THE DNA OF A DESIGN
When we talk about artists and their tools, we usually mean a paintbrush or a chisel, but a pair of scissors can also be an artist’s tool of choice. At a design conference in Aspen, Colorado in the late 1980s, internationally renowned Italian designers met to talk about Italian design. The virtuoso fashion designer Gianfranco Ferré gave a fantastic presentation on his work. Before the eyes of the audience he created a dress on a model standing on the stage – just by cutting, not sewing a single stitch. The sight of Ferré working with a pair of scissors made a lasting impression. It was like watching a sculptor at work.

> 40 YEARS OLD, these well-known scissors have gone through small but significant changes.

The first change to the original design was made in 1970. The rivet, previously flush with the surface of the blade, was replaced with a rivet with a rounded head. This saved a great deal of post-processing time. The next step was to replace the rounded-head rivet with a flat-head rivet that was not flush; this was because the rounded-head rivet had been found to cause varying quality in the product line. In 1975, bevelled blades were introduced. The cutting angle was also optimized, a cutting angle of 60° having been found both effective and durable.

The greatest change was implemented in 1980–1981 with a complete overhaul of the grip design. The plastic used was optimized so as to make it resistant to dishwashers, autoclaves, UV light, impacts and stress.

In the 1990s, a new production method was developed to minimize the amount of post-production corrections. For example, the plastic ‘heel’ limiting the cutting motion, which had always been trimmed by hand, was eliminated.
WROUGHT IRON did not allow a sufficiently comfortable grip to be made for a pair of scissors. This problem was solved by making the grip in cast brass, which was then joined to the wrought-iron blades. The principles and ergonomics remain the same to this day, although the material of the grip today is light and durable plastic. It is estimated that a tailor in the 19th century had to spend the equivalent of one month’s earnings to acquire a pair of professional-grade scissors.

FISKARS CATALOGUE in the late 19th century: wrought-iron scissors for left-handed use, and professional-grade scissors for tailors and seamstresses for right-handed use.

There is an organic link between fashion and scissors: a pair of scissors is always the tool a designer uses to create the prototype of any given item of costume, even if today the finished products are cut by computer-controlled machinery out of enormous bolts of cloth. It used to be different: in the 19th century, scissors were the only tool available to tailors and seamstresses – and even back then, Fiskars scissors were the best.

When Fiskars updated its production of scissors in the 1960s, it was only natural to build on the company’s successful history. The manufacture of scissors at Fiskars began in the 1830s when the then owner of the iron works, Johan Julin, set up a precision smithing workshop. He recruited craftsmen from England and Sweden, since sharpening scissors and manufacturing cutlery required great skill.
THE DNA OF A DESIGN

THE ORANGE COLOUR for the scissors was a coincidence, not a conscious choice. The foreseen alternatives were carmine, black and green. When the plastic works was making the prototype grip, there was orange dye in the machine left over from the production of juicers. In the final vote, the orange grip defeated the black by nine votes to seven. Today, the orange colour itself is a vital component of the brand. The photo shows the two models that reached the final vote and the handwritten minutes of the vote.

THE JUICER (1965-1969) AND THE COFFEE CUP were already in production when the scissors prototype was created. The orange plastic was thus already in use in the injection-moulding machine.

Design in orange plastic

Fiskars has manufactured ploughs, steam engines and canal locks, mostly for export to St Petersburg, the Baltic States and Sweden. But it is the smaller Fiskars products that people remember, captivated by the beauty of a lemon knife or a pair of sewing scissors. One senses the skill and the craft that has been passed down from generation to generation in the company. The success of the modern Fiskars scissors was no accident. The tailor’s scissors manufactured by Fiskars in the 1830s were a natural foundation to build on.

What was new in 1967 was not that the scissors should be comfortable to use – they already were – but that they should be made in plastic and metal, instead of combining a brass grip with steel blades as in the 19th century.

The first thing that comes to mind when thinking about Fiskars today is probably the orange plastic grip. Orange had not been the obvious choice though. In the mid-20th century, Fiskars was a diverse company, and its management had a keen interest in the potential of a new material, plastic. In the early 1960s, Fiskars produced a white-and-orange juicer which was written up in innumerable design publications and which became a design icon when industrial design was finally given a department of its own at the Ateneum Art Museum in 1961.

