AB Bahco Tools: The Development of a Design Strategy at a Tool Company
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University of Lund

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AB Bahco Tools: The Development of a Design Strategy at a Tool Company

Bengt Carlsson, the new managing director of Bahco Tools, was very enthusiastic about the Swedish company’s new, ergonomically designed screwdriver. Very different from Bahco’s old screwdrivers, the Ergo screwdriver had been launched in October 1982 and had just returned from a major success at the annual spring Hardware Exhibition in Cologne, West Germany. It was now the last week in March 1983.

Carlsson and two of Bahco’s managers were discussing the next steps the company should take in view of the Ergo’s success.

“We can’t let the Ergo Screwdriver remain just an ordinary new product. We have to carefully consider how we can utilize its concept not only for a stronger market position, but also to reposition Bahco as a special tool company in the future. So far we haven’t been very successful with our low-price tools. They hurt our reputation more than we realize—in fact, I have just received a report from an American researcher, Mr. Armstrong, about the damage to the user caused by poorly-designed tools. I believe the Ergo screwdriver is the answer to that.”

Claes Claesgård, head of the Scandinavian Sales Department for many years and now marketing director, was somewhat worried about the company’s situation. The market was stagnating, the cheap imports were getting stronger, and Bahco’s low-priced tools were not reaching budget.
“One of the facts we have to recognize is that our old screwdrivers and other hand tools are regarded as commodity products. We have to think about our future marketing strategies.” Claesgård had been instrumental in supporting the Ergo project but wondered whether its full potential for the company would be exploited effectively.

Roine Erkenståhl, communications manager, was concerned that the Ergo advertising campaign and its brochures wouldn’t be enough support for the new product. “If we are going to charge 25% more for the Ergo screwdrivers, we may have to find other ways to show why they are so much better.”

“But the new screwdriver is much better,” Bengt Carlsson declared. “You know that. We have to tell people that this is not an ordinary screwdriver. When they discover that, they will regard it differently than they do their ordinary tools.” Roine Erkenståhl and Claes Claesgård, who had been selling and advertising hand tools for over ten years, looked at each other with some skepticism.

“We have to discuss not only our marketing strategies,” Claesgård reminded his colleagues, “but also our product development strategies. You remember the manufacturing problems we’ve had with the new screwdrivers. To start with, we have to look at how to coordinate design with production before we can make grand predictions about the Ergo line saving the company.”

THE COMPANY
AB Bahco Tools (AB Bahco Verktyg, in Swedish) was one of the oldest manufacturers of tools in Scandinavia. It had its beginning in 1888 with J. P. Johansson, the owner of “Enköpings Mekaniska Verkstad,” a small mechanical workshop in Enköping, a small town about 80 kilometers from Stockholm. As part of his service to farmers in the surrounding area, Johansson repaired their equipment. Because both tools and fittings were handmade, with virtually no standardization, he used a large assortment of wrenches of different dimensions. As the number (and sheer weight) of his tools grew, Johansson began to work out designs for a new tool—the universal pipe wrench—that would solve his problem. This first invention was so successful that he soon applied the same principle to develop the adjustable wrench.1

B.A. Hjort was a Stockholm businessman who owned a tool and machine company in the late nineteenth century. Recognizing the potential in Johansson’s inventions, Hjort obtained sales rights and began a worldwide marketing effort, based primarily in Scandinavia and Europe, through his company B. A. Hjort & Co. The products were sold under the brand name Bahco, derived from Hjort’s initials. In 1916 he bought Johansson’s workshop and in 1954, when it was introduced at the stock exchange, the company was renamed Bahco Verktyg (Bahco Tools).

In the course of the next century, especially during the 1960s and 1970s, Bahco Tools acquired a number of different businesses encompassing such areas as pneumatics, hydraulics, electronics, construction equipment, and industrial automation. By 1981 the Bahco Tools company was just one company in the large, diversified Bahco Group.

Bahco Tools and the Bahco Group
Headquartered in Stockholm. The Bahco Group enjoyed annual sales of approximately SEK 2.2 billion ($432.8 million) in 1981, of which nearly 60 percent was derived from export. The Group employed approximately 9,200 persons, two-thirds of whom were based in Sweden.

