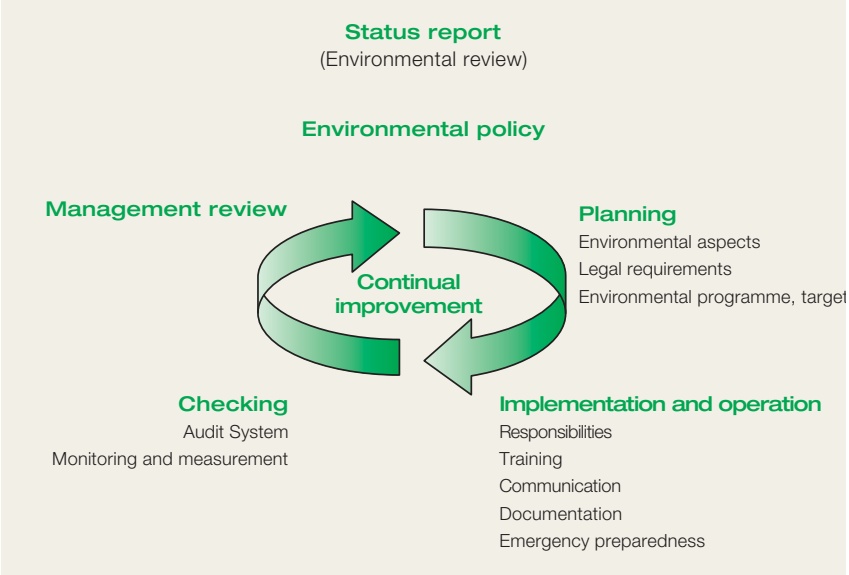


Manufacturing process for brass rods



Continuously cast or spray formed billets are the starting material for our extruded and drawn products. The first processing step involves heating the billets to the material-specific forming temperature between 600 and 1,000 °C. Hydraulic extrusion presses then form them into cross sections of varying degrees of near-net dimensions. While alloys with good hot-forming characteristics can be formed to the final dimensions in a single drawing process, more difficult materials need repeated rolling and drawing passes until the desired cross section is achieved. Recrystallization annealing may also be called for, depending on the extent of cold hardening. Once the final dimensions have been reached, the section or rod is cut to the desired length and then straightened or sized as required. Alternatively, cross sections can be delivered as wire coiled with or without overlap, as specified by the customer. The surface is pickled as required both after extruding and after intermediate and final annealing. Rods and wire are processed by our customers into a wide range of different products which are used, for example, in the electrical, automotive, metal optical and jewellery industries, in the building and construction trade and in arts and crafts. In addition the Extruded and Drawn Products Division develops lead-free copper alloys for the manufacture of components for drinking water installations.

The Environmental Management System



Fulfilment of the elements set out in the following control loop is required for successful certification in accordance with DIN EN ISO 14001:2005 and validation according to EU Regulation No. 761/2001 EMAS II. The responsibilities, processes and procedures called for in the implementation of these elements are regulated by process descriptions and working instructions. These are integrated into the Wieland-Werke AG QM Manual. The processes which are relevant and essential to environmental management are determined by systematic "Identification and Review of Environ-mental Aspects" (see p. 18). Employee involvement is based on close co-operation with the Works Council and on the Employee Suggestion Scheme which also includes an Environmental suggestions category. In addition, in line with our LEAN Management policy, many employees are committed to the group-wide continuous improvement process which also ecompasses environmental protection issues.

Legal conformity

A large number of environmentally relevant laws and ordinances and various sets of rules apply to the Vöhringen location and the facilities in it which are subject to licensing. Compliance with the related requirements is monitored and reviewed at regular intervals.

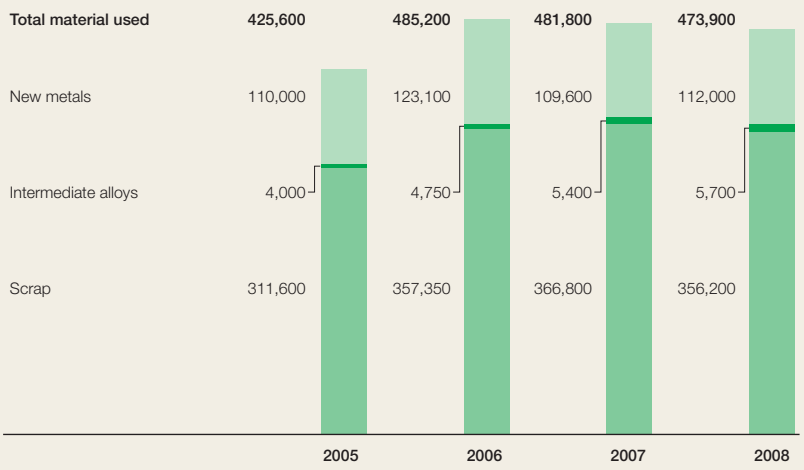
All additionally applicable rules and requirements follow from the environ-mental legislation and approvals. Supervision of compliance with them has been assigned to authorised officers. The related responsibilities are shown in the following organisation chart.