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Quickly produced wood models remain the most useful basis for design work.

**Success story of the scissors**

Orange-grip Fiskars scissors for various uses have been on the market for 40 years. This is a long life span for a product, especially when it is not a retro product but one that is being constantly developed. It is a product which is of optimal quality and which, according to the notion of Olavi Lindén, chief designer at Fiskars, is always being improved. Product development is ongoing, and new technology is being applied. New ideas are introduced, and it is a long process for even the smallest idea to be put into production.

It took a great deal of innovative thinking before the first generation of the modern Fiskars scissors saw the light of day. Even though the management of Fiskars understood the importance of design, and even though the Fiskars cutlery designed by Bertel Gardberg received a medal at the Milan Triennale in 1957, the precision smithing workshop only accounted for one per cent of the company’s turnover in the early 1970s. By today, Fiskars has sold almost a billion pairs of scissors worldwide.
The company took an important step in the late 1950s. The then managing director, Fjalar Holmberg, was interested in new materials and products. He asked Olof Bäckström to design a more ergonomic scissor grip in plastic. Bäckström was trained as an electrical technician and was in charge of the company’s shaft production, but he was also interested in design and culture.

Development of methods for cutting the scissor blades also continued. A decisive move was to invest in a new cutting machine which enabled precision tooling of all facets of the scissor blades to high requirements of tolerance and geometry demanded of quality scissors. This development was based on systematic development efforts where the plant manager and his co-workers were key players. The combining of plastic and steel in the injection-moulding process was also new. The new scissors were comfortable, effective and practical, and also competitively priced; and the rest, as the saying goes, was history.

From idea to production

A NEW THREE-DIMENSIONAL MODEL is being studied at the product development department. Product development is a process that requires many experts, especially since the production tools are designed at the same time as the product. Although many of the prototypes are hand-made, CAD is used for the final design work. Stereolithography is used to produce plastic prototypes.
TEST CUTTING OF FABRIC has been used as a product quality control measure for a long time at the Fiskars scissor plant and still is. If necessary, the cutting can still be adjusted at this stage by tightening the rivet or by trimming the blades. If nothing else helps, the item is sent to be inspected more closely, and in the worst case it is scrapped. The factory does not produce second-quality items.

As late as in the 1970s, production began with wrought scissor blades which were then smoothed to their final shape. Later, precision die-cutting from steel sheets made to measure was introduced. In 1975, the scissor blades were bevelled to make the scissors look better, but also to improve their cutting capability. Plastic has a number of good properties: it is chemically durable, it can be washed in a dishwasher, it is impact-resistant and can stand stress. The changes that have been made to the design over the years are mostly of a technical nature design-wise or production-wise; all unnecessary post-production work has been essentially eliminated, to the extent that post-production work only amounts to ten per cent of what it was in the 1960s. The shape of the grip has been modified to match the ergonomics of the hand better. Today, each and every pair of scissors is tested for fabric cutting before it leaves the plant. The scissors are first tested in the air, this must produce a specific sound. It is easy to recognize a genuine pair of Fiskars scissors. When using these scissors, the cutting point moves along the blade all the way to the tip.

**Surprising success**

A trial batch of 1,000 pairs of scissors was produced in 1967, and these were sold out in a few weeks at the Asko furniture shop in Stockholm. In the following year, a batch of 30,000 was produced, most of which was exported.
The production of these amazingly successful scissors at Fiskars began on a small scale. Fiskars bought a plastic factory in Tampere, where the blades were transported to have the plastic grips moulded directly onto them. Demand prompted an expansion of production, and a new plant with production lines and injection moulding machines was built at Fiskars. Now the entire process was under one roof, but the exports were skyrocketing, and the company had to begin planning for new production facilities almost immediately. The plant at Billnäs, on the border between the municipalities of Pohja and Karjaa, was inaugurated in 1973 and has later been expanded to accommodate production lines for gardening tools, for example.

The USA was determined to be the largest market for Fiskars scissors, and plans were accordingly made to build a plant in the USA itself, using the technical competence acquired at Billnäs. An almost exact copy of the Billnäs plant was built in Wausau in Wisconsin in 1978. The aim was to achieve a production capacity of close to 3 million pairs of scissors per year, but it soon turned out that there was scope for a far more ambitious output.