AB Bahco Tools’ headquarters remained in Enköping, with subsidiaries in Eskilstuna (Sweden), Denmark, Finland, France, Holland, Argentina, and the U.S. The company employed about 850 people in 1981 and its annual sales amounted to approximately SEK 220 million ($43.3 million), of which exports accounted for approximately 70 percent. (See Exhibit 1 for financial data.) Its largest export markets were Denmark, Finland, Norway, Great Britain, Belgium, Holland, Luxembourg, Italy, and Australia.

Until the end of the 1970s AB Bahco Tools had manufactured both hand tools and power tools. However, as a result of the Bahco Group’s decline at the end of 1979, the power tool business had been spun off into a separate company within

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1 Since 1892, when Johansson received his patent, more than 90 million Bahco adjustable wrenches based on Johansson’s patent had been sold throughout the world. In the early 1980s Bahco sold approximately 3 million adjustable wrenches per year; another 67 million copies were sold throughout the world.
the group. Bahco’s financial problems in part reflected a general recession, but occurred primarily as a result of questionable acquisitions: though companies of strategic market importance were acquired, their economic losses and the associated restoration efforts overtaxed the resources of the Bahco Group.

For example, the acquisition of Record Ridgway in 1981 made Bahco one of the biggest tool manufacturers in the world and was an important step in further strengthening Bahco’s position in the European market. However, Record Ridgway showed heavy losses, and it was not possible to turn the negative cash flow around. It was also very difficult to integrate Record Ridgway with Bahco Tools.

Nevertheless, by 1982 Bahco Tools was one of the two largest hand tool manufacturers in Europe. By 1982 Bahco Tools was one of the two largest hand tool manufacturers in Europe.

Company Organization and Culture

Bahco Tools was organized mainly by functions (See Exhibit 3). Product development had traditionally been part of the manufacturing function, because rational production was fundamental to the company’s volume-based product strategy. Existing manufacturing capabilities had therefore been of foremost consideration in the product development process. In the mid-1970s, marketing director Claes Claesgård, began pushing for more influence. As a result, in 1978 product development moved from the production department to the marketing department. At first it came under market service, which

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<tbody>
<tr>
<td>Million Swedish Crowns (SEK)$^1$</td>
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<tr>
<td>Sales</td>
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<td>Profit$^2$</td>
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<tr>
<td># of Employees</td>
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</tbody>
</table>

$^1$ 100 SEK = $18, $1 = 5.5 SEK

$^2$ After depreciation but before revenues and expenses

Source: Annual Report, Bahco Corporation, 1981

Exhibit 1
was at that time headed by Claesgård himself. Later on, in 1979, market service and product development were separated into two different departments.

**New CEO, New Strategy**

Bengt Carlsson became president and CEO at Bahco Tools in May 1982. Unlike his predecessor, a traditional, financially oriented president of a conservative, traditional company, Carlsson was eager to take risks and to make Bahco Tools competitive on a global stage. Shortly after becoming president, Carlsson reorganized the company, giving the marketing department even more responsibility. Conny Jansson became the manager of the product development department and Bengt Brunsson became the coordinator between Bahco Tools and Record Ridgway, which was renamed Bahco Record Tools.

**The Decision-Making Process**

Two committees—product and marketing—were critical in the decision-making process at Bahco. The marketing committee consisted of representatives from the marketing department (marketing director, advertising, market service, market research) and from the product development department. This committee prepared agendas that were then presented to the product committee. The product committee consisted of the president, the production manager, the marketing director, the product development manager, and experts needed for special areas. The product committee had the formal right to make decisions, since the president was part of it. Both committees met once a month.

Two major institutions were also important for the decision-making process. These were the two conferences that took place every year: the Scandinavian Sales Managers Conference in March, and the Scandinavian Sales Conference (including people from export) in August. At these conferences, decisions that concerned marketing and sales—like new products, advertising, distribution, etc.—were discussed and decided upon. This was seen as a way to integrate the sales organization with the marketing process and to reach decisions that concerned them both.

**The Tool Market**

Before the Industrial Revolution, hand tools were often designed by the users themselves. The development of a new tool took place during work and, in this context, tools were modified and improved upon step by step. Intimate professional knowledge of the working situation was the basis for design. With the introduction of mass production, this was no longer true. Old tools were copied by the manufacturing companies, which slightly modified the old design in order to mass-produce the tool economically, often with the use of new production technology and new materials. The existing solution for the tool remained the basis for the new tools, and so hand tools like screwdrivers and chisels had changed very little over hundreds of years.