The most important German laws are:

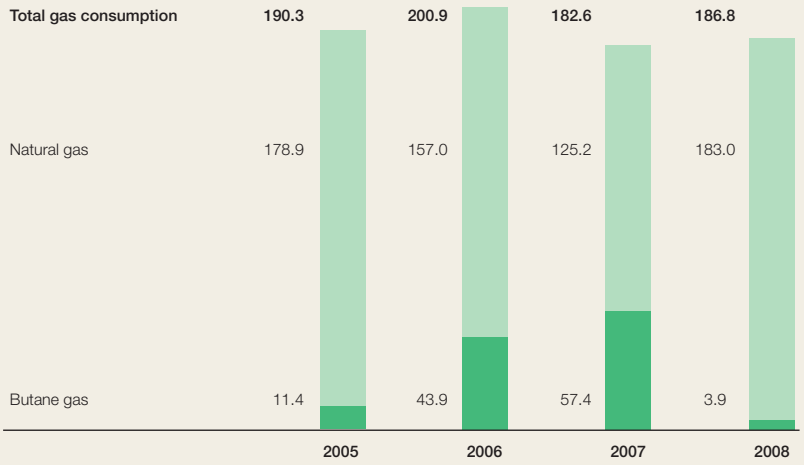
- **the Federal Immission Control Act (BImSchG)**
- **the Water Act (WHG)**
- **the Closed Substance Cycle and Waste Management Act (KrW-/AbfG),**
- **the Federal Soil Protection Act (BBodSchG)**

Input

Raw material input (t)

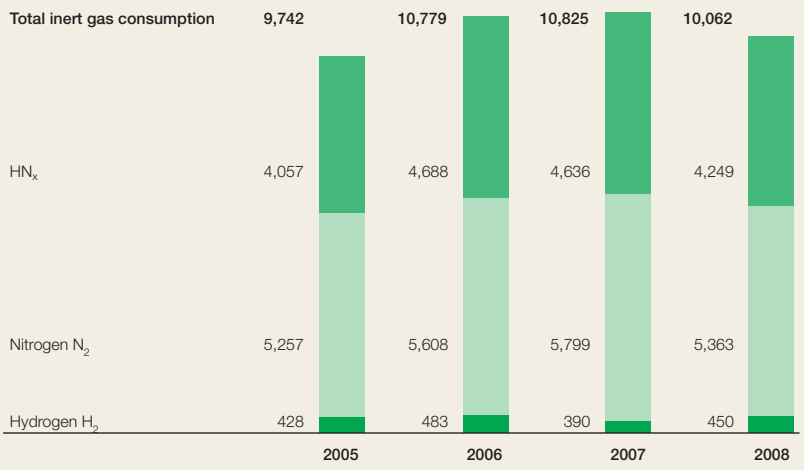


Gas consumption (million kWh)



Natural gas and butane gas are alternative energies whose use depends on the given current price situation.
About 30 percent of the gas consumed is used for heating.

Inert gas consumption (thousand m³)*



* In previous years, inert gas consumption was erroneously given in "million m³".

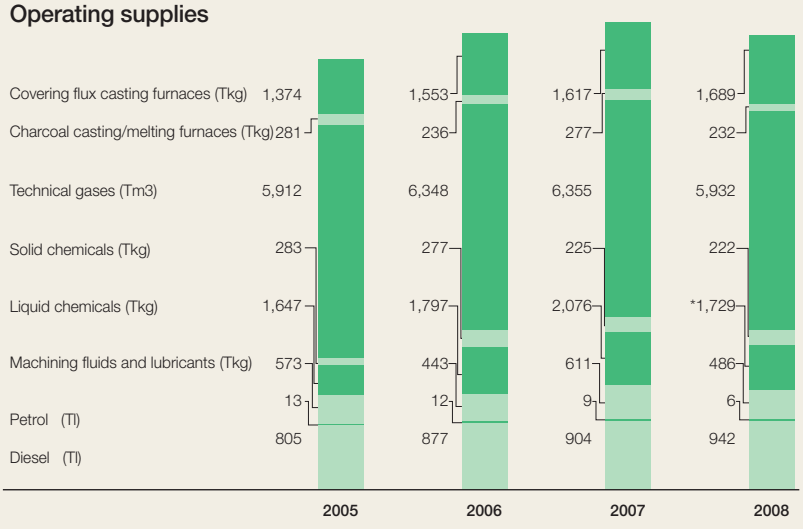
Electric power consumption (million kWh)

Specific electric power consumption in relation to production output remained constant.

Water consumption (million m³)

Specific water consumption in relation to production output remained constant.

