



ECODESIGN

A Step Towards Sustainable Development

Final Report from the Swedish EkoDesign Project 1998-2000

Blueair Coffee Queen Fagerhult Gunnebo ISKU KonfTel
Kron Mora Nola Norsjö Primus RagnSells Swepac

PROJECT LEADERS



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We can cut environmental impact by half

Industrial design is a powerful tool in the struggle to save the environment. Previously the focus was on emissions, packaging and waste sorting. It is now clear that an environmental approach must originate at the drawing board. Once a product leaves the factory it is too late.

Environmentally conscious product development, ecodesign, is a method to reduce the environmental impact of products by improving form and function.

Through the development of new goods and services, as well as modifying existing ones, it is also possible to strengthen the competitive position of a business. Our major corporations have recognized this. However, to encourage our small and medium-sized enterprises to begin adopting this approach demands good examples. Such examples must represent a working method that also contributes to the development of the company while benefiting the environment.

Launched in 1998, EkoDesign Sweden was a three year national project initiated the by Swedish Industrial Design Foundation and funded by the National Board for Industrial and Technical Development (Nutek), the Ministry of Industry and Commerce, the EU Small Enterprise Ini-

tiative and the participating companies.

Eleven smaller and two larger companies, assisted by specially trained industrial designers and environment specialists, have studied and adapted their products and working methods from an environmental perspective.

The aim of the EkoDesign project has been to reduce the overall environmental impact by 50 percent, during production, when the product is used and when its service life is at an end.

We achieved this goal.

The project demonstrated the enormous potential for foresighted companies who seek to cut costs through more efficient material utilization, products that are easier to assemble, weigh less, require less packaging and so forth.

We place great faith in the innovative skills and business acumen of Swedish companies. Through good examples we hope to continue the drive towards a sustainable society.

Read on and be inspired!

Christer Ericson
Hans Frisk
Swedish Industrial Design Foundation

Ecodesign...

- *Strives towards a sustainable society*
- *Product development with attention to the environment*
- *Employs the best available technology*
- *Produced by specially trained industrial designers*
- *A process for continual improvement*

Product development and design are important building blocks when we together are to create an environmentally sustainable society. If we learn to think of tomorrow's in environmental terms at the drawing board then we have made a major step in the right direction.

EkoDesign Sweden was a national pilot project for environmentally sustainable product development. Thirteen companies, assisted by specially trained industrial designers and environment specialists, have studied and adapted their products and working methods.

The objective was to stimulate development among small and medium-sized enterprises by creating and presenting good examples from which others can learn.

Inspiration for the project originated in Holland where a number of successful ecodesign projects have been conducted in recent years. The Dutch experience has served as a foundation for the structure and execution of the project.

Lifecycle analysis (LCA) was used to evaluate sub-projects. This method makes it possible to measure a product's total environmental impact, during production, when the product is used and when its service life is at an end.

The results show that aim of the project, to reach Factor 2, i.e. reduce environmental impact by 50 per cent, has been achieved.

One can also confirm that most of the companies involved have adopted sustainable product development methods and intend to continue to apply them. Several companies have also implemented environmental management systems.

The results of EkoDesign project form the basis for a continuation that was launched during the autumn of 2000.

The approach is to begin with a defined function instead of an existing product or service.

What demands, requirements, limitations and desires does this product satisfy? Can this be achieved in some other, more intelligent manner?

Through the satisfaction of functional requirements using fewer resources and with greater energy efficiency, without blindly applying current solutions, it should be possible to achieve Factor 4-6.

The EkoDesign project, run from 1998 until the spring of 2000, was financed by the National Board for Industrial and Technical Development (Nutek), the Ministry of Industry and Commerce, the EU