Generally speaking, the tool market was national and as well as traditional. Growth in the world market was very slow and was even decreasing for some products, such as the chisel. Many market segments were diminishing due to new production technology (especially automation) or—where hand tools were used for repairs—the diminishing need for repairs associated with improved product quality. Although somewhat sensitive to economic fluctuations, demand was generally stable over the course of a full economic cycle. It was a difficult task to break into a new market and especially to gain a good or dominant position. The interna-
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who used the tools in their work, such as craftsmen in the construction, plumbing, and auto industries, as well as in telecommunications, vocational schools, and so forth. Its success in this segment was due to its reputation for high quality (e.g., in the steel used in screwdriver blades) and its sufficiently broad range of sizes and variety of tools.

Bahco’s market share in the professional sectors in Scandinavian countries was up to 80 percent, depending on product group (See Exhibit 5). Where adjustable wrenches were popular, Bahco led the high-end markets; in Holland, for example, the company was so identified with the product that a “bahco” was an adjustable wrench. In other countries, such as Germany, fixed wrenches were more popular; that market was dominated by German tool manufacturers.

West German firms constituted Bahco’s most important competition in other tools as well. Unlike Bahco, these companies often specialized in one kind of tool—e.g. screwdrivers, pliers, etc.

MARKET SEGMENTS AND BAHCO’S COMPETITIVE POSITION

Bahco Tools participated in three market segments—the professional market, the do-it-yourself market, and the low-priced do-it-yourself market. Bahco enjoyed a dominant position in the Scandinavian countries, and elsewhere its original product, the adjustable wrench, was strong, claiming about 5 percent of the world market. Given the fragmented nature of the market, that share (about three million units per year) made Bahco one of the biggest manufacturers of adjustable wrenches in the world.

The Professional Market

AB Bahco Tools focused mainly on the high-end, professional market segment (80 percent of sales). It targeted customers...
### Exhibit 4 – Bahco’s Main Competitors and Ranking

<table>
<thead>
<tr>
<th>Market &amp; Rank</th>
<th>Adjustable Wrenches</th>
<th>Pliers</th>
<th>Fixed Wrenches</th>
<th>Screwdrivers</th>
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<tr>
<td><strong>UK</strong></td>
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<td>1.</td>
<td>Bahco (S)</td>
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<td>Britool (UK)</td>
<td>Stanley (UK)</td>
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<td>Irega (E)</td>
<td>Wilkinson UK</td>
<td>Bedford UK</td>
<td>Steadfastt (UK)</td>
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<td>3.</td>
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<td>CK (D)</td>
<td>King Dick UK</td>
<td>Spiralux (UK)</td>
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<td>Weralit (D)</td>
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<td>Orbis (D)</td>
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<table>
<thead>
<tr>
<th>Product Type</th>
<th>Market Share and Trend</th>
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</thead>
<tbody>
<tr>
<td>Adjustable wrenches</td>
<td>40-65% uneven trends</td>
</tr>
<tr>
<td>Screwdrivers</td>
<td>8-22% positive trend</td>
</tr>
<tr>
<td>Pipe wrenches</td>
<td>45-85% increasing trend</td>
</tr>
<tr>
<td>Pliers</td>
<td>decreasing on all markets</td>
</tr>
<tr>
<td>Other tools</td>
<td>35-45%</td>
</tr>
</tbody>
</table>

Source: Company documents

Bahco sold 20 percent of their products to “the quality-conscious private customer.”

The Low-Priced DIYS Market

Cheap imports made the growing DIYS market highly competitive. By 1977, competition from Japan, Taiwan, and other Asian countries had become more intense, especially as the quality of their products improved and became competitive with that of Bahco tools. In order to meet this competition, Bahco Tools developed a new program called Handfast (“Hand firm”). The Handfast program consisted of 11 screwdrivers, 5 wrenches, and 6 pliers, with a price 25 percent below that of Bahco’s standard products.

Handfast missed by far, however, its projected budget and sales forecast. At the Sales Managers Conference in 1980, three questions were raised: Was the potential not as large as we calculated? Was the time to reach volume production longer than we thought? Have we chosen the correct marketing strategies? Complaints on the products were few in relation to delivered articles. Many said, however, that they “looked different,” and this caused them to hesitate at the purchase. As explained by Claesgård,

Bahco as a brand name was associated with high quality and therefore high prices. The design of these new tools was different. Instead of forged legs on pliers, for example, we made a construction with bent iron plates. The quality was very good for the needs of nonprofessionals, but many complained that they looked ‘cheap.’ And professionals, who also bought these ‘cheaper’ tools, did not recognize them as ‘Bahco.’