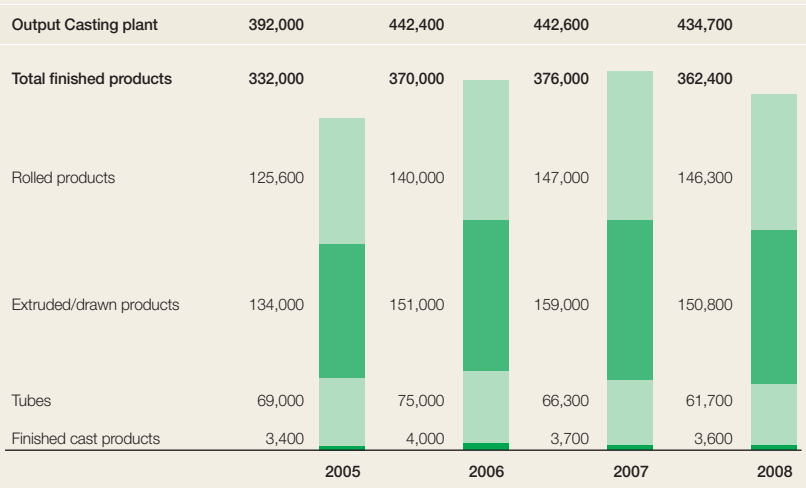
Operating supplies



* The consumption of acids and brines for the pickling plant was cut back again after an increase in the business year 2006/2007.

Output

Finished products (t)

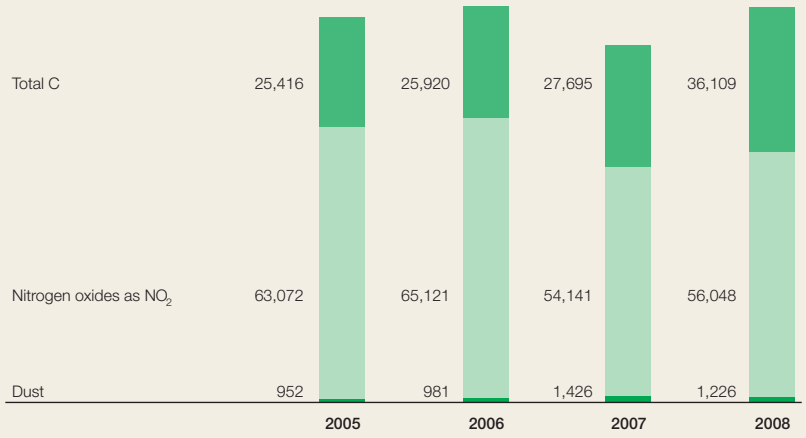


Waste (t)

The volume increase in "Waste for recycling" results from the sharp rise in contaminated construction rubble from various building projects on the existing works premises.
The reduction in "Sundry waste for recycling" is due to lower quantities of steel scrap.

Wastewater disposal (million m³)

Air emissions (kg)



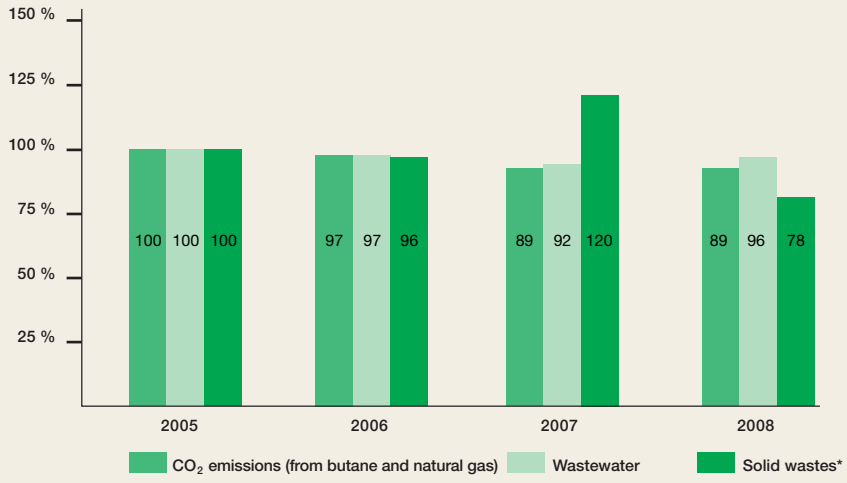
The emission loads are based on the three-year emission measurements according to sect. 28 BImSchG calculated on the basis of the actual operating hours in the respective emission sources.
Despite the requirement that emissions are always to be measured at maximum plant utilisation, the measurements here are “snapshots”.
As a result, the variations emissions measured lead to considerable deviations in the emission load calculations.

CO_2-emissions (t/a)

(directly from fossil fuel combustion)

We are participating in CO_2 emissions trading with our heat generating plants (steam boilers 1, 2, 7 and 8).
The allowance allocated for the second trading period 2008–2012 is 11,666 tonnes CO_2 per year.