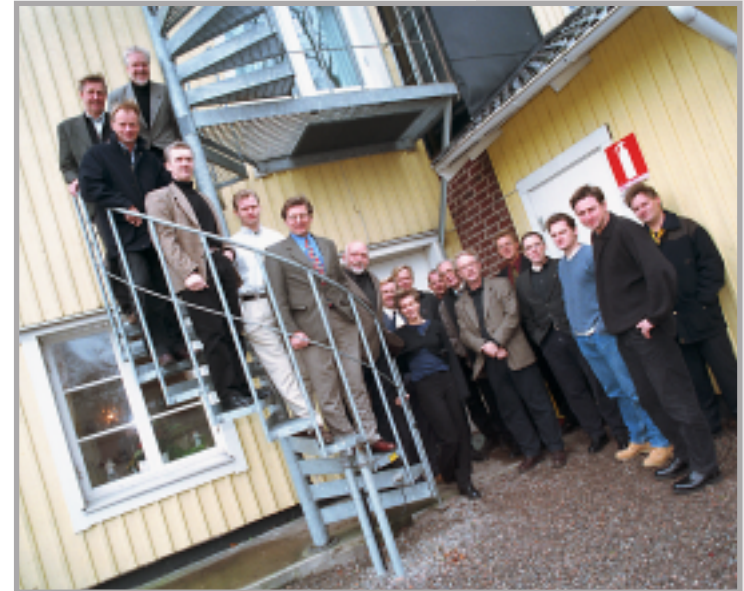


photo: Pekka Narvá

EkoDesign project participants met to exchange experience at Marsviken near Nyköping in the autumn of 1998.

Success Factors

- *Committed companies*
- *Industrial designers*
- *Environment specialists*
- *Network meetings*
- *Media plan*
- *Education of designers and companies*
- *Support to companies and designers*
- *Dissemination of results*

Small Enterprise Initiative and the participating companies.



Sustainable Product Development, SPD



Ecodesigners from left: Jonas Torstensson, Tord Berggren, Peter Nordgren, Jonas Lindblom, Olle Lundberg, Johan Larsson, Lotta Hernek and Thorulf Löfstedt together at Djuröbadens pensionat outside Stockholm fall 1999.

Photo: Pekka Närvä

Increasing numbers of companies are investing in environment-friendly production processes. However, to achieve the goal of sustainable development also requires that the products themselves must satisfy environmental objectives. Environmentally adapted products are considered to be one of the fastest growing lines of business and there is, without question, enormous development potential for foresighted companies.

The Swedish National Board for Industrial and Technical Development (Nutek) has initiated a program for sustainable product development (SPD). The objective is to develop tools and methods within the field of SPD for small and medium-sized enterprises and thereby strengthen their competitive position and contribute to the transition to a sustainable society.

EkoDesign Sweden

One of the sub-projects within SPD, which also served as an important source of inspiration for the project as a whole, was EkoDesign Sweden. It was a national project launched by the Swedish Industrial Design Foundation with support from the Ministry of Industry and Commerce, Nutek, the EU Small Enterprise Initiative and the participating companies.

The objective of the EkoDesign project was to stimulate SPD among small and medium-sized enterprises by creating and presenting good examples from which others can learn. The goal was to enhance the expertise within the field of

ecodesign among industrial designers as well as small and medium-sized businesses. Another task was the dissemination of knowledge to other elements in society, such as financiers, politicians, the media, purchasers, the education system and other organisations that influence public opinion.

From 1998 until the spring of 2000 thirteen companies, supported by industrial designer and environment experts, have developed new, sustainable products.

Why designers?

International experience has shown that industrial designers play a central role in sustainable product development. There are a number of reasons:

- They are professional product developers.
- They work systematically and employ methods to analyse and co-ordinate complex relationships.
- The design profession has historically been at the forefront in the application of humanistic aspects in industrial production.
- They are particularly skilled in, e.g. using visualisation to co-ordinate integrated product development where several parties are involved.
- They are particularly suitable contributors in the promotion of products.
- Their training and professional role encompasses a holistic view of the product and its production/use.

SVENSK
INDUSTRI
DESIGN

Principal:

Swedish Industrial Design Foundation (SVID)

Reference Group:

- Carl-Hugo Bluhme, SVID board member
- Gabriel Brånby, Gränsfors Bruk
- Hans-Olof Franzén, ALMI Företagspartner, Jönköping
- Johan Larsvall, Umeå Institute of Design
- Lennart Lundh, Laxkroken AB
- Göran Svensson, Miljökompetens
- Bengt Tafllin, Envirodesign AB
- Peter Wenster, the Swedish Association of Local Authorities

Project Leaders:

Christer Ericson and Hans Frisk, SVID

Project Duration: 1 January 1998 - 1 June 2000

Project Cost: SEK 4,5 million

Financing (SEK):

NUTEK 2.5 million, Ministry of Industry and Commerce 1 million, SVID 380,000, EU Small Enterprise Initiative 72 000. Furthermore, the participating companies each contributed 50 000.