By the end of the 1970s Bahco Tools’ management recognized that the Handfast program was not the solution to the problem of declining market shares. Something else was needed. Even though it was hard to launch fundamental innovations in a field where “everyone knows what a screwdriver looks like,” it was time to rethink the company’s product and marketing strategies.

BAHCO’S PRODUCT AND MARKETING STRATEGIES

Product Development

Under the marketing department only since 1978, product development at Bahco had traditionally involved toolmakers and engineers. Concerned about maintaining its reputation for quality products, the company had invested in laboratory equipment to develop, for example, the steel used in blades and wrenches. The steel was tested to determine which alloy was optimal in the interaction between the screwdriver blade and the screw. If the blade was too hard compared to the screw, the latter could be damaged when torqued.

Manufacturing

Because of Bahco’s market position and reputation, manufacturing had high status within the company. In 1983 the manufacturing operations varied from highly traditional (for the forged adjustable wrenches) to modern, automated systems (for the screwdrivers). The adjustable wrench was produced completely at Bahco plants, but all plastic parts for the screwdrivers were manufactured by a supplier. This meant frequent contacts between the product development department and these suppliers.

Distribution

Ninety percent of Bahco’s products sold in Sweden went through one or more channels before reaching the end user. Only a
small proportion of that went through wholesalers; the rest went to retailers. Ten percent of Bahco’s sales were to major end users—e.g., government agencies, big companies like Volvo and SAAB, etc.

Sales
Because wholesalers, retailers, and purchasing managers in larger companies were regarded as those who decided which products were bought, Bahco’s salespeople normally communicated directly with them.

A NEW ENVIRONMENT
In 1975-76 Bahco began to explore the screwdriver market in order to understand why its high-quality screwdrivers had failed to yield a competitive advantage. German competitors specializing in screwdrivers were doing well with a new design. In Sweden Bahco Tools was the market leader for screwdrivers, but outside Sweden Bahco had low market shares (below 5 percent). Moreover, its volumes were regarded as too low for efficient expansion. In order for Bahco to increase its market and strengthen its position, something had to be done.

The results of the market research, in which a few thousand end users tested and evaluated the existing green screwdriver, were generally very positive. However, it was felt that the screwdriver was slippery and difficult to use if the user’s hand was sweaty or oily. The product development department manager, Bengt Brunosson, was assigned to look at what could be done to the handle. The result of this process was the introduction of a new surface pattern, attained through spark-eroding the pattern into the handle’s mold. The redesigned handle was launched in the market in 1977. It was well received but did not improve Bahco’s sales volume to any great extent. Bahco was therefore open to new ideas.

The Ergonomic Design Group (EDG) Comes to Town
EDG was a design firm consisting of about 11 industrial designers and ergonomics experts located in Stockholm. They provided design consultation to industry and did product design research, funded by such governmental research organizations as “STU” (Swedish Technical Development). Their projects were based on ergonomic studies, in which a working situation was simulated, prototypes of different models were used, and the process then documented by videotape and computerized. After an evaluation of the result, the designers had substantial information for the final design of the product.

In 1978 EDG asked Bahco to look at a new design for side-cutting nippers, based
on a new working principle. When the design was complete, EDG wanted to commercialize it and, for this purpose, they had turned to Bahco Tools. A meeting was arranged during which the industrial designers presented themselves and their company to Bahco. Bengt Brunosson and Conny Jansson (product development), Folke Möller (production manager), and Claes Claesgärd (marketing) were all present. They did not consider the nipper appropriate for Bahco, but they were intrigued by EDG’s design consulting and research methods, and subsequently commissioned EDG to take an objective look at designing an entirely new screwdriver.

THE SCREWDRIVER PROJECT

Preliminary Work: Phase 0

EDG was given no particular concept for a screwdriver and thus could start their work from scratch. Their only charge was to design a tool that would secure a competitive advantage for Bahco. The project was to be carried out in three stages; at the end of each, Bahco was to evaluate the project and decide whether or not to continue with it.

At EDG, two industrial designers, Bengt Palmgren and Hans Himbert, headed the project. For the design research, the ergonomic experts at EDG were engaged in the project. At Bahco, Bengt Brunosson, head of product development, and Conny Jansson, his assistant, managed the collaboration and contacts with EDG.