Specific values in relation to the annual production of finished products (2005 ≙ 100 %)



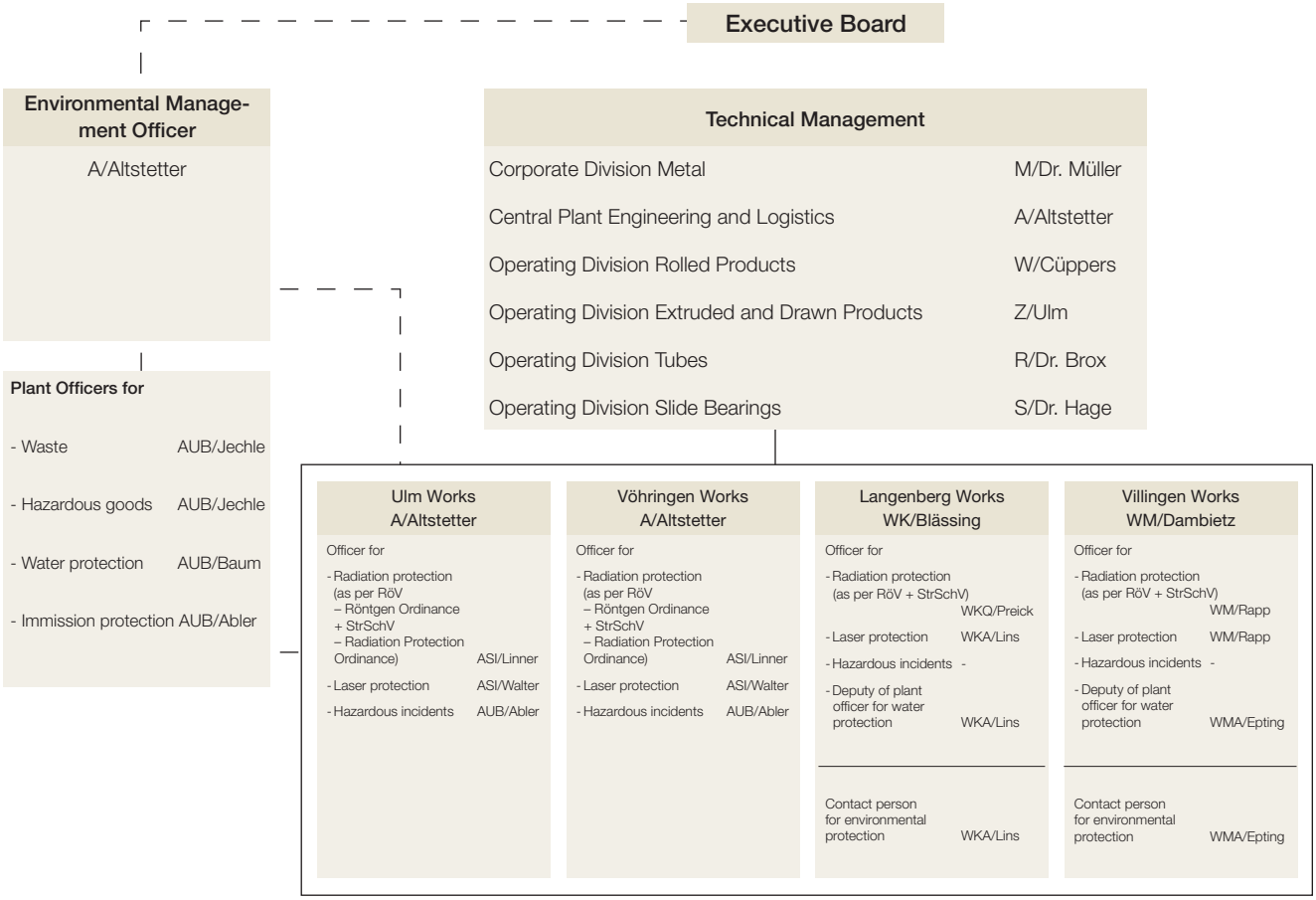
The strong decrease in 2008 waste volumes is attributable to the significantly lower quantities of steel scrap.

* Construction waste and NF metals not included.

Input and output data relate to the respective fiscal years from 1 October to 30 September.

Organisation of Environmental Protection at Wieland-Werke AG

Environmental Protection at Wieland-Werke AG



Your contacts for environmental questions in the Vöhringen works:

Immission control, hazardous incidents:
Oswald Abler
Phone +49 (0)731/944-3005
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Identification and Review of Environmental Aspects

A key instrument in our environmental management system is the systematic "Identification and Review of Environmental Aspects" for all plant and equipment with subsequent evaluation and prioritisation according to fixed criteria. The review is documented on an ongoing basis in comprehensive schemes. The following significant environmental aspects were identified in the various divisions and business areas:

- energy consumption
- emissions (air and noise)
- cooling water consumption
- waste water
- handling substances hazardous to water
- use of organic solvents
- handling substances subject to the Hazardous Incident Reporting Ordinance (12th BImSchV)