UNTIL THE 1830S, Fiskars was an iron works. When John von Julin bought the iron works, he changed its focus from the production of iron raw material to manufacturing. He built a precision smithing workshop in 1832 and a few years later Finland’s first machinery workshop. This photo from the 1860s shows the precision smithing workshop, which originally was a single-storey brick building and which in 1851 was given a second storey in wood. The building burned down in 1888 but was built again in red brick in the same year. It has remained virtually unchanged since then.

THE STOCKMANN DEPARTMENT STORE in Helsinki has always sold scissors produced in various countries. This product catalogue from 1915 demonstrates that prices reflect the quality of the scissors: customers were prepared to pay half as much again for Fiskars scissors as for, say, Solingen scissors from Germany.
Function meets geometry

Olavi Lindén joined Fiskars in 1971 as head of department in scissors production, and he continued product development on the scissors. The first left-handed pair of scissors, a mirror image of the right-handed one, was designed in 1972. Fiskars had actually made left-handed tailors' scissors in the 19th century, but in the 1970s it became the first company to mass-produce ergonomically correct left-handed scissors, which have red grips instead of orange ones.

For Olavi Lindén, function is everything and form is never allowed to upstage it. The elements of function, technology, material choice, shaping and so on can all be grouped under the heading of design. Olavi Lindén often talks about how important teamwork is, and at Billnäs Fiskars has achieved a seamless design team which works closely together with the technical development people and the various units in the production process.

Design is a long process with a lot of people contributing. Through the natural development process, the scissors with the orange grips have become a symbol for good design and functionality.

The Fiskars scissors show the DNA of a design.
Production of the scissors with plastic handles was begun at Fiskars in 1967. Today, the building houses exhibition space, a design shop and a restaurant.

Increasing demand led to the construction of yet another plant in 1973, this time at Billnäs 10 km from Fiskars Village. Since then the factory has been expanded in 1988, in 1999 and in 2006.
FISKARS SCISSORS
FROM TWO CENTURIES
1. Rubber scissors, 1924
2. Cigarette scissors, 1897
3. Embroidery scissors, 1897
4. Plaster scissors, 1914
5. Paper scissors, 1897
6. “Classic” scissors, 1967
7. Paper scissors, 1924
8. Tailors’ scissors, 1880
9. Lamp scissors, 1880
10. Bag scissors, 1897
11. Tailors’ scissors, 1880
12. Ladies’ scissors
13. Linen scissors, 1897
14. Universal scissors, 1960
15. Shop scissors
16. Tailors’ scissors

ERGONOMICS is an important point of departure for Lindén’s pragmatic approach. He also likes to turn things upside down. Old inventions acquire new significance when one looks at them from a different viewpoint. Nature is an unbeatable builder and designer. Lindén is fascinated for instance by the Black Skimmer (Rynchops niger), a bird which flies low, dragging its long lower beak in the water. When a fish happens along, the beak catches it. Lindén says: “If you don’t put your beak in the water, you don’t catch any tidbits.” This is the third factor in his work: planned coincidence.
Effect of cutting angle on cutting capability

Opening angle $\beta$ and cutting capability

THE FINGER GRIP
For guiding strength, the fingers must have support on their upper surface. The finger grip on that side must be well balanced and rounded to distribute the load. This is important because the skin on the top of the fingers is not thick or pressure-resistant.

THE THUMB GRIP
The thumb hole supports the base of the thumb for heavy cutting. The supporting surface against the skin is as large as possible to reduce load and potential damage. In the cutting action, the fingers exert rotary pressure against the finger holes, opposed by the steady pressure (F) of the thumb on the thumb hole.

THE ERGONOMICS OF SCISSORS

Fiskars Orange®
The orange colour was arrived at partly by chance when the scissors were designed in 1967 but is now an important part of the world-renowned Fiskars brand. The colour itself, Fiskars Orange®, was officially registered as a trademark in Finland in 2003.
METAL IS A VALUABLE RAW MATERIAL

The scissor blades are die-cut from a steel sheet as economically as possible.
The hole is cut first, guiding the precision cutting.
All extra material is recycled.