Participating Companies:

- Blue Air AB: Air purifiers
- Coffee Queen AB: Coffee dispensers
- Fagerhults Belysning AB: Lighting fittings
- Gunnebo Entrance Control AB: Security gateways
- Isku Svenska AB: School and office furniture
- Konftel Technology AB: Telephone products
- Kron International AB: Washing and cleaning equipment
- Mora Armatur AB: Heating, ventilation and sanitation products
- Nola Industrier AB: Products for public environments
- Norsjö Mekaniska AB: Petrol and electrically powered mopeds
- Primus AB: Liquefied petroleum gas products
- Ragn-Sells Elektronikåtervinning AB:
Electronic component recycling
- Swepac International AB: Land compactors

The Swedish Industrial Design Foundation (SVID) works on behalf of the Ministry of Industry and Commerce to advance and spread knowledge of industrial design in the Swedish business community. The aim is to increase awareness among companies of the significance of industrial design as a weapon in competition and the need to integrate it professionally in business operations.

SVID's conducts its operations in two fields: Contact & Counselling plus Knowledge & Expertise Development.

The purpose of Contact & Counselling is to provide businesses with practical advice in industrial design questions. Qualified design companies are introduced to industrial enterprises that can then further develop their products. SVID has also developed a method used by designers to analyse a company's need for design support.

Knowledge & Expertise Development aims to support education and research in the field of industrial design and to increase understanding of design's importance among key professional groups, e.g. technicians, economists and marketers.

SVID also undertakes to strengthen the design companies to make it possible for them to cover the clients' entire, long-term need for design services. Another important task is teaching industrial enterprises how to manage the purchase of design services. For a small organisation like SVID it is vital to maintain close contact with the surrounding world and a carefully composed and active network is a prerequisite. SVID has an extensive international network of contacts that includes, e.g. businesses, organisations, public authorities, universities and design associations.

The Royal Swedish Academy of Engineering Sciences, Nutek and the Swedish Society of Crafts and Design established the Swedish Industrial Design Foundation in 1989. The head office, with information and administrative responsibilities, is located in Stockholm at Storgatan 19. There are regional offices staffed by design advisors located in Härnösand/Umeå, Stockholm/ Bångbro, Göteborg and Växjö/Kalmer.

Pilot projects like EkoDesign are of great importance in promoting development towards a sustainable society.

Today, environmental work is characterised by resource conservation and a cyclical approach. The Swedish government has adopted fifteen environmental goals containing measures to reduce all of the usage that has a major impact on the environment. The aim is to achieve an environmental society in Sweden where there is equilibrium between the resources used by society and those returned.

No waste exists in this ideal society. Instead, all exploited resources and material are either reused or transformed into new resources.

Naturally it will take a long time before we reach the stage where we can reuse all of our waste and not draw on the earth's resources. However, it is now high time to get this work underway and apply existing expertise and resources to adapt today's products to this new, environmentally sound approach.

Indication of environmental impact

In this work the role of designers and engineers is central. There are opportunities right from the design stage to adapt tomorrow's products and contribute to the formation of an ecologically sustainable society.

In project form, EkoDesign has succeeded in attracting thirteen companies who, assisted by designers, have been willing to test the use of an environmentally sound approach in the de-

sign of new products. This is a very difficult task as there are few accepted guidelines and at present the products tend to be more expensive without offer any actually competitive advantages since consumers assign a higher priority to appearance and cost than to the environment.

To support the product design process the groups were offered education in ecodesign where lifecycle analyses (LCA) were introduced with the assistance of Eco-IT and SIMA-Pro software.

These programs are not fully developed and can only provide an indication of environmental impact. At this stage the methods are more appropriate for the comparison of different materials rather than estimating the overall environmental effect. The software tends to overestimate the environmental impact of the operation of products that consume energy and underestimate the environmental effects of the transport system.

Three-step analysis

In the conclusions from the first round of the EkoDesign project one can discern a degree of disappointment with the LCA tools as guides in environmental work where the outcome has perhaps not provided the anticipated information. The environmental impact of operation seems to have been the dominant factor.

In my view it is more appropriate to divide the analysis into three steps where one compares production and logistics, then lifecycle and finally the degree of recycling possible.



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Photo: Rolf Eklund

To achieve a sustainable society the choice of materials in manufacturing must be directed towards minimal environmental impact in production and destruction even if the impact of operation is much greater.