Supplies

Power supplies

The manufacture of semifinished products in copper and copper alloys is based on very energy-intensive processes.
Today, our power supplies are based on a 110 kV incoming line and a branched 20 kV/6 kV distribution network. The water turbines built in 1904 on the Iller canal are also still in operation, although they now only meet about 2 percent of the plant's power needs.
Two stand-by generators are available to assure supplies in the event of an external power failure.
The heat for heating and production purposes is generated by four low-emission, energy-efficient gas boilers. The conversion from coal to gas in 2000 successfully slashed the plant's CO_2 emissions by some 30 percent or approx. 15,000 t/year.
A wide range of systems are used for cooling our production facilities. Since 1990, new plants have been equipped with open- or closed-loop cooling systems while older units are still operated with once-through cooling.
Proactive and computer-assisted maintenance ensures that all the plant and machines are kept in good repair and are continuously monitored for faults via a central services control system. Our continual improvement process means the facilities are optimised on an ongoing basis, so the efficient use of energy is assured.

Transformer station

The works canal

Water

We use water to cool the material in the casting plant and to rinse the pickling facilities, so its supply is especially important to us. Since mid-2002, process water needs have been met exclusively from our own groundwater wells. Drinking water is partly supplied by treated groundwater and partly sourced from Vöhringen's drinking water supply.

Safety relevant substances covered by the Hazardous Incident Reporting Ordinance (12th BImSchV)

Various plant and equipment areas at Wieland are subject to the Hazardous Incident Ordinance. Extended obligations, e.g. procedures for informing the public, apply particularly to the liquid gas store. A list of all safety-relevant areas and facilities is included in a continuously updated safety report.

VOC Directive (31st BImSchV)

The VOC Directive, which establishes limits for volatile organic compounds emissions, was transposed into German law by the 31st Solvents Ordinance (BImSchV) in August 2001. The surface cleaning systems in our Extruded and Drawn Products Division and in the Tube Division falls within the scope of this Ordinance. We prove compliance with the threshold values for diffuse emissions through conducting solvent audits for all the plant and equipment areas concerned.

Handling water-polluting substances

We operate many units in which water-polluting substances are used: storing, filling and handling equipment as well as facilities for production, treatment and utilization. They are assigned a hazard rating according to their risk potential and our organisation and technology ensure that they are reliably operated and monitored. We are a recognised specialised establishment as defined by Section 19(i) of the Water Act (WHG) and are regularly checked by an approved monitoring agency. The Company is also fortunate to have a large skilled and qualified monitoring team, so we are able to maintain and service our own plant and equipment which handle water-polluting substances.

Liquid hydrogen storage tank and butane storage sphere

Secondary raw materials

Detector system for trucks

Raw materials

Primary metals used as input stock in the casting plant are procured worldwide. They include in particular cathode copper, pure zinc and pure tin. In addition, unmixed metal waste, chips and scrap which are generated on the customer's premises or within our own production process are remelted. The ratio of metals used is 25–30 percent primary metals to 70–75 per cent recycled metals.

Operating supplies

Operating supplies are mainly delivered to the central operating supplies store where they are stocked and managed for production and maintenance purposes. Some facilities have external stores which are supplied directly (e.g. for oils, acids, and chemicals for wastewater treatment). Environmentally relevant operating supplies are transported within the works on pallets with drip trays to collect any spills.

Radiation protection

All X-ray and laser equipment is operated with the best possible protective measures for our employees' safety. In addition, detectors screen incoming returns from our customers for radioactivity. The equipment can even detect values which are only slightly above the natural background radiation levels.

Flood protection

The river Iller has flooded twice recently, in 1999 and 2005, and the Vöhringen works came precariously close to being under water, which would have brought incalculable damage and environmental hazards. Now the flood danger for the Vöhringen works has been eliminated as far as possible through the construction of a flood dyke, the purchase of substantial flood protection equipment and a whole range of organisational measures including a contingency plan for a large part of the workforce.

Waste Disposal

Waste groups

The production processes generate three groups of waste:

- wastes made up of various metal alloys, so-called “returns”. These are (re)melted in the casting plant.
- other waste that occurs during the production and auxiliary processes
- commercial waste similar to domestic refuse.

We fulfil the requirements of the German Closed Substance Cycle and Waste Management Act (KrW-/AbfG) by avoiding waste wherever possible. This is our primary objective, before recycling and disposal. Where waste cannot be avoided, we seek alternative ways of recycling it which themselves satisfy ecological concerns. Waste is rigorously collected and separated so that as little as possible has to be disposed of.
In all, the Vöhringen works collects some 120 different kinds of waste. Disposal is through about 30 certificated specialist firms.

Filling a paper press container

Wastewater disposal

Where necessary, cooling and process wastewater (e.g. from the pickling lines) is treated and then discharged into the Iller canal together with precipitation water.