EDG started the project with a critical survey of existing screwdrivers. For help they enlisted 20 craftsmen who used screwdrivers in their daily work and had different hand sizes. The object of the ergonomic studies was to find a tool that would:

- reduce the force needed
- reduce injuries
- achieve higher precision
- have greater flexibility
- have higher efficiency/speed.

Development: Phase 1

In order to study how each of these craftsmen used screwdrivers in a variety of working situations (e.g., how they gripped the handle), the EDG researchers filmed the craftsmen in action. (See Exhibit 6.) They also interviewed their subjects about their reaction to the feel of the different handles. They measured the force necessary to screw into hard and soft woods. They also observed how the screwdrivers were handled while working at different positions, and made drawings that captured the variations. (See Exhibit 7.)

An analysis of this data revealed significant failings in conventional handle designs. For example, the researchers noticed that the craftsmen really needed a handle that could be gripped with two hands up to 70 percent of the time. They also found that towards the end of the screwdriving...
cycle, the axial pressure increased while the angle of rotation decreased.

EDG’s model shop next made a whole range of experimental handles with different sizes, forms, and cross-sections paired with a variety of surface textures. (See Exhibits 8 and 9.) In order to determine the optimal diameter of the cross-section of the handle, test handles with nontextured surfaces were made with diameters varying from 25 mm to 50 mm. (See Exhibit 9.) Test rigs were used to demonstrate which design was most effective in terms of torque and thrust. Working with the test group, in which hand sizes varied, they determined that the optimal diameter was 35 mm.

The mean value for torque was very close for all the shape variations. However, where maximum force was applied, the test panel found one shape to be the most comfortable. The other test handles ran into problems when pressure was concentrated in the palm of the hand. The measurements also demonstrated that where screw dimensions were large, a two-handed grip significantly improved torque. (See Exhibit 10.)

This preliminary research and development took about two months. During this time the EDG and Bahco project participants met twice a month, with frequent telephone contacts in between. Conny Jansson and sometimes Bengt Brunosson visited EDG’s office and workshop several times and discussed the progress of the study. Hans Himbert and Bengt Palmgren were both very enthusiastic about the result:

“We were sure we had found an optimal solution for the screwdriver handle but we were somewhat skeptical about whether it would be accepted in the market. We were also not sure how conservative Bahco’s management would be and how great their interest would be in a screwdriver design that was such a departure from existing forms.”

EDG had underestimated Bahco, especially marketing director Claesgård, who was very enthusiastic about the new design.

“We needed a different handle in order to compete with the new ones from Germany, and this gave us a good argument. Product development had been transferred to my department, and I saw this as primarily a marketing question. I therefore supported the continuation of the project from a marketing aspect. Bengt Brunosson and Conny had to answer for the technical aspect.”
The next stage in the first phase of development was to find a handle shape that allowed comfortable handling with a two-handed grip. The methodology was the same. (See Exhibits 11 and 12.)

EDG then worked on finding an optimal surface texture for the handle. The tests were repeated with oily hands. A checkered surface gave a 30 percent improvement in the torque and doubled effectiveness of the tool when used with oily hands. The best handle had forty axial grooves with sharp edges. This handle had good friction and at the same time felt comfortable, because the pressure on the palm of the hand was distributed over so many fine grooves that the surface felt smooth. (See Exhibit 13.)

**Refinement: Phase II**

So far the project investment had not been very large—virtually none besides the fee for EDG. But if the project was to be realized, the company would have to develop manufacturing tools, usually a considerable investment. The final decision to proceed to manufacturing belonged to the product committee and to Gösta Höij, president of Bahco at that time. EDG therefore prepared a presentation that was structured to make the logic of the new design obvious. They built up a chain of evidence for the new design by showing the development process and the result. At this meeting, in the beginning of 1979, Claesgård presented his marketing objectives. (See Exhibit 14.) At that time, Claesgård was anticipating a large increase in screwdriver sales in Scandinavia, especially in the AUS (automobile sector). His goal for Bahco was to take at least 50 percent of this market segment and thereby increase the total market share for screwdrivers in Scandinavia.

The result was “S-85,” an integrated marketing plan for which all resources available were to be coordinated. The plan would cover a three-year period beginning in January 1982. The period 1980-1981 was to see nominal efforts, with major investments coming in 1982-1984.