Products

Fagerhults Belysning AB: Lighting fitting

The project group focused their environmental work foremost on power consumption during the lifetime of the lamp and reached the conclusion that a 13-watt fluorescent tube was more environmentally friendly than both halogen and conventional bulbs despite the fact that the tubes contain mercury.

Here we have a typical example of the positive aspects of the LCA tools since one can compare energy consumption with undesirable substances. LCA provides clear data indicating that the reduction in energy consumption is significantly greater than the environmental effects of mercury.

Also, in this case, the impact of manufacturing and transportation were marginal compared with energy consumption. Enamel paints and other material choices were not commented on in the study.

Kron International AB: Dish brush and mop shaft

This was a very successful project where it is demonstrated that recycled plastic is a good production alternative. Recycled plastic results in a

significantly lower environmental impact than new plastic when manufacturing both handles and brush heads.

Surprisingly, aluminium could not compete with the plastics according to the LCA. Aluminium is a material that exists in the earth's surface and is already ecologically sound.

Unfortunately, a considerable amount of energy is required to produce pure aluminium. On the other hand, it is easy to recycle.

Coffee Queen AB: Coffee brewer

This project divided the environmental assessment work into three phases. The environmental advantages of aluminium and plastic with respect to weight and recycling were discussed during the manufacturing stage. If recycled material is used the environmental impact is drastically reduced. It is important to bear in mind however that recycled plastic must not come into contact with foodstuffs, i.e. water.

As in the majority of the projects the environmental impact is greatest during use. The solutions to cut power consumption are commendable. To increase the degree of recycling the plastic components weighing more than 5 grams should be marked.

Primus AB: LPG cylinders

Two important conclusions that promote environmental thinking are presented in this project's report and they have been reached with the help of an LCA tool. The first conclusion is that the mixing of materials should

be avoided to the greatest possible extent.

Combining steel and aluminium renders material recycling more difficult and results in the disappearance of aluminium which is otherwise easy to recycle. Given the quantity of energy required in the production of aluminium this is a waste of resources.

The second conclusion is that the environmental impact is most often lower when reusing product material than when the same material is recycled. In other words, a deposit system, with refilling at not too great a distance, results in a lower environmental impact than the melting and new production of LPG cylinders.

Konftel Technology AB: Conference telephone

This project, which I have followed in detail throughout its duration, has been focused on environmental adaptation as far as possible under given economic constraints. A comparison was made between an older product and the new one and the aim was to reduce the environmental effects as much as possible.

LCA was used for comparison. This tool provided clear indications that the power consumption during the period of use was the dominant environmental factor. What LCA does not take into account is that the heat produced cuts heating costs. It is therefore perfectly in order to also consider smaller environmental effects.

Product weight and the packaging design are considerably more important factors than LCA indicates and

can also cut costs for the company. Despite greater functionality the new product's power consumption did not rise. This is also a factor that is difficult to measure using LCA.

In my opinion the environmental adaptation of this product has reached the limit under the given circumstances. When this product is to be superseded one can imagine that its successors will have, e.g. a casing of recycled plastic and the cables to peripheral equipment will be replaced by radio waves. It is however too early to introduce these alternatives as the requisite technology is not yet fully developed.

**Mora Armatur AB:
Water faucet**

This project should be divided into three phases for the evaluation of environmental impact. Manufacturing, use and recycling. It has been confirmed that chrome plating as the surface finish results in a lower impact than enamel paint since the product has a longer service life. The final finish was not commented on in the report.

The most important characteristics for a water faucet are that it does allow more water to run than is necessary and that it does not begin to leak.

**Norsjö Mekaniska AB:
Electrically-powered moped**

A vehicle powered by electricity always has advantages over a petrol-driven vehicle. The LCA indicated that even if the electricity was generated by a coal-burning power station

the environmental impact was still only half of that of a petrol-driven vehicle. What the LCA does not reflect in a fair manner is the impact of the vehicle's production. The environmental impact of lead accumulators and the design of the frame are important parameters in the identification of the best manufacturing method.

In conformity with the goal of a sustainable society it has been shown that aluminium is superior to plastics. Unfortunately, it is also much more expensive. Recycled plastic has only half of the environmental impact of new raw material and in the future the electric moped will presumably be manufactured using recycled plastic.