Cooling tower group

Heat utilisation/ Energy efficiency

These days, with resources increasingly scarce and energy prices rising, the use of heat is a highly topical matter. Wise use of heat means, for one thing, exploiting waste heat from production processes. It also covers the principle that primary energy required for the individual production stages must be used as efficiently as possible. Moves in this direction, therefore, are urgent not only for ecological but also for economic reasons.
After the energy crises of the 70s, industry recognised the need for a more efficient use of heat. Wieland-Werke AG developed the exploitation of waste heat for further industrial heating processes and for room heating. As a result, many production facilities were equipped to turn waste heat to good use.
Today we examine new production plant right at the planning stage to see how far waste heat can be exploited and, where possible, used effectively in the actual production process itself.

Air emissions

The most significant source of emissions is the casting plant, where exhaust air is cleaned in four dedusting systems. Dust meters monitor emissions continuously to ensure that limits are observed. In addition, dust and dioxin emissions are checked at regular intervals by recognised measuring institutes. In recent years all the measured values have been well below the permissible limits.
The use of fossil fuels (gas and diesel fuel) leads to CO_2 emissions, which are measured and disclosed in the context of CO_2 emission reduction. The basis here is the industry's self-commitment and the Kyoto Protocol on the reduction of greenhouse gas emissions, primarily carbon dioxide emissions.
Our heat generating facilities together produce about 33 MW nominal power in four steam boilers, so we also participate in the EU-wide CO_2 Emissions Trading Scheme with its statutory obligation to cut emissions.

Dedusting facilities at the casting plant

Results of most recent emission measurements (dust)

Facility	Limit acc. to notice of approval	Measured value	Year
EA1 built in '99	4 mg/m³	0.05 mg/m³	2008
EA2 built in '81	6 mg/m³	0.12 mg/m³	2008
EA5 built in '90	6 mg/m³	0.12 mg/m³	2008
EA6 built in '98	4 mg/m³	0.1 mg/m³	2007

Noise emissions

The plant premises are situated in west Vöhringen, with a residential district directly adjacent. Protection against noise pollution is therefore of key importance. New buildings are designed with noise protection façades to take account of this. Stationary noise meters have been installed along the works fence so that exceptional levels of noise can be responded to directly. Internal transport operations are forbidden between 10 pm and 6 am on the eastern works road adjoining the residential area. All windows and doors in the plant have to be kept closed during this period.

In 2005, TÜV (the German technical inspection agency) carried out immission measurements along the edge of the Vöhringen works. In most instances, the required immission guide values were observed, with only a few immission measuring points registering slight excess values in the night. We identified the causes for this and implemented appropriate corrective measures, whose effectiveness we have verified.

Noise protection wall around the truck parking lot north of the Vöhringen works

Indirect Environmental Aspects

Traffic

About 75 percent of our goods are delivered and distributed by road and some 25 percent by rail. The environmental aspects relevant to transport are known and are being optimised in a logistics project (depot management). It has led to the construction of a new materials preparation bay in conjunction with additional truck parking space in the north of the works, which will allow internal truck traffic to be significantly reduced.

Driveway to the new truck parking lot

Waste disposal

We engage only certified specialist disposal firms to dispose of our residual wastes from the production and auxiliary processes. The same applies to commercial wastes similar to domestic refuse. Furthermore, we check our main waste disposal contractors regularly for compliance with our environmental requirements and we document the results.