The introduction of the new screwdriver, which was to be Bahco’s competitive edge, was tentatively planned for January 1982. This constituted the main argument for proceeding with the EDG development. According to Claesgård, “the market trend was positive and the potential was very high, so the calculated forecast looked very good.” This was important for Gösta Höij, who, according to Claesgård, was primarily interested in “the payoff time.” Höij and the product committee made the formal decision to continue with the project.

At the conference in March of 1979 Bengt Brunsson informed Bahco’s sales
managers from Denmark, Norway, Finland, and Sweden of the collaboration with EDG and its results. He asked the sales managers if they thought this could be of any interest to the market. The answer was definitely yes.

Extending the Line: Phase III

At this point Bahco also commissioned EDG to test and develop a new design for smaller screwdrivers. This resulted in a series of handles in four sizes—two big screwdrivers with space for two hands on the handle, and two smaller screwdrivers for a one-handed grip, designed with a thinner neck at the lower end. (See Exhibit 15.) Whereas conventional screwdriver handles become shorter as they become smaller in diameter, this was not the case with the new design. Since the size of a user’s hand does not change, of course, when he or she goes from a larger to a smaller screwdriver, EDG saw no reason to go with tradition. Therefore the length of the new handles remained the same, even when their diameter changed. (See Exhibit 16.)

After a meeting with Bengt Brunosson and Conny Jansson, EDG designed a fifth handle in order to fit all the dimensions of Bahco blades.

At the end of 1979 EDG delivered the final design. For them the project had ended. From the design models, Bengt Brunosson and Conny Jansson now started to make drawings for the construction of manufacturing tools. At this point, it would turn out, the real work began.

Realization

When EDG handed off the design to Bahco, no one anticipated the problems that would ensue.

New ISO Standards

For one thing, the International Standards Organization, or ISO, was calling for a new standardization of screws. Bahco had already planned for its “green series” screwdrivers to reflect the new standards. But to implement the change in the new line, perhaps sooner than necessary, might mean further delays. It was particularly difficult to make decisions regarding the new ISO standard because information about the ac-
tual dimensions of the screwdriver tips was only 90 percent available. Moreover, it was unclear whether the market was fully aware of the coming change. When would users have the new screws, and thus need new screwdriver tips? At the Scandinavian Sales Managers Conference in the spring of 1980, Bengt Brunosson wondered whether the introduction of the new screwdriver should be delayed until it could fit the new standard fully. Or perhaps both lines should be changed at once? Some of the sales managers wanted the new line introduced regardless of what would happen with the green series. The group concluded that for the time being, the green series could be kept if it continued to sell well. They believed it was necessary to see how the market reacted to the new screwdriver before a final decision could be made about the old.

Meanwhile, in December 1979, product development received a memo from the material quality department about the need for a steel of higher tensile strength, i.e., a blade strong enough to match the improved torque of the new handles. Different alloys were suggested that might fit the anticipated ISO standards. This information was forwarded to the production department.

**The Handle Molding Tool**

A memo from the export department to the product committee in February 1980 had stated that sales wanted an introduction in August 1981. Due to delays in delivering the new molding machine from Germany, January 1982 was still regarded as more realistic. Kabe, a supplier for plastic parts of Bahco tools, had been commissioned to produce a molding tool and to manufacture the screwdriver handles. To get a smooth surface on the top without any splice that would hurt the palm of the hand, Bahco wanted the forms for plastic molding tools to be in three parts instead of in two parts, as was usual. This turned out to be a major problem, which caused a further delay in the construction and eventually manufacturing of the tools.

Kabe could not do a three-part mold at a reasonable cost. Instead they succeeded in producing a molding tool that would make the splice on the top of the handle only three hundredths of a millimeter high. This was found acceptable by Bahco Tools.

**Pricing**

It was also clear that Bahco needed a policy regarding the price level of the new screwdrivers in relation to the green ones. Not only were the manufacturing costs going to be higher, but the new design offered added value to the customer, in terms both of ergonomics and of better performance. The sales managers felt this justified a higher price, and they believed a maximum of 20-25 percent above that of green series would be acceptable to the market.

**Market Pressures and Marketing Strategies**

Nearly a year had passed and the European tool market was changing. In 1981 Bahco was still market leader for screwdrivers in Sweden and Denmark. However, cheap imports had improved in quality and German manufacturers, with equally good or even better quality, had become especially aggressive. Outside Sweden and Denmark
Bahco’s market shares were not as high and were even decreasing. Bahco was losing ground and wanted to regain these markets and increase its market share.