**Swepac International AB:
Land compactor**

The comments in this case are the same as for the electric moped. Since no LCA has been presented I cannot assess the end result.

**Isku Svenska AB:
Computer workstation furniture**

Here is a typical example of a product where the production phase has the greatest environmental impact. The LCA tool can provide a clear indication of the best material choices and surface finishes. One can see from the calculations that water-based paints and powder paints clearly improve results.

In ten years, when the MDF boards are worn out and are to be replaced, they will probably be replaced by recycled plastic.

**Nola Industrier AB:
Solar-powered lamp for roads**

This product's environmental impact is less than conventional lamps since it is solar-powered. The LCA tool was not used for evaluation. Instead, they reasoned their way to the best solution using common sense.

The costs are comparable to the costs for conventional lamps. There was no discussion concerning the choice of plastic for the posts. It would be appropriate to use recycled plastic for manufacturing the posts.

**Ragn-Sells
Elektronikåtervinning AB:
Recycling of computer monitors**

In this project the LCA tool was used backwards. There is a recycled glass fraction that can be used instead of concrete or newly produced glass.

Unfortunately, the LCA tool is not sufficiently well developed in this field to be able to provide clear guidelines other than the fact that the presence of heavy metals in the glass increase the environmental impact. That is metals are so strongly bound to the glass that they do not effect the environment is not taken into consideration in the LCA.

//Stellan Marklund



Holland is a leading nation in the field of sustainable product development and ecodesign has successively become an accepted science. The technical university in Delft has an ecodesign department and professorship. For these reasons it was natural for the EkoDesign project to make use of the knowledge and experience offered by the Dutch.

It was also important to link the project to international undertakings since a number of the participating Swedish companies provide products and services to customers abroad.

Before the project was launched the project leaders, Christer Ericson and Hans Frisk together with industrial designer Hans Sjöholm visited Holland to meet with representatives of government departments, businesses, researchers and other specialists in the field of ecodesign. Geert Timmers, industrial designer and ecodesign expert, has also been associated with the project.

EkoDesign Sweden has also spread its experience beyond the Swedish borders and the project leaders have, for example, presented the project at several conferences in Norway.

The EkoDesign project leaders participated in the O2 organisation's workshop for sustainable development in Rotterdam along with 200 others with an interest in the environment. In the foreground is Jaqueline Ottman from New York.

www.o2.org



Geert Timmers

TNO Industrie, Delft, Holland

Kron International AB

Unique dish brush conserves resources

Kron International AB has developed a dish brush using recycled plastic that reduces the environmental impact by 40 percent and a mop shaft of recycled plastic instead of aluminium which cut environmental impact by 90%.

Managing Director
Dick Ahlberg:

”Environmental thinking has become a natural part of our operations”

Kron International AB is a wholly Swedish-owned company with that conducts product development, manufacturing and marketing from its head office in Vinslöv in southern Sweden.

Within the framework of the EkoDesign project Kron has developed environmentally adapted dish brushes and floor mops. Previously the company did not have any natural approach to advance the development of more environmentally sound procedures and products aside from an environment policy from 1997.

The processes had been sporadic and there was no strategy for the provision of information to staff, customers and other interested parties.

The aim is to be the leading company in their line of business with respect to environmentally adapted product development and the use of the best available environmental technology within production, packaging, transport etc. It is also important to raise the level of environmental consciousness among all employees and thereby create the prerequisites for long-term sustainable development taking the environment into consideration.

To achieve improved environmental values that actually functions in production, to cut resource utilization and improved efficiency in the complete flow of goods were other goals. Implemented changes are not allowed to result in other negative effects on the environment or for the staff such as more difficult handling or unpleasant odours.

The goal of the EkoDesign project has been to cut the consumption of the plastic raw materials. This can be done

by reducing the weight of the products without compromising the feel of high quality. Another means is to study the possibility of exploiting used plastic.

Utilization of the existing machinery was the starting point.

Kron has also reviewed the possibility of using other materials with a lower environmental impact.

Among the questions posed are:

- Is there a material that can be composted and works in the machines?
- Is the staff interested in changes?
- Is it possible to generate enthusiasm for the project among the staff?
- Can it affect the current working environment?

Not only the products are to be scrutinized but also packaging, packing materials etc.

What has been done?

Through contacts with the Royal Institute of Technology and Professor Sigbritt Karlsson the company has obtained information concerning material alternatives and this has been a great help.