Service providers

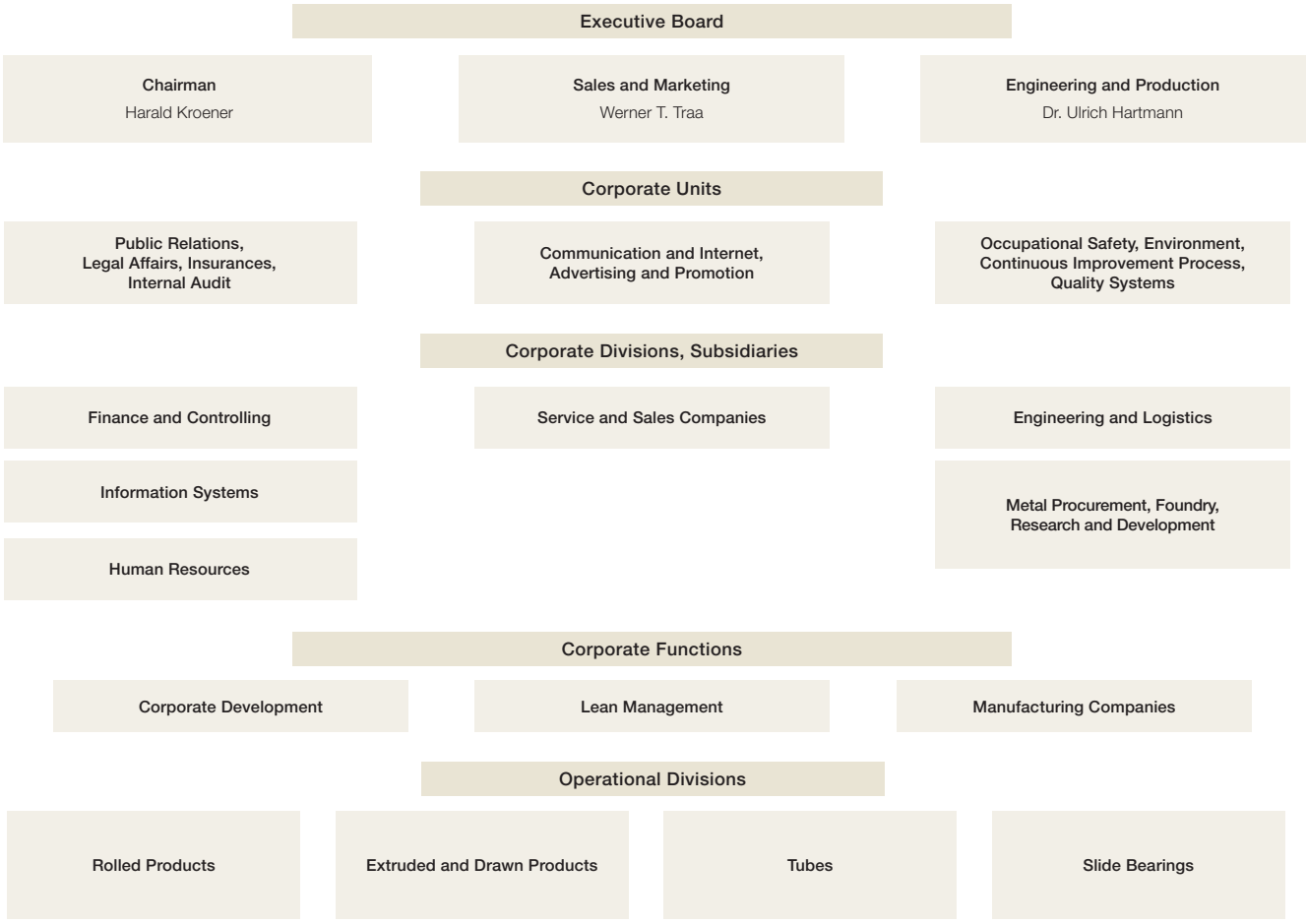
Suppliers and service providers are included in our efforts to protect the environment. We obligate service providers working on our premises to meet our environmental standards. This is an integral part of contracts concluded with them.

Emergency precautions and actions

Our works fire service is the most important pillar of emergency precautions. Recognised under sect. 15 of the Bavarian Fire Service Act (BayFwG), it is on call 24 hours a day, 365 days a year. Fire fighter training, regular fire practices and excellent equipment ensure a high standard of precautionary and defensive fire protection. A practice plan is arranged by the works fire service commander in coordination with the authorities, the District Office in Neu-Ulm. The hazard prevention organisation which we have implemented is an essential element in our contingency precautions and activities. It forms the basis of the external disaster prevention plan in the Neu-Ulm administrative district. The safety report on potential incidents is fundamental to emergency precautions and actions (including environmentally relevant accidents and emergencies) for the plant and facility areas subject to the extended obligations of the Hazardous Incident Ordinance.

Fire service depot on the works premises

Organisational Structure of Wieland-Werke AG



February 2009

Validation certificate

It is hereby confirmed that the environmental management system conforms to the requirements of Regulation (EC) No. 761/2001 of the European Parliament and of the Council as amended on 3 February 2006.

This Environmental Statement is hereby declared valid.

The next version of the Environmental Statement will be declared valid in April 2010.

Vöhringen, 2 April 2009

Thomas Schneider
Environmental Verifier
Reg. No. D-V-0178

Environmental Performance:

Environmental Improvement Measures Implemented Between 2006 and 2009

Objective	Target	Programme	Individual actions	Organisational unit responsible	Target date	Costs (in EUR)
Process optimization						
Improve plant heat utilisation and save energy	Heat utilization press P 15: Billet heating: 30% energy savings	Increased internal waste heat utilization up to reduced exhaust discharge temperature	Replace existing furnace with technologically improved furnace	Plant Planning Department	End 2006	3,300,000
	Dedusting facility EA1: 10% energy savings	Identify alternative solutions to the existing chain curtain	Install a suitable separator system into the dedusting facility	Plant Planning Department	07/2006	–
Reduce ground water consumption	Hood-type furnaces in northern rolling area: 15% cooling water savings	At concept stage	Convert H01-20 base cooling to closed-circuit cooling	Energy Management Department	End 2006	100,000
Water protection measures	Fast and efficient abatement and elimination of environmental pollution	Use of modern equipment	Purchase a new environmental protection vehicle for the works fire brigade	Industrial Safety Department	09/2006	162,000
	Avoid ingress of water into the oil and machinery cellars in the event of flooding	Use of suitable protective equipment	Purchase flood protection equipment	Industrial Safety Department	06/2006	182,000
	Avoid ingress of water into the oil and machinery cellars in the event of flooding	Improve flood protection	Construction of a dike (30% share of costs)	Plant Planning Department		600,000 (environmental content)
Improve noise protection	Insulate internal noise sources against residential areas	Include noise immission calculations into approval procedures	Construction of noise barriers: - an approx. 40 m long wall in the south of the premises - an approx. 30 m long wall in the area of the foundry - an approx. 300 m long wall along the truck parking lot	Construction Planning Department	End of 2008	680,000
Reduce environmental impact	Development of a new process for the manufacture of eco-friendly surface coating systems	Use of eco-friendly processes	Investment in a new electroplating plant with appropriate peripheral equipment	Plant Planning Department	06/2008	2,800,000 (environmental content)
Product development/Innovation						
Protect climate/resources	Targeted use of NF metal products in the area of renewable energies	Development and marketing of eco-friendly products	- Solarclean tube - Industrial tubes	Tube Division		
	Awards for sustainable research activities	Support to sustainable research projects	Call for submissions for an Innovation Award at Ulm University	Central Services Plant Technology and Logistics		6,000
Continuous improvement process (CIP)						
Promote use of eco-friendly substances	Reduce environmental impact from wire and section manufacture: replacement of Metasolv 706	Identify alternative solutions	Use degreasing agent with steam pressure <0.1 hPa at 20 °C	Extruded and Drawn Products Division		–
Reduce fire risk potential	Implement fire fighting measures in Buildings 50 and 83, tube drawing mill	Phased plan	Implement phases 1-3 of 5	Tube Division, Construction Planning	Phased plan up to 2013	1,080,000
Organizational measures						
Reduce effects of accidents /hazardous incidents	Reduce response time for incidents affecting the environment	At concept stage	Install "Funkserver Pro"	Plant Planning Department		25,000
Economise on paper and printer ink costs	Distribute Annual Environmental Protection Report and Environmental Statement electronically	Identify alternative solutions	Introduce user-friendly EDP program	Environmental Protection Department		–
Reduce noise impact on nearby residential areas	Notify all employees and external companies	Cut noise emissions	Increase number of signs, Reminder on notice boards, Trainings	Environmental Protection Department	06/2008	5,000

Environmental Programme 2009

Objective	Target	Programme	Individual actions	Organisational unit responsible	Target date	Costs (in EUR)
Process optimization						
Improve plant heat utilisation and save energy	Press P21: improve heat utilization for billet heating, 24 % energy savings compared to old presses	Savings in primary energy, CO_2 reduction	Operate 2 gas furnaces and 1 HTS furnace, replace obsolete billet heating furnaces	Extruded and Drawn Products Division	Start-up phase until end of 2009	1,000,000 (environ-mental content)
Water protection measures	Press P21: reduce waste water volume by approx. 1,000 m³/a and cooling water consumption by approx. 100,000 m³/a	Cut volumes of water and waste water	Replace 3 obsolete extrusion presses by a new Press 21 with closed-circuit recooling system	Extruded and Drawn Products Division	Start-up phase until end of 2009	2,000,000 (environ-mental content)
Protect climate	Truck parking lot North: generate approx. 36 MWh/a solar energy	Use renewable energy sources to reduce CO_2 emissions	Build a 260 m² photo voltaic unit on the southern noise insulation wall of the truck parking lot	Logistics Department	Spring 2009	150,000
Save energy	10% savings in energy costs and significant reduction in energy consumption	Implement an energy saving project with internal and external experts	Purchase a new environ-mental protection vehicle for the works fire brigade	Energy Management Department	10/2009	162,000
Continuous improvement process (CIP)						
Reduce fire risk potential	Implement fire fighting measures in Buildings 50 and 83, tube drawing mill	Phased plan	Implement phase 4 of 5	Tube Division, Construction Planning	Phased plan until 2013	400,000
Reduce emissions	Cut nitrogen oxide emissions from suction extraction in pick-ling plant	Improve waste gas detoxification	Optimize existing exhaust gas cleaning system NA4 based on existing concept	Plant Planning Depart-ment - Rolling Mill	09/2009	20,000
Optimise waste disposal routes	Recycling, not disposal; raise recycling levels	Update waste cadastre	Perform periodic checks of disposal routes	Environmental Protection Department	Periodically	–
Reduce noise impact on nearby residential areas	Structural and engineering improvements to cut noise emissions	Analyse sound measurements to identify noise sources	Storage of multiple billet lengths in southern store changed	Extruded and Drawn Products Division, Production Department	30.09. 2009	50,000
Optimise Environmental Management System	Heighten benefits by increased distribution	At concept stage	Step up EDP program-ming and adapt "also valid" documents	Environmental Protection Department	End of 2009	–
Organizational measures						
Improve plant and materials management	Shared database for materials and plant	Procure software solution	Create an environmental management information system (EMIS)	Environmental Protection Department	End of 2009	20,000
	Feed all individual requirements under approval notices into one EDP program	Identify alternative solutions	Introduce software for approval deadline mon-itoring	Environmental Protection Department	End of 2009	10,000

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