At the Scandinavian Sales Conference in August 1981 Håkan Norén (export department) expounded on this situation and discussed ongoing problems in manufacturing the new screwdriver. Its progress was now the first priority of Bahco product development. It was time to name the product, among other things. Among the candidates were Ergo 8000, Industri, Excellent, Turno, Black 8000. In the end, a majority supported “Bahco Ergo,” and the company decided to launch it as a protected brand name.

The expectation for growth was high, and the goal was set to achieve market shares of at least 20 percent in Norway and Finland and 30 percent in Denmark by the end of 1984. This expectation was based partly on the introduction of the new Ergo screwdrivers, but relied also on adjustment to new standards, more efficient distribution, intensified advertising, education of salespeople, etc.

**Further Production Problems**

Meanwhile, production problems continued. One involved fitting the handle to the blade. Tests showed that with high pressure on the blade, the fitting cracked. Moreover, the production of the blades in the forge revealed problems with the ears of the blade. The latter problem seemed to be solved at the end of 1981, however.

**Ergo is Launched**

In August 1982, nearly a year later, the date of the Ergo launch was still under debate. Bengt Carlsson, only three months into his new job as head of Bahco Tools, exclaimed in exasperation to Claes Claesgård: “It can’t take four years to develop a screwdriver without introduction in the market when it takes only four years to develop an aircraft!!!” Carlsson’s pressure was welcomed by Claesgård, who was convinced that a Swedish competitor was getting ready to launch a new product. It therefore became clear that an October launching had to be realized, regardless of any remaining problems.

Two months later the Ergo screwdrivers were finally introduced to the market. The launch was backed by advertising campaigns and by brochures with the headline “Power and Feeling” that were distributed to the dealer network. The brochures emphasized the ergonomic aspects of the new tool and the scientific method used to develop the new handles (see Exhibit 17).

Test rigs were set up at Bahco’s distributors, where the customer could test and compare the Ergo screwdrivers with others (see Exhibit 18). Salespeople were equipped with packets of test materials that “proved” the ergonomic arguments.

**ERGO IN THE MARKETPLACE**

As soon as the Ergo screwdrivers hit the marketplace, problems arose with the fitting of the handle to the blade. When the big screwdriver with the heavy blade hung in the display case the blade fell out. This happened in only about 30 instances, but caused much trouble. Bahco had to with-
draw this size and redesign the mechanism for attaching the handle to the blade. “We had to find a solution quickly, and we solved the problem by changing the dimensions and measurements of the torque wings at the upper part of the blade. We had tested the original fitting, but under conditions of pressing the screwdriver towards the screw. Perhaps due to time pressure we had overlooked the possibility of the blade falling out just from gravity,” said Conny Jansson, who was now head of product development.

In December 1982, EDG was awarded the SID (Swedish Industrial Designers) Design Diploma for the Ergo, in collaboration with Bahco Tools. The award was given, according to SID’s announcement, for EDG’s “well-adapted design and method. The problem analysis gave objective methods of measurement that could show the influence of the form and the surface on the torque and ergonomic constraints.”

New claims, however, clouded the otherwise successful launching. Customers called Bahco Tools and claimed that the screwdriver’s handle cracked, when, for instance, it was used as a crowbar. Claesgård sighed. “We have tried to inform customers that this is a special screwdriver, to be used only as a screwdriver, but it seems impossible or at least very difficult to change people’s behavior.”

In March 1983, at the Hardware Exhibition in Cologne, Bahco exhibited the whole development process of the Ergo screwdrivers, with ergonomic tests and results, including the improved results of the two-handed screwdrivers. The reaction of the visitors at the exhibition was very positive and their interest was reflected in the orders made during the exhibition as well as in the press attention following the exhibition.

**Response to Preliminary Success**

In the euphoria after the Cologne exhibition, Carlsson was already outlining a major “Ergo” program that would encompass a whole line of hand tools. Claesgård was very pleased with the results of the exhibition as well, but he believed that Bahco needed to place a priority on getting its manufacturing problems under control and dealing with its somewhat tarnished customer relations. “We have the chance to use Ergo to develop a new marketing strategy. We shouldn’t get hasty, or we’ll ruin our image as a solid, reliable tool company. I think we need to think through several issues very carefully.”