Production tests were conducted with the following plastic materials:

- *Biodegradable plastic (comment: weight would be too heavy).*
- *Recycled plastic (comment: functioned satisfactorily).*

➤ *Recycled plastic mixed with 30% wood chips (comment: results in a strong burnt smell that persists for a long time).*

➤ *Environmental impact assessment calculations were made for the products. The software used were the LCA tools Eco-IT and SIMA-Pro.*

Several different products were tested.

Today Kron is expending great effort in its environmental work. Through its involvement in the EkoDesign project the company has sought answers to the following questions:

1. Is it possible to use recycled plastic in production and also recycle Kron's own products?
2. What alternatives to today's plastics are available and how does wood compare with plastic from an environmental perspective?
3. Is it possible to use less material and maintain product quality?

What has been achieved?

To reduce the consumption of plastic Kron has developed a dish brush, Klick, with an exchangeable head that clips onto the handle. It was introduced to the market in 1999.

Keeping the handle and only replacing the head saves 55 percent of the plastic compared with conventional models.

If an average consumer uses four re-



EKODESIGN

KRON®



Photo: Pekka Narva

fill heads per handle we save 60 grams of plastic compared with purchasing four conventional brushes. If half of the production constituted the Klick dish brush it would mean a saving of 22.5 tons of plastic annually (1.5 million units x 60 grams).

The goal is that half of all brushes sold in five years will be the Klick model.

The second product, a floor mop for professional cleaners, is under development. Instead of aluminium Kron uses recycled polystyrene that cuts the environmental impact by 90 percent

according to the LCAs. (Environmental value 6089-635 = 5454, i.e. 90%). It is to be possible to recycle the shaft via plastic recycling.

What's next?

By consciously questioning material choices and staying up-to-date with developments within recycled plastic and materials that can be composted Kron is in a position to participate and promote development.

The first step is the company's introduction of the replaceable head with

the Klick dish brush made of recycled plastic.

In summary it can be said that Kron has learnt a great deal from its participation in the project. The company has greater environmental awareness that has become a natural part of the company's undertakings. Sustainable product development is a guiding light and will certainly be a demand in the future.

Environmental care has not only had a positive impact for the environment it has also strengthened the company's position in the market with respect to both retailers and consumers.

COMPANY FACTS

Business:

Dishwashing and cleaning equipment

Number of employees: 46

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Kron's goal is to be the leading company in their line of business with respect to sustainable product development.

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Gunnebo Entrance Control

Security for Entrance and the Environment

The Speedgate security passage from Gunnebo Entrance Control AB consumes considerably less energy than conventional solutions. By having the gate open instead of closed as the normal operating position the power consumption is cut and wear is reduced by about 90%.

Managing Director
Lars Proos:

“Our most successful product launch during the 1990s”

Gunnebo Entrance Control AB is a member of the Gunnebo Group. Operations are conducted via three international divisions and are lead from the head office in Sweden.

The product range includes e.g. turnstiles, entrance gates, rapid passages, rotating gates, security passages and entrance control systems for shops. There are also systems for public transport and sports facilities.

The design task for the EkoDesign project involved revamping the existing Speedgate security system for non-public environments, e.g. offices and banks. The starting point was that the new concept should be smaller, both physically and visually, than its predecessor but still be possible to adapt to fulfil a variety of security levels.

The demand for a range of security levels resulted in a modular approach where different sensors and gate designs could be selected. An additional set of gates could also be added to create a security sluice and the height of the glass doors can be varied to satisfy differing security requirements.

What has been done?

It was necessary to design the new product in a manner that allowed it to easily fit into the two Gunnebo trade names, Italdis and Mayor, but also to some degree it had to be possible to customize within the scope of the design concept. Foremost, this concerned the inserts at the front and on top, i.e.

the interface section, that can be adapted to meet different wishes or requirements (there is a vast array of cards and ticket scanners in a range of sizes and designs).

The design structure also makes it easy to combine colours and materials so that the product blends into its surroundings. Mayor is the Gunnebo line that is to be elegant and a bit trendy. The glass surfaces in this case conceal a complicated structure of sensors and create a more living surface that reflects the surrounding environment.

There are a number of standard colours to choose from.



The concept is based on installing the various mechanisms, e.g. sensors, electronics, card scanners and gate motors, in a simple frame structure. The

framework is then adapted to, e.g. customer specifications.

This system makes it easy to assemble the product and exchange parts for service work as well as facilitating the future separation of materials.

What has been achieved?

The new design concept has resulted in a number of environmental improvements.

➔ *By having the gate open instead of closed as the normal operating position the power consumption is cut and wear is reduced by about 90%. This increases service life and lengthens service intervals.*

➔ *A development that has had a positive effect on the product is the new software for controlling functions which allows the normally closed glass panels to be left open. This saves enormous amounts of energy.*

➔ *Minimized product dimensions and modular construction resulted in lower material consumption and lower weight.*

➔ *Trademark management is done entirely within the scope of the common foundation by simply and easily changing modules and colour schemes.*

➔ *Fewer parts and fewer suppliers result in lower distribution costs.*

➔ *The materials used are to be easy to separate given the demands for service and recycling.*

The fundamental criterion was to abandon the traditional material choice in the industry, stainless steel, which is very energy and labour intensive. Wherever it was possible stainless steel was replaced by other materials.

Polyurethane provides good energy value when incinerated or it can be used as filler in new mouldings according to the Institute for Polymer Technology. From an environmental perspective glass is regarded as a very good alternative to stainless steel.

Electronic components will improve as the use of PLC will be abandoned in favour of standard circuit boards. Other electronic components will also be subjected to a more detailed examination from an environmental perspective.



EKODESIGN

COMPANY FACTS

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Passage control equipment

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Gunnebo Entrance Control is one of the leading European companies providing equipment for entrance regulation and control. The products are designed to satisfy various security requirements and capacity demands.

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GUNNEBO

ENTRANCE CONTROL

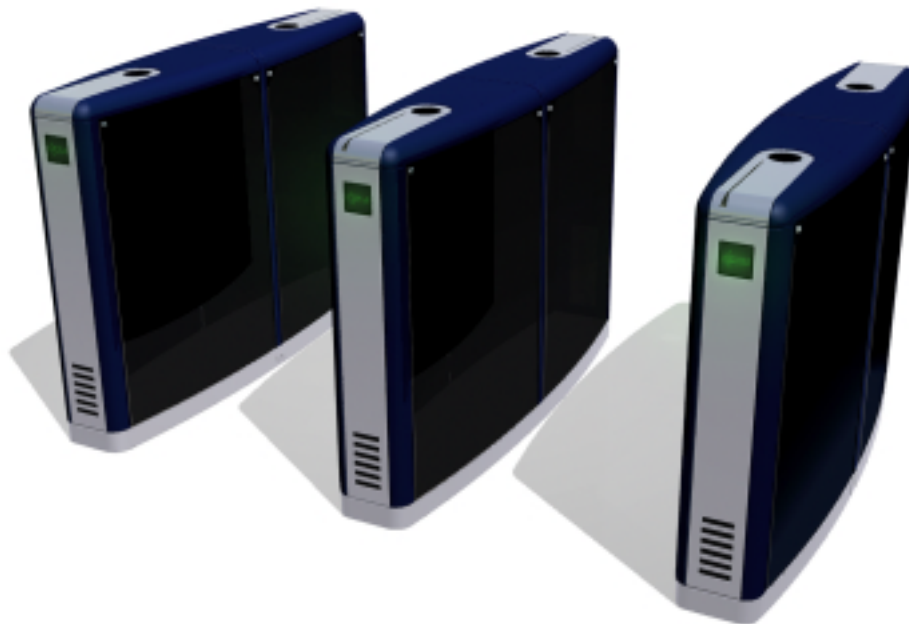


Illustration: Gunnebo Entrance Control

The first prototypes were installed for technical evaluation at the end of May, 1999. Production started in October, 1999.

Speedgate will be adapted to function in a number of environments and be refined further for additional fields of application. The project will also serve as a foundation for future development projects concerning existing and new products of which several will, e.g. be of modular design.

The outcome of the first tests meant

that implementation was possible immediately without any major difficulties and the design itself did not need modification.

The product has been a great sales success. The market's response has been very positive. The product has been developed based on primary principles such as security, environmental consideration, production, installation and branding and the results have satisfied the expressed expectations. The product has also attracted a considera-

ble amount of media attention and received 1999 Excellent Swedish Design Award.

What's next?

The service life is estimated at ten years and all components can be separated. A lifecycle analysis is planned when the opportunity arises.

